NIWeek 2004
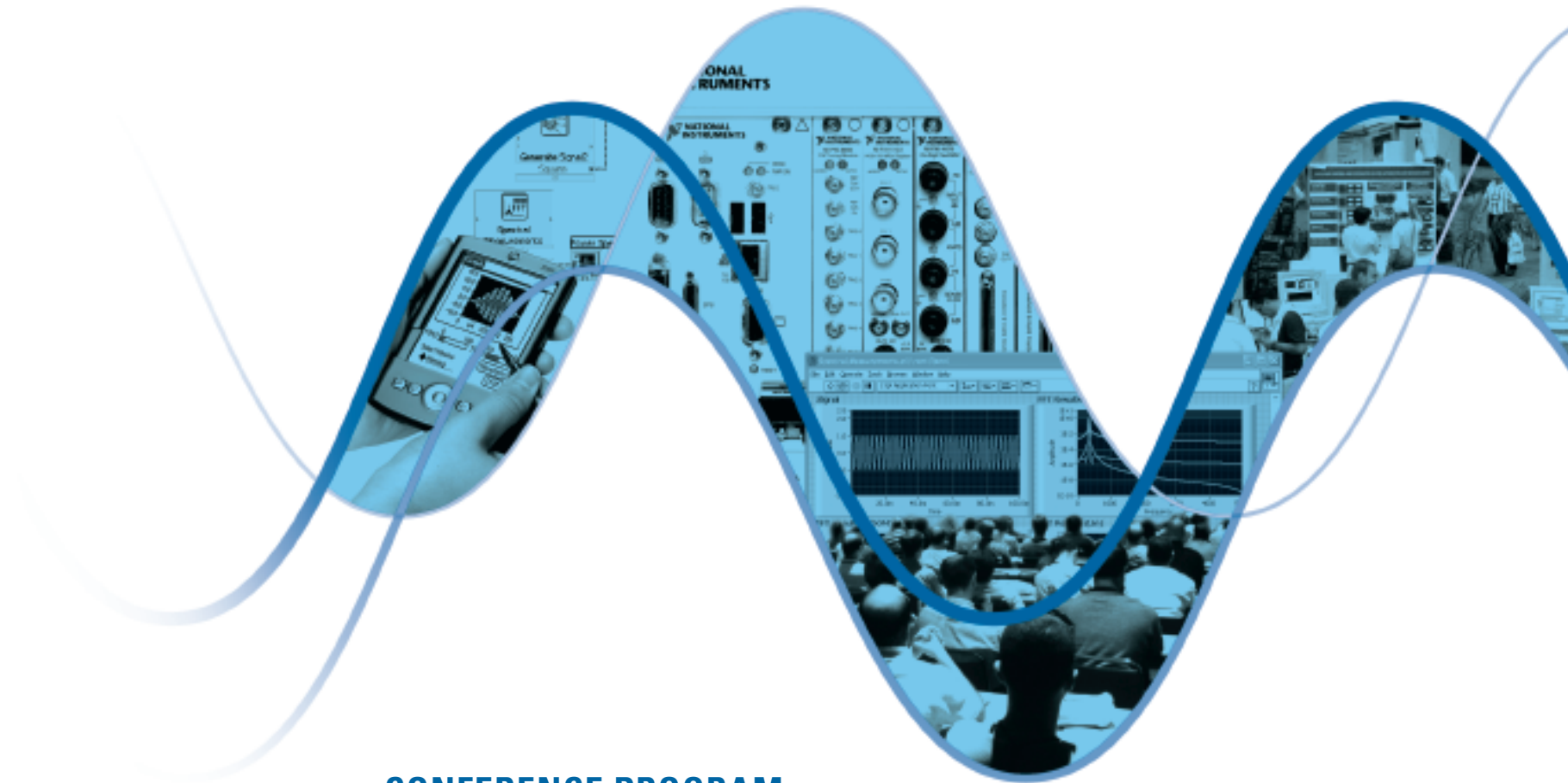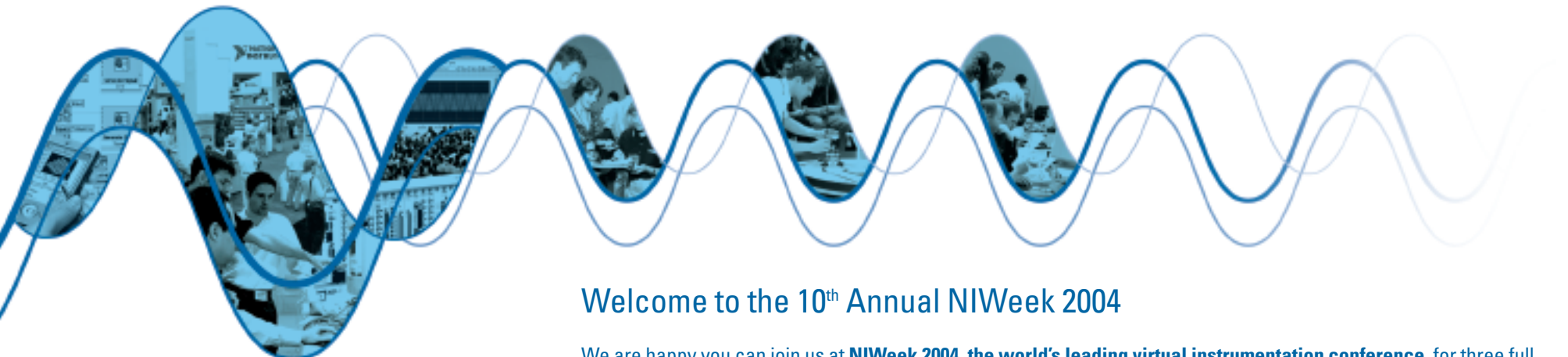
CELEBRATING TEN YEARS

WORLDWIDE VIRTUAL INSTRUMENTATION CONFERENCE

CONFERENCE PROGRAM

August 17-19 • Alliance Day August 16 • Austin Convention Center • Austin, Texas USA **ni.com/niweek**

NATIONAL INSTRUMENTS

Program Contents

Welcome to the 10th Annual NIWeek 2004

We are happy you can join us at **NIWeek 2004, the world's leading virtual instrumentation conference**, for three full days of interactive technical sessions, hands-on training, exhibitions, and workshops.

This year, discover new products and solutions in the newly expanded exhibit hall, where you can choose from **more than 170 technical sessions covering the latest technologies and products** in measurement and automation. NI and other companies including Texas Instruments, MTS, and ITK Engineering share unique approaches to solving measurement and automation application challenges using the latest developments in virtual instrumentation.

This year, our newly expanded exhibit hall showcases four new pavilions and product areas. Stop by the **Embedded LabVIEW Pavilion, Learning with LabVIEW Pavilion, NI Resource Pavilion, and SignalExpress Measurement Pavilion** to learn more about NI solutions, support, and new products. The expo floor also features the new **Vision Neighborhood**, where you can explore NI compact vision systems and learn about product partners who provide cameras, lenses, and lighting products.

New Product Announcements at NIWeek 2004
- **M Series Multifunction DAQ**
- **CompactRIO (Expansion System and Embedded System)**
- **200 MS/s Mixed-Signal Suite**
- **SignalExpress**

Recent Product Launches
- LabVIEW 7.1 and Family
- CVS-1456 Compact Vision System
- TEDS Library for LabVIEW 7.1
- PXI-6722, PXI-6723 Analog Output Data Acquisition Modules
- PCI/PXI-6511, PCI/PXI-6512, and PCI/PXI-6513 Low-Cost Digital I/O Boards
- PXI-2532 High-Density Switch
- 843x: Next-Generation Serial Boards
- PXI-1428 Image Acquisition Board

Win a Dream Vacation
During the keynote address on Thursday, August 19, Reed Scientific Group will present one lucky NIWeek attendee with a dream vacation. **Full conference attendees may complete a conference survey in the Cyber Café for an opportunity to win this prize valued at $10,000.**
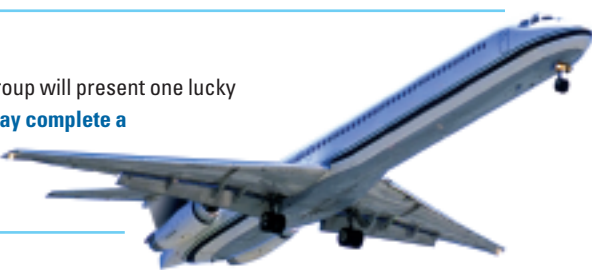
Keynote Presentations

Whenever You Measure and Automate

Tim Dehne
Senior Vice President of R&D, National Instruments

At NIWeek 2004, see more new products than ever before. The NI product-development teams demonstrate the latest advancements in user-defined, software-based measurement and automation. Learn how you can take advantage of the latest real-time, FPGA, analog, digital, and Express technologies to increase productivity and performance.

Tuesday, 8/17   8:30-10:00 a.m.   Ballroom D

The Future of Virtual Instrumentation

Dr. James Truchard
President, CEO, and Cofounder, National Instruments

In the keynote, Dr. James Truchard, as chief product strategist, unveils how virtual instrumentation will lead in the development of new technologies and enter new market areas. NI will release hundreds of products in the next year. Get a glimpse into the next-generation technology from NI and an insider's view into the National Instruments process of innovation for embedded, control, measurement, and instrumentation systems.

Wednesday, 8/18   8:30-10:00 a.m.   Ballroom D

Who Said Engineering Is Only for Adults?

Dr. Geoffrey Orsak
Dean, Southern Methodist University School of Engineering
Director, The Infinity Project

Dr. Geoffrey Orsak takes you on a lively journey through the recent history of the world as seen from they eyes of an engineer. He also discusses some of the new and innovative activities that engineering schools are developing to expose precollege students to cutting-edge engineering and technology.

Thursday, 8/19   8:30-10:00 a.m.   Ballroom D

After-Dark Activities

Alliance Appreciation Party[*]
National Instruments is pleased to host the NIWeek Alliance Program Member Appreciation Party at Austin's famous Hula Hut, located on beautiful Lake Austin. Enjoy live music and entertainment from exotic hula dancers while feasting on Hawaiian cuisine.
Monday, 8/16   7:00-10:30 p.m.   Hula Hut

10th Annual Kickoff Party in the Exhibition Hall
Everyone is invited to a unique event that officially opens NIWeek. Hear a special address by NI Senior Vice President of R&D Tim Dehne and enjoy drinks, food, raffle prizes, and more.
Tuesday, 8/17   5:30-7:00 p.m.   Exhibit Hall

NIWeek 2004 10th Annual Conference Event[*]
Sponsored by Reed Business Information
Located on famous Sixth Street in downtown Austin, Buffalo Billiards is the hippest pool hall in the country. This two-story venue boasts more than 25 pool tables, three large western bars, an outside view of the Austin skyline, and plenty of room to relax after a busy day at NIWeek. Join us for an Austin-style celebration where you can network, listen to live music, dance, and enjoy great food and beverages.
Wednesday, 8/18   7:00-10:30 p.m.   Buffalo Billiards

[*]**Special reminder:** Event tickets are required to get in the door. Shuttles run continuously from the Austin Convention Center to the event locations and the Austin Hilton Hotel.

Meals and Exhibition Hours

Daily Continental Breakfast[**]	Daily Lunch[†]	Afternoon Breaks[‡]
7:00-10:00 a.m.	11:00 a.m.-2:00 p.m.	Enjoy refreshments between sessions on the Third Floor outside Room 18.
Ballroom Foyer	Exhibit Hall	

[**] Tuesday Breakfast is sponsored by NASA Tech Briefs
[†] Sessions are closed for lunch from 12:45-1:30 p.m.
[‡] Tuesday break is sponsored by Machine Design
   Wednesday break is sponsored by Control/Control Design

Exhibition Hours
Tuesday	11:00 a.m.-7:00 p.m.
Wednesday	11:00 a.m.-7:00 p.m.
Thursday	11:00 a.m.-2:00 p.m.

NIWeek Session Guide

Must-See Sessions

Vision

Configuring Industrial Machine Vision Systems (pg. 10)

National Instruments

Maximizing Image Quality through Imaging Lenses (pg. 11)

Edmund Industrial Optics

The Art and Science Behind Optimal Vision Lighting (pg. 12)

Advanced Illumination

Thermal Imaging: Providing Industrial Control, and Monitoring Solutions (pg. 12)

Raytheon Commercial Infrared

A Camera Bus for Every Application (pg. 13)

National Instruments

New Digital Camera Technologies for Machine Vision (pg. 14)

Basler Vision Technologies

Understanding Optical Zoom Systems (pg. 14)

Navitar, Inc.

The Nuts and Bolts of Part Identification and Classification (pg. 21)

National Instruments

The Tale of Two Pattern-Matching Algorithms (pg. 21)

National Instruments

Industrial Control and Measurement

Using Industrial Handheld Devices with LabVIEW PDA (pg. 12)

DAP Technologies

Software-Based Motion Control Solutions with LabVIEW Real-Time (pg. 21)

National Instruments

Beyond PID: Designing Custom Control Algorithms (pg. 15)

National Instruments

Designing LabVIEW-Based Systems for Reliable Industrial Measurement and Control (pg. 13)

National Instruments

FieldPoint Architecture and Tips to Improve Performance with LabVIEW Real-Time (pg. 16)

National Instruments

LabVIEW Real-Time and PXI Hardware for Reliable and Autonomous Control (pg. 17)

National Instruments

Control Design

Building Rugged Industrial Machine Control Systems with CompactRIO (pg. 15)

National Instruments

Best Practices for Developing Time-Critical Loops in LabVIEW Real-Time (pg. 15)

Wineman Technology, Inc.

Building Multirate Time-Critical Applications with LabVIEW (pg. 13)

National Instruments

Creating a Customized, Embedded Machine Control Solution with CompactRIO (pg. 15)

National Instruments

DSP Hardware-in-the-Loop (HIL) Testing with LabVIEW Real-Time Simulations and the LabVIEW DSP Test Integration Toolkit (pg. 16)

Viodia, Inc.

LabVIEW FPGA: Introduction and Common Applications (pg. 20)

National Instruments

Modular Instruments

Automating Oscilloscope Measurements Using LabVIEW (pg. 10)

National Instruments

Expanding the Boundaries of Data Acquisition: New Technology Shatters Traditional Measurement Specifications (pg. 10)

National Instruments

Measurement Science: Taking High-Precision Measurements (pg. 11)

National Instruments

Testing Video Quality with LabVIEW and PXI (pg. 12)

National Instruments

Introduction to SignalExpress (pg. 20)

National Instruments

Managing Ultrahigh-Density Switch Systems with NI Switch Executive (pg. 20)

National Instruments

Hands-On *(All presented by National Instruments)*

Hands-On: CompactRIO Fundamentals (pg. 16)

Hands-On: CompactRIO Intermediate (pg. 16)

Hands-On: DIAdem Advanced Data Analysis and Report Generation (pg. 19)

Hands-On: Fundamentals of NI-DAQmx (pg. 10)

Hands-On: Introduction to LabVIEW Real-Time (pg. 16)

Hands-On: Introduction to SignalExpress (pg. 19)

Hands-On: LabVIEW PDA: Hands-On (pg. 19)

Hands-On: Plug-and-Play DAQ Systems: Strain and Vibration Measurements with LabVIEW 7.1 (pg. 11)

Hands-On: What's New in LabVIEW 7.1 (pg. 19)

The Sound and Vibration Summit at NIWeek 2004

The Sound and Vibration Summit

This year, you can participate in a number of technical sessions presented by top sound and vibration experts in the industry and academia.

Tuesday, Room 11

Objective and Application of Modal Analysis

Dr. David L. Brown, Professor, University of Cincinnati

10:30-11:30 a.m., pg. 11

A New Paradigm for Field-Based Noise Analysis

Carsten Thomsen, Division Manager, Delta

11:45 a.m.-12:45 p.m., pg. 10

Sound and Vibration Measurements with LabVIEW

Robert Giaraffa, National Instruments

1:30-2:30 p.m., pg. 12

Acceleration Measurements in the Real World: Examples and Reasons

Dr. Patrick Walter, Measurement Specialists and Professor, PCB and Texas Christian University

2:45-3:45 p.m., pg. 10

Data Acquisition Using LabVIEW for Experimental Modal Analysis

Dr. A.L. Wicks, Professor

and Kalyanramu Vemishetty, Graduate Research Assistant, Virginia Tech

4:00-5:00 p.m., pg. 10

Wednesday, Room 11

LabVIEW Audio Measurements from A-Weighting to Z-Transform

Dean Brockhausen, National Instruments

10:30-11:30 a.m., pg. 11

Audio Technology Trends and How They Impact Everyday Life

Niels Anderskouv, Vice President of Audio; and Toshihiko Hamasaki, DAV Audio Design Manager, Texas Instruments

11:45 a.m.-12:45 p.m., pg. 10

New Trends and Challenges in Developing Efficient Sound and Vibration Engineering

Dr. Gabriella Cerrato-Jay, Director of Technology, MTS Sound and Vibration

1:30-2:30 p.m., pg. 11

Automotive High-Channel-Count Dynamic Measurements, Pass-By Noise, and Acoustic Measurements Based on LabVIEW

Aaron Grzymkowski, Engineering Manager, Roush

2:45-3:45 p.m., pg. 10

Subsynchronous Vibrations Study Using LabVIEW

Dr. John Vance, Professor; Bugra Ertas, Graduate Assistant; and Rahul Kar, Graduate Research Assistant, Texas A&M Turbomachinery Lab
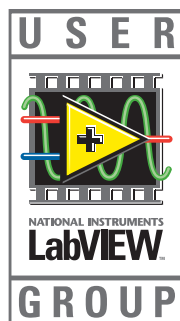
4:00 -5:00 p.m., pg. 12

Expanding the Boundaries of Data Acquisition: New Technology Shatters Traditional Measurement Specifications (located in Room 17 A)

Denise Iglesias, National Instruments

4:00-5:00 p.m., pg. 10

LabVIEW User Group Meeting (pg. 18)

Design Pattern for Implementing Asynchronous Processes in LabVIEW

Attend this special LabVIEW user group meeting to learn about launching, managing, and communicating with asynchronous processes such as a dynamically called VI, a cloned front panel, an embedded panel, or any parallel task. Investigate these processes and messaging architectures with presenter Michael Aivaliotis, who has more than 10 years of experience in developing complex LabVIEW applications and is leader of the Southern Ontario LAVA User Group in Canada.

Michael Aivaliotis, Vice-President, mmWave Integrated Solutions, Inc.

Wednesday   1:30-2:30 p.m.   Room 12 B

Industry Experts Panel (pg. 13)

Questioning the Experts

Leave your test and measurement cares at the door. This session is your opportunity to hear industry experts discuss hot topics in technology. From technology's role in homeland security to emerging markets, this moderated panel tackles some of today's business and technology headlines with a fresh perspective. Take advantage of this opportunity to ask Dr. James Truchard of National Instruments, Dr. Geoffrey Orsak of Southern Methodist University, Steve Conquergood of Advanced Measurements, and Maury Wright of *EDN Magazine* questions during the town-hall style Q&A session.

Wednesday   4:00-5:00 p.m.   Ballroom G

Tuesday

Keynote: *Whenever You Measure and Automate – Tim Dehne, Senior Vice President of R&D, National Instruments* **8:30-10:00 a.m.**

Software Development Techniques

	10:30-11:30 a.m.	11:45 a.m.-12:45 p.m.	1:30-2:30 p.m.	2:45-3:45 p.m.	4:00-5:00 p.m.
Ballroom G		Software-Based Motion Control Solutions with LabVIEW Real-Time		Advanced LabVIEW Event-Driven Programming Topics	
Room 12 A	New LabVIEW Tools for Quickly Creating Better LabVIEW Instrument Drivers	Advanced LabVIEW Programming Tips and Techniques	Mastering the NI Certification Exams	Software Engineering with LabVIEW	The Nuts and Bolts of Part Identification and Classification
Room 12 B	Introduction to SignalExpress	Optimizing Your VI Performance	Maximizing Flexibility through Extensible .NET UI Components	Managing Large Data in LabVIEW	Increasing Quality and Reducing Development Time Using Software Engineering Practices in LabVIEW
Room 13			Introduction to the Event Structure and Event-Driven Programming in LabVIEW		
Room 14		Best Practices for Writing, Retrieving, and Reporting Test Data with LabVIEW			Storage VIs in LabVIEW 7.1 and DIAdem 9.0
Room 18 D	What's New in LabVIEW 7.1	Hands-On: What's New in LabVIEW 7.1	Hands-On: What's New in LabVIEW 7.1	Hands-On: What's New in LabVIEW 7.1	SPANISH: Hands-On: What's New in LabVIEW 7.1
Room 18 C	LabVIEW FPGA: Introduction and Common Applications		Hands-On: Introduction to SignalExpress	Hands-On: Introduction to SignalExpress	Hands-On: Introduction to SignalExpress
Room 19 A			LabVIEW Math Algorithms and Applications: Making Math Work	Virtual and Physical Testing in Product Development	
Room 19 B	What's New in LabWindows/CVI	Inside Your Computer: An Introduction to How Computers Work	What's New in LabVIEW 7.1	Developing More Powerful Applications Using State Machine Architectures in LabVIEW	Use of LabVIEW and IDL to Control Jet Printing for the Fabrication of Organic-Based Thin Film Transistors (TFTs)

Real-Time Control and Embedded

	10:30-11:30 a.m.	11:45 a.m.-12:45 p.m.	1:30-2:30 p.m.	2:45-3:45 p.m.	4:00-5:00 p.m.
Room 14	Alternative Energy Research with LabVIEW		Managing Data in LabVIEW Real-Time Systems	Advanced LabVIEW Real-Time Applications Debugging	
Room 15		Best Practices for Developing Time-Critical Loops in LabVIEW Real-Time	Developing Graphical Models for Embedded Control Applications	Introducing CompactRIO Reconfigurable Control and Acquisition System	Creating High-Performance Distributed Real-Time Systems
Room 18 B	What's New in LabVIEW Real-Time	Hands-On: Introduction to LabVIEW Real-Time	Hands-On: Introduction to LabVIEW Real-Time	SPANISH: Hands-On: Introduction to LabVIEW Real-Time	Hands-On: Introduction to LabVIEW Real-Time

DAQ, Instrumentation, and Analysis

	10:30-11:30 a.m.	11:45 a.m.-12:45 p.m.	1:30-2:30 p.m.	2:45-3:45 p.m.	4:00-5:00 p.m.
Ballroom G	M Series And USB: The Next Generation of DAQ		M Series And USB: The Next Generation of DAQ		
Room 11 Sound and Vibration Summit	Objective and Application of Modal Analysis	A New Paradigm for Field-Based Noise Analysis	Sound and Vibration Measurements with LabVIEW	Acceleration Measurements in the Real World: Examples and Reasons	Data Acquisition Using LabVIEW for Experimental Modal Analysis
Room 15	Build an In-Vehicle Data-Logging and Interactive Data Management System				
Room 16 B		Automating Oscilloscope Measurements Using LabVIEW	Technologies for Linux, Mac, and Pocket PC DAQ Solutions	The Art and Science Behind Optimal Vision Lighting	Designing Hybrid Test Systems with PXI, VXI and GPIB
Room 17 A		Improve Your Measurement Accuracy with Calibration	Using Industrial Handheld Devices with LabVIEW PDA		Thermal Imaging: Providing Industrial Control Monitoring Solutions
Room 18 A	Seven New Habits for Highly Successful NI-DAQ Programmers	Hands-On: Fundamentals of NI-DAQmx	SPANISH: Hands-On: Fundamentals of NI-DAQmx	Hands-On: Fundamentals of NI-DAQmx	Hands-On: Fundamentals of NI-DAQmx

Hot Technologies

	10:30-11:30 a.m.	11:45 a.m.-12:45 p.m.	1:30-2:30 p.m.	2:45-3:45 p.m.	4:00-5:00 p.m.
Room 13	A Camera Bus for Every Application	LabVIEW and PXI: Your Platform for Test, Control, and Design Applications		.NET Tutorial for LabVIEW Programmers	Integrating LabVIEW with the Mathcad WYSIWYG Design Environment
Room 16 A	Paper Contest Finalists: Automotive	Understanding USB Technology for Data Acquisition Devices	Improved Methods of Controller Performance Assessment and Condition Monitoring	A Software Simulation Testbed for Third-Generation Wireless Systems	Paper Contest Finalists: Control Design and Simulation
Room 17 A	What's New in Measurement Studio for Visual Studio .NET			Engineering Information Management (EIM) Techniques for Turning Technical Data into Engineering Intelligence	
Room 17 B	Designing LabVIEW-Based Systems for Reliable Industrial Measurement and Control	Understanding Digital Technologies: LVDS, JTAG, and Others	Measurement Science: Taking High-Precision Measurements	Sensors Plug&Play Technology and Applications	Paper Contest Finalists: Aerospace/Defense
Room 19 A		Measurement-Based Modeling, Simulation, and HIL Testing with LabVIEW			Managing Enterprise Data Using an RDF Database, NI TestStand, LabVIEW, and DIAdem

Lunch: 12:45-1:30 p.m.

Blue Sessions Indicate External Presenters.

Keynote: *The Future of Virtual Instrumentation – Dr. James Truchard, President, CEO, and Cofounder, National Instruments* 8:30-10:00 a.m.

	10:30-11:30 a.m.	11:45 a.m.-12:45 p.m.	1:30-2:30 p.m.	2:45-3:45 p.m.	4:00-5:00 p.m.
Software Development Techniques					
Ballroom G	VIs: The Good, the Bad, and the Ugly	Refactoring LabVIEW Programs: A Systematic Approach for Improving Existing VIs		How to Improve Your VIs with the NI LabVIEW VI Analyzer Toolkit	Industry Experts Panel: Question the Experts
Room 12 A	The Tale of Two Pattern-Matching Algorithms	Developing Your Own Express VIs	Advanced LabVIEW Design: Usability, Reusability, and Maintainability	NI "UltimATE II" Manufacturing Test Architecture Case Study	Inside Your Computer: An Introduction to How Computers Work
Room 12 B	Developing LabVIEW Applications on PDAs	Tips and Techniques for Accurate and Reliable Measurements in LabVIEW	Design Patterns for Implementing Asynchronous Processes in LabVIEW: LabVIEW User Group Meeting	Software Engineering with LabVIEW	Reducing Development Time by Improving Debugging Skills in LabVIEW
Room 13	Advanced Programming with LabVIEW	Developing Custom Operator Interfaces with NI TestStand User Interface Controls	Thinking Inside the Chip: Graphical Design Techniques for FPGA Configuration	Lab Automation: Issues and Challenges Addressed by IMATIS, a LabVIEW-Based LIMS	
Room 16 A	What's New in NI TestStand	Reducing Software Life-cycle Costs by Using Object-Oriented Programming Techniques in LabVIEW	Insights for Successful Deployment of NI TestStand and LabVIEW Applications		
Room 16 B				Trash to Treasure: Getting the Most Value Out of Your Custom LabVIEW Code	
Room 18 D	LabVIEW FPGA: Introduction and Common Applications	Hands-On: LabVIEW PDA	Hands-On: LabVIEW PDA	Hands-On: LabVIEW PDA	SPANISH Hands-On: LabVIEW PDA
Real-Time Control and Embedded					
Room 13					Beyond PID: Designing Custom Control Applications
Room 14	DSP Design Using Graphical Programming	Development of an Autonomous Lan Vehicle to Navigate a $1 Million Course	DSP HIL Testing with LabVIEW Real-Time Simulations and the LabVIEW DSP Test Integration Toolkit	Qualitative Simulation for Design and Diagnosis	Advances in Metrology for Microcomponents
Room 15	FieldPoint Architecture and Tips to Improve Performance with LabVIEW Real-Time	Building Rugged Industrial Machine Control Systems with CompactRIO		Advanced NI-DAQmx Programming with LabVIEW Real-Time	Virtual and Physical Testing in Product Development
Room 16 A				Creating a Customized, Embedded Machine Control Solution with CompactRIO	
Room 16 B			Architecting a Real-Time System with Multiple Communications		
Room 18 A	Teaching Control with LabVIEW	Hands-On: DIAdem Advanced Data Analysis and Report Generation	Hands-On DIAdem Advanced Data Analysis and Report Generation	Hands-On: DIAdem Advanced Data Analysis and Report Generation	
Room 18 C	SPANISH: Hands-On: DIAdem Advanced Data Analysis and Report Generation		Hands-On: CompactRIO Fundamentals	Hands-On: CompactRIO Fundamentals	Hands-On: CompactRIO Fundamentals
DAQ, Instrumentation, and Analysis					
Room 11 Sound and Vibration Summit	LabVIEW Audio Measurements from A-Weighting to Z-Transform	Audio Technology Trends and How They Impact Everyday Life	New Trends and Challenges in Developing Efficient Sound and Vibration Engineering	Automotive High-Channel-Count Dynamic Measurements, Pass-By Noise, and Acoustic Measurements Based on LabVIEW	Subsynchronous Vibrations Study Using LabVIEW
Room 16 B	Using LabVIEW and PXI for End-to-End Digital Communication Link Test	Testing Video Quality with LabVIEW and PXI			NI-DAQmx: Under the Hood
Room 17 A	Using LabVIEW PDA to Develop a Handheld DMM		Maximizing Image Quality through Imaging Lenses	Improve Your Temperature Measurement Accuracy 10X	Expanding the Boundaries of Data Acquisition: New Technology Shatters Traditional Measurement Specifications
Room 18 B			Hands-On: Plug-and-Play Strain and Vibration Measurements with LabVIEW 7.1	Hands-On: Plug-and-Play Strain and Vibration Measurements with LabVIEW 7.1	Hands-On: Plug-and-Play Strain and Vibration Measurements with LabVIEW 7.1
Hot Technologies					
Ballroom G			LabVIEW and Object-Oriented Programming: The Right Mix		
Room 16 A					Symbolic Computation for Modeling and Simulating in LabVIEW
Room 17 A		Paper Contest Finalists: R&D/Lab Automation			
Room 17 B	Enterprise Test Data Management of Large Data Sets	Modular Test Software Development Techniques with NI TestStand and LabVIEW	Rapid Prototyping of Multiantenna Wireless Systems	Strategies for Rapidly Designing and Deploying DIAdem-Based Data Management Systems	Understanding Optical Zoom Systems
Room 19 A	Paper Contest Finalists: Discrete Manufacturing Process Control	Paper Contest Finalists: Academic	Exploring a Cable Box with LabVIEW	LabVIEW: Talk with the Experts	Paper Contest Finalists: Biotechnology/Life Sciences
Room 19 B	Sensors Plug & Play Technology and Applications	Building Multirate Time-Critical Applications with LabVIEW	Mac OS X and NI LabVIEW	PCI Express: Next-Generation PC Bus Technology	Predicting a Subjective Rating of Surround Sound Systems Using LabVIEW

Blue Sessions Indicate External Presenters.

Lunch: 12:45-1:30 p.m.

NIWeek Session Schedule

Thursday

Keynote: *Who Said Engineering Is Only for Adults?* Dr. Geoffrey Orsak, Dean, Southern Methodist University School of Engineering; Director of The Infinity Project **8:30-10:00 a.m.**

	10:30-11:30 a.m.	11:45 a.m.-12:45 p.m.	1:30-2:30 p.m.	2:45-3:45 p.m.
Software Development Techniques				
Room 11	Advanced Instrument Control with LabVIEW	User Configurable LabVIEW GUIs	Develop Instrument Control Applications with Visual C# .NET	Using Classes and References in LabVIEW
Room 12 A	Connectivity with LabWindows/CVI	Using NI TestStand for Testing Regulated Devices	Designing Multilingual Applications in LabVIEW	Using XML in LabVIEW Applications
Room 12 B	GUI Implementation in LabVIEW	Advanced Data Acquisition in Visual C# .NET	Pick Your Protocol: Interfacing with External Components and Systems with LabVIEW FPGA and NI Hardware	Using Database Connectivity Tools in LabVIEW
Room 14		Resource-Aware Programming		
Room 17 B	Managing Ultrahigh-Density Switch Systems with NI Switch Executive	The Nuts and Bolts of Part Identification and Classification	Developing a Reusable NI TestStand Software Framework	Advanced LabVIEW Programming Tips and Techniques
Room 19 A			LabVIEW Tools for Quickly Creating Better LabVIEW Instrument Drivers	VIs: The Good, the Bad, and the Ugly
Real-Time Control and Embedded				
Room 14	Advanced LabVIEW Real-Time Applications Debugging		Extending LabVIEW Real-Time Applications through ANSI C Integration	LabVIEW Real-Time and PXI Hardware for Reliable and Autonomous Control
Room 18 C	Hands-On: CompactRIO Intermediate	Hands-On: CompactRIO Intermediate	Hands-On: CompactRIO Intermediate	
Room 19 A	What's New in LabVIEW Real-Time	Build an In-Vehicle Data-Logging and Interactive Data Management System		
DAQ, Instrumentation, and Analysis				
Ballroom G	Seven New Habits for Highly Successful NI-DAQ Programmers			
Room 16 B	Advanced CAN for Calibration and Device Validation	Configuring Industrial Machine Vision Systems	Reliable Digital Control Using New Features in NI-DAQmx	Increase Your Data Acquisition Hardware Performance 10X with New Driver Software
Room 17 A	M Series and USB: The Next Generation of DAQ	Using LabVIEW and PXI for End-to-End Digital Communication Link Test	Improve Your Measurement Accuracy with Calibration	Advanced Data Acquisition Development in LabWindows/CVI
Hot Technologies				
Room 13	New Digital Camera Technologies for Machine Vision	Mobile LabVIEW Technologies	Sensors Plug & Play Technology and Applications	Paper Contest Finalists: Semiconductor
Room 15	Building Reliable In-Vehicle Data Acquisition Systems with CompactRIO	Designing and Synchronization of Multichassis PXI System		A Technology Overview of Trends in Embedded Design
Room 16 A	Panel Discussion: Resolving Data Management Challenges That Face Test and Measurement	Understanding USB Technology for Data Acquisition	Paper Contest Finalists: Communications	Paper Contest Finalists: Manufacturing Functional Test

Lunch: 12:45-1:30 p.m.
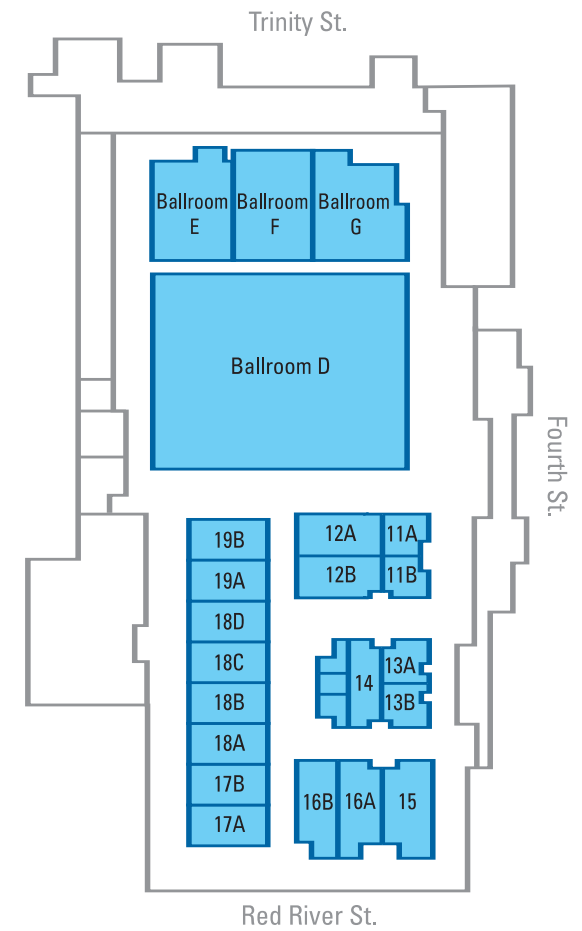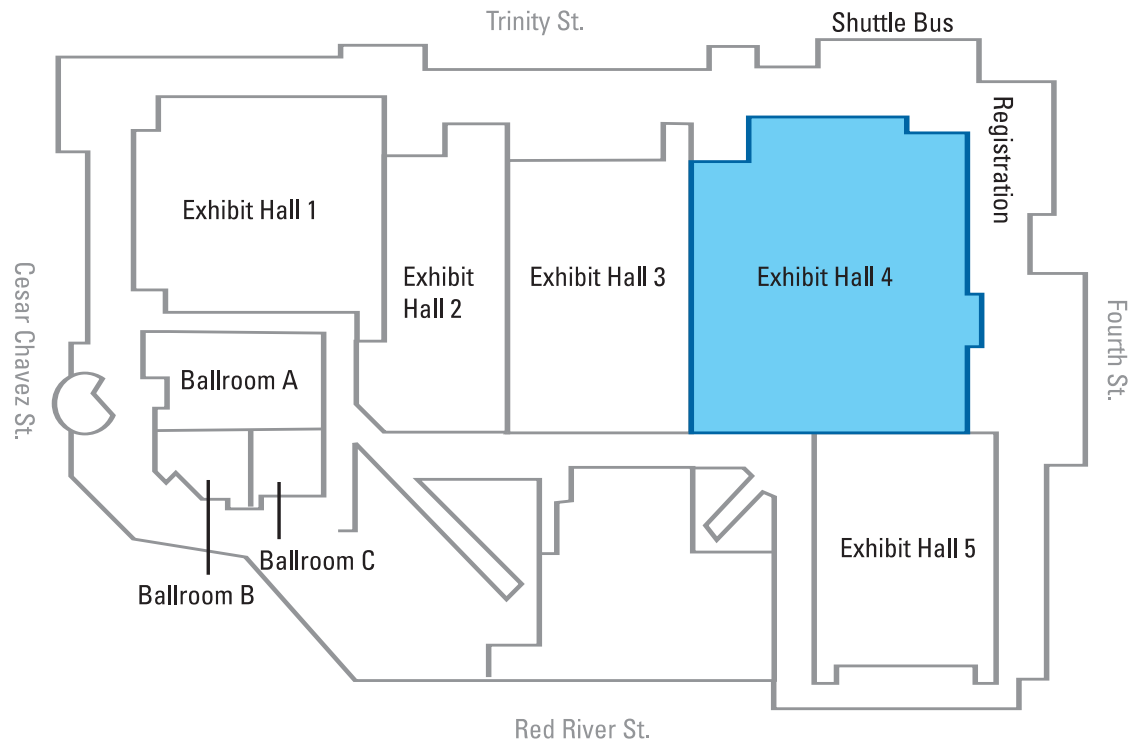
Blue Sessions Indicate External Presenters.

Virtual Instrumentation Applications Paper Contest

The Virtual Instrumentation Applications Paper Contest is an annual NIWeek event where customers share their most innovative and creative applications using NI products. Visit the Paper Contest Poster Session, located outside of Ballroom G, to view the semifinalist and finalist papers.

Also, attend the Thursday morning keynote to see the category winners of the Virtual Instrumentation Applications Paper Contest, as well as the overall winner. Paper contest semifinalists and finalists present their winning applications during NIWeek. View details and scheduled times on page 30 of this program.

Left Map

Trinity St.

Shuttle Bus

Cesar Chavez St.

Exhibit Hall 1

Exhibit Hall 2

Exhibit Hall 3

Exhibit Hall 4

Registration

Fourth St.

Ballroom A

Ballroom C

Ballroom B

Exhibit Hall 5

Red River St.

Right Map

Trinity St.

Ballroom E

Ballroom F

Ballroom G

Ballroom D

Fourth St.

19B

19A

18D

18C

18B

18A

17B

17A

12A

11A

12B

11B

14

13A

13B

16B

16A

15

Red River St.

NIWeek Session Guide

DAQ, Instrumentation, and Analysis

Acceleration Measurements in the Real World: Examples and Reasons

This session provides examples of acceleration measurements in numerous test applications, as well as the reasons for making these measurements. Special focus is given to the automotive, aerospace, and defense industries. When applicable, guidance is offered to preclude the acceptance of erroneous acceleration data as valid in your testing applications.

Dr. Patrick Walter, Measurement Specialist and Professor,
PCB and Texas Christian University **Sound and Vibration Summit**
Tuesday *2:45-3:45* *Room 11*

Advanced CAN for Calibration and Device Validation

This session covers new CAN releases and features, including the NI-CAN driver and the CAN calibration protocol command set. Learn how to use high-level LabVIEW functions to access information in many ECUs with CCP.

Kimberly Lankford, Product Marketing Engineer, NI
Thursday *10:30-11:30* *Room 16 B*

Advanced Data Acquisition Development in LabWindows/CVI

Learn how to connect your data and applications with the external world using TCP/IP, ActiveX, Web-based technologies, data-logging libraries, DIAdem, and other LabWindows/CVI tools.

Ludek Pekarek, Staff Software Engineer, NI
Thursday *2:45-3:45* *Room 17 A*

A New Paradigm for Field-Based Noise Analysis

This session showcases new software that greatly simplifies the process of noise measurement, analysis, prediction, and reporting by using a coherent architecture that provides unified data management and configuration control.

Carsten Thomsen, Division Manager, DELTA **Sound and Vibration Summit**
Tuesday *11:45-12:45* *Room11*

Audio Technology Trends and How They Impact Everyday Life

This session provides insight into current trends in the consumer electronics marketplace and the challenges engineers face with the design and test of next-generation audio devices.

Toshihiko Hamasaki, DAV Audio Design Manager, Texas Instruments
Sound and Vibration Summit
Wednesday *11:45-12:45* *Room 11*

Automating Oscilloscope Measurements Using LabVIEW

Using the new NI LabVIEW Instrument I/O Assistant and Express VIs for acquisition and analysis, you can automate your oscilloscope measurements in minutes. This session discusses common measurement pitfalls and tips to improve your accuracy when taking oscilloscope measurements.

Michael Schneider, Hardware Product Manager, NI
Tuesday *11:45-12:45* *Room 16 B*

Automotive High-Channel-Count Dynamic Measurements, Pass-By Noise, and Acoustic Measurements Based on LabVIEW

This presentation focuses on the key measurements that are fundamental for sound and vibration problem solving in the automobile industry, including "pass-by" noise measurements, acoustic intensity measurements, sound power, and torsional vibration measurements.

Aaron Grzymkowski, Engineering Manager, Roush **Sound and Vibration Summit**
Wednesday *2:45-3:45* *Room 11*

Build an In-Vehicle Data-Logging and Interactive Data Management System

This session walks you through building a portable data-logging system with USB-DAQ and PCMCIA-CAN using the latest versions of NI-CAN, NI-DAQmx software, and LabVIEW 7.1. You also learn how to generate and analyze reports with DIAdem 9.0.

Kimberly Lankford, Product Marketing Engineer, NI
Tuesday *10:30-11:30* *Room 15*

Configuring Industrial Machine Vision Systems

In this session, see how to use Vision Builder for Automated Inspection to build, benchmark, and deploy a complete machine vision application without programming. This session features new and improved features of Vision Builder for Automated Inspection such as modus support, the ability to communicate with Compact FieldPoint, and multicamera inspections.

Nicolas Vazquez, Principal Engineer; and Kyle Voosen, Product Marketing Engineer, NI
Thursday *11:45-12:45* *Room 16 B*

Data Acquisition Using LabVIEW For Experimental Modal Analysis

This session demonstrates how a complete modal data acquisition system was developed within the National Instruments LabVIEW environment. A suite of tools available to the user generates annotated plots of the FRF, autospectra, and coherence functions for the selected channel pairs. Time traces are also available.

Dr. A.L. Wicks, Professor, and Kalyanramu Vemishetty, Graduate Research Assistant,
Virginia Tech **Sound and Vibration Summit**
Tuesday *4:00-5:00* *Room 11*

Designing Hybrid Test Systems with PXI, VXI, and GPIB

This session discusses hardware and software configurations for building hybrid test systems with PXI, VXI, GPIB, PCI, and other instrumentation buses.

TBD, Hardware Product Manager, NI
Tuesday *4:00-5:00* *Room 16 B*

Expanding the Boundaries of Data Acquisition: New Technology Shatters Traditional Measurement Specifications

See the latest NI has to offer for analog measurements. NI senior technologists showcase new data acquisition technologies through product demonstrations and an interactive question-and-answer session. Product demonstrations include the new highest-resolution M Series, DSA, and CompactRIO modules. Also, see next-generation analog-to-digital converters making measurements lower than 120 dB.

Denise Iglesias, Dynamic Signal Acquisition Group Manager, NI
Wednesday *4:00-5:00* *Room 17 A*

Hands-On: Fundamentals of NI-DAQmx

Learn how to use NI-DAQmx measurement services software. Learn to generate code automatically with the DAQ Assistant, develop an application using TEDS hardware and NI-DAQmx VIs, and optimize your application using NI-DAQmx.

Reid Lee, Senior Data Acquisition Software Engineer, and Rajesh Vaidya,
Staff Software Engineer, NI
Tuesday *11:45-12:45 / 2:45-3:45 / 4:00-5:00* *Room 18 A*

DAQ, Instrumentation, and Analysis

Hands-On: Fundamentos de NI-DAQmx

Aprenda cómo usted puede utilizar NI-DAQmx para medición y para mejorar su sistema existente de DAQ. Usted puede aprender a generar código automáticamente con la ayuda del asistente DAQ, desarrollar con los Vis de NI-DAQmx, aplicar sus conocimientos sobre entradas analógicas para controlar entradas digitales y contadores, y optimizar sus aplicaciónes con multihilo y E/S de un solo punto.

Fernando Dominguez, ELP Engineer, NI

| *Tuesday* | *1:30-2:30* | *Room 18 A* |

Hands-On: Plug-and-Play DAQ Systems: Strain and Vibration Measurements with LabVIEW 7.1

This hands-on presentation gives you the opportunity to create a plug-and-play data acquisition system for acquiring both strain and vibration measurements. Examine how you can use NI LabVIEW 7.1, plug-and-play DAQ hardware, and Transducer Electronic Data Sheet (TEDS)-enabled SCXI hardware for plug-and-play bridge-based and IEPE sensors to cut your data acquisition system setup time in half. Also learn about ways to improve the accuracy of your strain and vibration measurements, including proper sensor selection and automated null/shunt calibration.

Spencer Stock, ELP Engineer, NI

| *Wednesday* | *1:30-2:30, 2:45-3:45, 4:00-5:00* | *Room 18 B* |

Improve Your Measurement Accuracy with Calibration

This presentation helps you better understand accuracy specifications and how to apply them. It also covers the various types of error that can occur in your measurement system and discusses how to correct for them with calibration. Presenters demonstrate how you can take advantage of new smart Transducer Electronic Data Sheet sensors to store calibration information and reduce system setup time.

Paul Packebush, Senior Group Manager of Engineering Services, NI

| *Tuesday* | *11:45-12:45* | *Room 17 A* |
| *Thursday* | *1:30-2:30* | *Room 17 A* |

Improve Your Temperature Measurement Accuracy by 10X

Learn how you can improve the accuracy of your temperature measurements with signal conditioning hardware, system calibration, and the right temperature sensor. This introduction includes a look at how you can reduce your time to first measurement with NI LabVIEW, improve temperature measurement accuracy with signal conditioning, and optimize the performance of your temperature measurement system through LabVIEW calibration examples. Also learn the advantages and disadvantages of thermocouples, RTDs, and thermistors, so you can choose the right temperature sensor for your application.

Bill Boldt, ELP Engineer, NI

| *Wednesday* | *2:45-3:45* | *Room 17 A* |

Increase your Data Acquisition (DAQ) Hardware Performance 10X with New Driver Software

Learn techniques to port existing DAQ applications over to NI-DAQmx, the latest DAQ measurement services software with a 10X performance increase in I/O time and a superior programming interface.

Tim Hayles, Principal Engineer, and Craig Anderson, DAQ Software Product Manager, NI

| *Thursday* | *2:45-3:45* | *Room 16 B* |

LabVIEW Audio Measurements from A-Weighting to Z-Transform

This presentation highlights new National Instruments software and hardware products that combine to generate and acquire high-quality audio signals. Measurements covered include THD, THD+N, frequency response, swept sine, gain, and phase mismatch.

Dean Brockhausen, Staff Hardware Engineer, NI

| *Wednesday* | *10:30-11:30* | *Room 11* |

M Series and USB: The Next Generation of DAQ

The next generation of multifunction DAQ devices has more performance, more I/O channels, and actually costs less! This session details the all new features and designs implemented in M Series data acquisition and discusses the new applications that they address. We will also cover the new USB DAQ devices – perfect for low-cost and portable applications

Brian Betts, Product Manager Multifunction DAQ, NI

| *Tuesday* | *10:30-11:30 / 1:30-2:30* | *Ballroom G* |
| *Thursday* | *10:30-11:30* | *Room 17 A* |

Maximizing Image Quality through Imaging Lenses

This session illustrates the different factors that can affect video lens image quality. Additionally, it describes how manufacturing issues and application requirements related to lenses and cameras can drive system costs and system repeatability with regards to one-off and OEM applications.

Gregory Hollows, Imaging Product Line Manager, Edmund Industrial Optics

| *Wednesday* | *1:30-2:30* | *Room 17 A* |

Measurement Science: Taking High Precision Measurements

This session discusses how to acquire accurate and precise measurements for applications down to the nanovolt level. It covers tips and techniques for maintaining system accuracy and precision over time, despite environmental test system changes.

Ken Reindel, Director of Measurement Technology, NI

| *Tuesday* | *1:30-2:30* | *Room 17 B* |

New Trends and Challenges in Developing Efficient Sound and Vibration Engineering

This session details the evolution in the automotive and aerospace supply chain, specifically focusing on the trend toward setting noise and vibration targets for subsystem suppliers and how noise and vibration test companies are responding to these trends.

Dr. Gabriella Cerrato-Jay, Director of Technology, MTS Sound and Vibration

Sound and Vibration Summit

| *Wednesday* | *1:30-2:30* | *Room 11* |

NI-DAQmx: Under the Hood

Learn new NI-DAQmx techniques for improving your data acquisition programming skills and optimizing your application performance. This session discusses programmatic virtual channel creation, multithreading and hyperthreading, optimizing the task model, and application deployment and retargeting.

Jonathan Brumley, Senior DAQ Software Engineer, NI

| *Wednesday* | *4:00-5:00* | *Room 16 B* |

Objective and Application of Modal Analysis

The presentation covers the basics of modal analysis and key applications for which it should be used. Some of the concepts include basic measurement techniques, correlation between test and analysis models, and more.

Dr. David L. Brown, Professor, University of Cincinnati   ***Sound and Vibration Summit***

| *Tuesday* | *10:30-11:30* | *Room 11* |

NIWeek Session Guide

DAQ, Instrumentation, and Analysis

Rapid Prototyping of Multiantenna Wireless Systems

This session includes an introduction to multiple-input multiple-output (MIMO) communication and describes the ongoing development of a MIMO software-defined radio built with NI RF signal generators and signal analyzers and programmed using NI LabVIEW. The session presents channel measurements obtained with the NI MIMO-OFDM (orthogonal frequency division multiplexing) prototype and features the NI MIMO toolkit available to the public. It concludes with the NI roadmap for demonstrating MIMO ad hoc networking technology using multiple MIMO software-defined radios.

Dr. Robert Heath, Assistant Professor, Wireless Networking and Communications Group, Department of Electrical and Computer Engineering, University of Texas

Wednesday	1:30-2:30	Room 17 B

Reliable Digital Control Using New Features in NI-DAQmx

Learn techniques and tips for performing digital control with NI LabVIEW using NI-DAQmx features. This session covers basic concepts like sinking/sourcing, IEC-1131 voltage thresholds, and isolation, as well as more complex topics like proper implementation of change detection and hardware watchdogs from LabVIEW.

Rahul Kulkarni, Product Marketing Engineer, NI

Thursday	1:30-2:30	Room 16 B

Seven NEW Habits of Highly Successful NI-DAQ Programmers

You may have used NI-DAQmx for a simple application, and now you are ready to learn how to efficiently and effectively create NI-DAQmx code that gives your NI data acquisition device a workout. Attend this session to learn advanced triggering, calibration, and multisensor applications.

Brent Boecking, Data Acquisition Product Manager, NI

Tuesday	10:30-11:30	Room 18 A
Thursday	10:30-11:30	Ballroom G

Sound and Vibration Measurements with LabVIEW

This presentation covers the key components of a virtual instrumentation system for acoustic and vibration measurements. From hardware requirements to the most common analysis techniques, you learn how to take advantage of the latest DSA technologies and LabVIEW to meet almost any sound and vibration challenge.

Robert Giaraffa, Senior Software Engineer, NI **Sound and Vibration Summit**

Tuesday	1:30-2:30	Room 11

Subsynchronous Vibrations Study Using LabVIEW

This session describes how virtual instrumentation can create a powerful and user-friendly rotor dynamics data acquisition system to aid in determining root causes of machine problems and failures.

Dr. John Vance, Professor; Bugra Ertas, Graduate Research Assistant; and Rahul Kar, Graduate Research Assistant, Texas A&M Turbomachinery Lab
Sound and Vibration Summit

Wednesday	4:00-5:00	Room 11

Technologies for Linux, Mac, and Pocket PC DAQ Solutions

Made the move to Linux? Just bought a new G5 Mac? Going portable with Pocket PC? Come learn about new technologies that help you use data acquisition on the operating system of your choice.

Tim Ousley, Portable DAQ Staff Software Engineer, NI

Tuesday	1:30-2:30	Room 16 B

Testing Video Quality with LabVIEW and PXI

Building scalable test systems with LabVIEW and PXI for testing the video quality of increasingly complex consumer multimedia devices, avionics displays, and automotive telematic systems is essential for reducing the cost of test. This session discusses how to use LabVIEW and PXI to build a scalable video quality test platform.

Sean Thompson, Business Development Manager, NI

Wednesday	11:45-12:45	Room 16 B

The Art and Science Behind Optimal Vision Lighting

Light wavelength, position, and shape are the three cornerstones of successful vision illumination. This session summarizes the principles and illustrates techniques for evaluating these three factors and how they interact.

Daryl Martin, Midwest Sales and Support Manager, Advanced Illumination

Tuesday	2:45-3:45	Room 16 B

Thermal Imaging: Providing Industrial Control and Monitoring Solutions

Attend this session to learn how to spot a potential problem before it becomes a major crisis, schedule preventive maintenance efforts in time, and create new process monitoring methods with the aid of thermal imaging cameras.

Stan Kummer, Industrial and Public Safety Market Director Raytheon Commercial Infrared

Tuesday	4:00-5:00	Room 17 A

Understanding USB Technology for Data Acquisition Devices

Get a behind-the-scenes look at one of the most popular bus technologies today. Topics include how USB communication works, how it compares to other buses, the differences between USB 1.1 and USB 2.0, and how data acquisition and control applications can benefit from this bus technology.

Kristi Fairchild, Data Acquisition Product Manager, and Haider Khan, Staff Hardware Engineer, NI

Tuesday	11:45-12:45	Room 16 A
Thursday	11:45-12:45	Room 16 A

Using Industrial Handheld Devices with LabVIEW PDA

This session explores industrial handheld devices and shows how to use the NI LabVIEW PDA Module to build applications for these devices. During this session, learn about ruggedness standards and their applications, as well as the handheld/ PDA marketplace in general through comparisons of various consumer and industrial products. Also see a demonstration of DAP's CE8640 product running LabVIEW to understand the potential of using industrial handheld devices with the LabVIEW PDA Module.

Brian Aldham, Product Manager, and Jack Follick, Regional Sales Manager, DAP Technologies

Tuesday	1:30-2:30	Room 17 A

Using LabVIEW and PXI for End-to-End Digital Communication Link Testing

This session discusses how you can design custom modulation schemes, target algorithms to embedded platforms such as FPGA, add unique measurement and visualization capabilities, ensure tight synchronization between input and output devices, and integrate with tools such as Ansoft Designer.

Abhay Samant, High-Frequency Measurements Software Group Manager, NI

Wednesday	10:30-11:30	Room 16 B
Thursday	11:45-12:45	Room 17 A

Using LabVIEW PDA to Develop a Handheld DMM

Handheld virtual instrumentation developed with LabVIEW PDA provides increased measurement, analysis, and data storage capabilities compared to traditional handheld instruments intended for single-point measurements and manual data logging. This session demonstrates how to build your own handheld DMM using the LabVIEW PDA Module.

Kevin Bisking, Product Manager for Modular Instrumentation, NI

Wednesday	10:30-11:30	Room 17 A

A Camera Bus for Every Application

Most new machine vision cameras follow either FireWire or Camera Link specifications. This advanced session explores the technical details of these dominant machine vision buses and covers the advantages of each. Application examples provide insight on which bus to select depending on the parameters and needs of your application.

Antonio Iglesias, Software Group Manager, NI

Tuesday   *10:30-11:30*   *Room 13*

A Software Simulation Testbed for Third-Generation Wireless Systems

This session describes an example receiver system prototype based on tools from National Instruments, Spirent Communication Systems, Texas Instruments, and Xilinx. Researchers with the National Science Foundation-funded Major Research Instrumentation Project at Rice University in Houston, Texas, are building an open wireless systems testbed that supports end-to-end prototyping research to explore the complexity and performance of signal processing architectures for high-data-rate wireless systems, including multiple transmitting and receiving antenna systems.

Dr. Joseph Cavallaro, Professor, Rice University

Tuesday   *2:45-3:45*   *Room 16 A*

A Technology Overview of Trends in Embedded Design

This technology presentation covers the 20-year history of development tools used in embedded system design. Learn how the proliferation of embedded designs and the availability of new complex, integrated embedded component architectures are creating the need for high-level embedded design tools. Discuss the relationship between virtual instrumentation and embedded design automation tools (both dynamic systems modeling as well as software modeling tools) and how the merger of these domains promises easier design and test of electronics systems.

Yiannis Pavlou, Software Platform Manager, NI

Thursday   *2:45-3:45*   *Room 15*

Building Multirate Time-Critical Applications with LabVIEW

This session explores advanced timing techniques for developing applications with multiple time-critical tasks in LabVIEW Real-Time using the new LabVIEW timed loop. Learn how to programmatically control real-time loop timing and synchronization using dynamic feedback, and how to time loops with hardware events, including frequency sources and digital change detection.

Jacob Kornerup, Ph.D., Senior Software Engineer, NI

Wednesday   *11:45-12:45*   *Room 19 B*

Designing LabVIEW-Based Systems for Reliable Industrial Measurement and Control

Engineers are looking at alternatives to PLCs for industrial automation and control. This session focuses on specific NI LabVIEW and hardware features designed to power LabVIEW, LabVIEW Real-Time, and the LabVIEW FPGA Module on the factory floor.

Todd Walter, Product Marketing Manager, NI

Tuesday   *10:30-11:30*   *Room 17 B*

Engineering Information Management (EIM) Techniques for Turning Technical Data into Engineering Intelligence

EIM is the process of turning technical data into engineering intelligence. This session explains the tools and techniques for designing information systems where data analysis is the primary goal, and gives real-world examples of how this process has benefited customers at Ford, General Motors, and Cummins Engine.

Bharath Chinamanthur, Systems Architect/Program Manager, VI Engineering

Tuesday   *2:45-3:45*   *Room 17 A*

Enterprise Test Data Management of Large Data Sets

Frequently, companies find themselves with large amounts of disjointed data files spread over multiple test systems. This results in hard-to-find and difficult-to-analyze data. Learn ways to properly architect an enterprise-wide test data management system to easily organize your test data and generate reports. Specific topics include the advantages and disadvantages of various data management techniques and a real-world example of a well-designed test data management system of large data sets.

Aaron Gelfand, Staff Engineer, VI Technology

Wednesday   *10:30-11:30*   *Room 17 B*

Exploring a Cable Box with LabVIEW

Have you ever wondered how hundreds of television channels, a high-speed Internet connection, and a phone line can travel down one coaxial cable? Learn how to use LabVIEW to dissect a cable box and examine the high-speed data converters, digital signal processing, and digital modulation techniques that make broadband possible.

Brian Anderson, Hardware Product Manager, NI

Wednesday   *1:30-2:30*   *Room 19 A*

Industry Experts Panel

Hear industry experts discuss hot topics in technology. From technology's role in homeland security to emerging markets, this moderated panel tackles some of today's business and technology headlines with a fresh perspective. Take advantage of this chance to ask Dr. James Truchard of National Instruments, Dr. Geoffrey Orsak of Southern Methodist University, Steve Conquergood of Advanced Measurements, and Maury Wright of *EDN Magazine* questions during the town-hall style Q&A session.

Wednesday   *4:00-5:00*   *Ballroom G*

Integrating LabVIEW with the Mathcad WYSIWYG Design Environment

This session discusses use cases for integrating Mathcad and LabVIEW through scripting and Windows automation. Create a seamless, easily updated interface to trigger and record data from a VI within Mathcad to create a low-cost, end-to-end, design, measurement, analysis, and reporting environment.

Leslie Bondaryk, Technical Project Manager, Mathsoft Engineering and Education, Inc.

Tuesday   *4:00-5:00*   *Room 13*

LabVIEW & Object-Oriented Programming - The Right Mix

Although LabVIEW is not an object-oriented (OO) language, you can use object-oriented design principles with LabVIEW to build better programs. This session introduces basic OO design and terminology, and considers what a LabVIEW application might look like under such design.

Stephen Mercer, LabVIEW Staff Software Engineer, NI

Wednesday   *1:30-2:30*   *Ballroom G*

LabVIEW and PXI: Your Platform for Test, Control, and Design Applications

Attend this session to learn why LabVIEW and PXI make up the de facto standard measurement and automation platform for next generation test systems. Learn why PXI is ideal for measurement and automation applications, and obtain a complete list of PXI vendors to help you locate the PXI hardware that best fits your application needs.

Robert Jackson, PXI Product Manager - PXI Chassis, NI

Tuesday   *11:45-12:45*   *Room 13*

LabVIEW: Talk with the Experts

Join this interactive session with the senior members of the LabVIEW development team, including LabVIEW creator Jeff Kodosky, to learn about the future of LabVIEW.

LabVIEW Architects, including Jeff Kodosky, NI

Wednesday   *2:45-3:45*   *Room 19 A*

NIWeek Session Guide

Hot Technologies

Mac OS X and NI LabVIEW

Learn about the latest innovations scheduled for the next major release of Mac OS X Tiger, the world's most advanced operating system, and the ways Mac OS X continues to deliver a better LabVIEW platform.

C.K. Haun, Senior Director, Developer Technical Services, WWDR, Apple Computer, Inc.

Wednesday   1:30-2:30   Room 19 B

Managing Enterprise Data Using an RDF Database, NI TestStand, LabVIEW, and DIAdem

Explore flexible methods you can use to consolidate data from multiple sources into an enterprise-wide data store based on RDF principles. Presenters use NI DIAdem as a front end to perform data mining and population analysis for process improvement and NI TestStand and NI LabVIEW to create the manufacturing test data.

Stuart McFarlane, Vice President, Viewpoint Systems, Inc.

Tuesday   4:00-5:00   Room 19 A

Mobile LabVIEW Technologies

The session covers the technologies behind mobile data acquisition and demonstrates emerging technologies including Bluetooth and Wireless LAN.

Marius Ghercioiu, R&D Engineer, NI

Thursday   11:45-12:45   Room 13

Modular Test Software Development Techniques with NI TestStand and LabVIEW

See modular test software development techniques to enhance test system lifetime and minimize test system development efforts. Learn about task division among modular test software framework components using NI TestStand, LabVIEW, LabWindows/CVI, and Measurement Studio for Visual Studio .NET.

Dave Rosenthal, Director of Software Engineering, Flextronics Test

Wednesday   11:45-12:45   Room 17 B

.NET Tutorial for LabVIEW Programmers

This session provides a brief introduction to .NET, focusing on those areas that are of most use to LabVIEW programmers. It gives several example VIs that demonstrate how to use classes from the .NET framework in LabVIEW, integrating Measurement Studio for Visual Studio .NET code with LabVIEW, and calling XML Web services.

Robert Cornwell, Senior Program Manager, G Systems, Inc.

Tuesday   2:45-3:45   Room 13

New Digital Camera Technologies for Machine Vision

The IEEE1394 plug-and-play interface makes it a snap to add digital vision to your application. Attend this session to learn how, with NI-IMAQ for IEEE1394, FireWire cameras are seamlessly integrated into machine vision and scientific imaging applications.

Stanley Shmia, Technical Services Manager, Basler Vision Technologies

Thursday   10:30-11:30   Room 13

PCI Express: Next-Generation PC Bus Technology

Learn about the technology behind PCI Express and see how this new bus technology improves the performance of PC-based measurement and automation.

Tim Fountain, Instrument Control Product Strategy Manager, NI

Wednesday   2:45-3:45   Room 19 B

Predicting a Subjective Rating of Surround Sound Systems Using LabVIEW

Learn how *Delta* developed a fully automatic system to predict the subjective sound quality of sound reproduction systems (mostly home theater) based on mapping objective metrics to subjective listening test evaluation.

Carsten Thomsen, Division Manager, Delta

Wednesday   4:00-5:00   Room 19 B

Panel Discussion: Resolving Data Management Challenges in Test and Measurement

Learn how integrators, customers, and product developers are addressing the real-world challenge of managing test data. National Instruments panel members elaborate on the issues they face and what methods they have chosen to resolve them. Panel members also address audience questions. This is a must-attend session for anyone who is involved in collecting, analyzing, and reporting large amounts of test data.

Thursday   10:30-11:30   Room 16 A

Sensors Plug&Play Technology and Applications

Learn how Sensors Plug&Play technology, specified by IEEE 1451.4, improves sensor acquisition system ease of use, accuracy, and reliability. This session reviews the standard, present, practical considerations for implementing the technology and provides industry applications that have utilized Sensors Plug&Play.

Brian Betts, Data Acquisition Product Manager, NI

Tuesday   2:45-3:45   Room 17 B
Wednesday   10:30-11:30   Room 19 B
Thursday   1:30-2:30   Room 13

Strategies for Rapidly Designing and Deploying DIAdem-Based Data Management Systems

Testing departments are continually evolving to meet the needs of more complex product tests. To keep up with demand, tools that work well together and scale with application size are a must. In this session, learn how XFrame speeds development and deployment of data management systems through the use of reusable software components. Also see how customers use XFrame to meet their automated reporting and data analysis needs as well as how this framework works with NI DIAdem.

Werner Ostendorf, Mechanical Engineer, measX GmbH & Co. KG

Wednesday   2:45-3:45   Room 17 B

Symbolic Computation for Modeling and Simulation in LabVIEW

This session presents an exciting new product initiative that integrates Maplesoft analytical capabilities into the LabVIEW environment. The Maple-based advanced mathematical node and other add-on tools give you a true concept-to-code environment in which to develop, simulate, validate, optimize, and deploy models.

Laurent Bernardin, Chief Scientist and VP of Research and Development, Maplesoft

Wednesday   4:00-5:00   Room 16 A

Understanding Optical Zoom Systems

The common optical zoom system is both simple and unforgiving. In this session, Navitar explores and clarifies proper optical zoom system usage for measurement, machine vision, and data acquisition systems.

William Bridson, Director of Marketing and Communications, Navitar, Inc.

Wednesday   4:00-5:00   Room 17 B

What's New in Measurement Studio for Visual Studio .NET

Learn about the all-new features in Measurement Studio for Visual Studio .NET, and discover class libraries, productivity tools, and interactive designers that decrease your development time, increase your productivity, and help you faster automate and control your measurement applications.

Elton Wells, Senior Software Engineer, and David Rohacek, Software Group Manager, NI

Tuesday   10:30-11:30   Room 17 A

Real-Time Control and Embedded

Advanced LabVIEW Real-Time Applications Debugging

This session demonstrates how to dissect a LabVIEW Real-Time application with the new LabVIEW Execution Trace Toolkit. You learn how to identify VI and thread priorities, measure execution time, find sleep and wait spans, and identify memory allocations.

Bob Preis and Brian Thies, Staff Software Engineers, NI

Tuesday	*2:45-3:45*	*Room 14*
Thursday	*10:30-11:30*	*Room 14*

Advanced NI-DAQmx Programming in LabVIEW Real-Time

Discover how to program data acquisition for real-time applications with the latest NI-DAQmx measurement services software. Learn about NI-DAQmx functionality optimized for real-time performance, including acquisition timing modes, synchronization, and real-time feedback. This session demonstrates NI-DAQmx features with the new LabVIEW timed loop for advanced event-response applications.

Matthew Curtis, Senior Software Engineer, NI

Wednesday	*2:45-3:45*	*Room 15*

Advances in Metrology for Microcomponents

In this session, learn how current research addresses the latest geometric microcomponent qualifications and software and hardware developments. See a sensor implemented in both single and array units using National Instruments FPGA technology, which makes the transition from monitoring and controlling a single sensor to an array of sensors a simple and straightforward task.

Dr. Thomas R. Kurfess, PE, Professor, Georgia Tech

Wednesday	*4:00-5:00*	*Room 14*

Alternative Energy Research with NI LabVIEW

Rising energy costs and an increased global awareness of the need for alternative energy have resulted in more research funding. This session examines how National Instruments LabVIEW and NI hardware are being used in alternative energy research. Explore applications such as fuel-cell research, wind power, and biomass.

Gricha Raether, FieldPoint Product Manager, NI, and Roy Costa, Systems Architect, Michigan Waste Energy

Tuesday	*10:30-11:30*	*Room 14*

Architecting a Real-Time System with Multiple Communications

During this session, learn tips and techniques for building LabVIEW Real-Time systems that require multiple communications operations. Also explore a diesel emissions regeneration system case study. This example runs on a LabVIEW Real-Time PXI system and includes data acquisition and control, streams data to disk, and communicates with a remote control interface and a Bosch engine controller. The remote control interface (host computer) displays current conditions, so you can take control of the system if necessary.

Alfred Collins, President, Raeburn Technology

Wednesday	*1:30-2:30*	*Room 16 B*

Best Practices for Developing Time-Critical Loops in LabVIEW Real-Time

This session covers the appropriate techniques for developing time-critical control loops in LabVIEW Real-Time systems. Topics include memory preallocation, analog I/O configuration, data transfer to and from the time-critical loop, priority inversions, the appropriate use of structures and sub VIs, and techniques for accounting for single-threaded DLLs such as traditional NI-DAQ.

Edward Sekel, Project Manager/Senior Engineer, Wineman Technology, Inc.

Tuesday	*11:45-12:45*	*Room 15*

Beyond PID: Designing Custom Control Algorithms

When is PID control not enough? Learn how the new NI LabVIEW control design and simulation tools help you design a custom control algorithm that matches your specific requirements. See the steps for building automatic feedback control systems: system identification/modeling, dynamic analysis and controller synthesis, simulation of both linear and nonlinear systems, and deploying controller prototypes and/or hardware-in-the-loop simulators.

Brandon Steele, LabVIEW Product Support Engineer, NI

Wednesday	*4:00-5:00*	*Room 13*

Building Reliable In-Vehicle Data Acquisition Systems with CompactRIO

This session introduces a reference design example as well as tips for creating reliable in-vehicle data acquisition systems using the NI CompactRIO reconfigurable control and acquisition system. Learn how the accuracy/performance, size/weight, and low-power consumption of CompactRIO help you create advanced mobile/portable applications. Also see how to partition your application for acquisition, logging, user interface, and communication. Topics include timing/synchronization, data streaming/ buffering, formatting/ logging, FTP, Web browser remote panels, UDP broadcast, and interfacing with GPS units.

Brian MacCleery, CompactRIO Product Marketing Manager, NI

Thursday	*10:30-11:30*	*Room 15*

Building Rugged Industrial Machine Control Systems with CompactRIO

This session features a reliable real-time embedded control reference design example and provides tips for creating rugged, reliable, and low-cost machine control systems using NI CompactRIO. With the unprecedented flexibility and open access to CompactRIO low-level hardware capabilities, you can replace costly custom circuit designs and create complete stand-alone embedded control systems while performing both hardware and software design in NI LabVIEW. Topics include single-point control, FPGA-based PID, parallel logic, redundancy, motion control, and interfacing with industrial sensors/actuators.

Todd Dobberstein, Data Acquisition Marketing Engineer, NI

Wednesday	*11:45-12-45*	*Room 15*

Creating a Customized, Embedded Machine Control Solution with CompactRIO

Learn how to utilize the flexibility and performance of the CompactRIO reconfigurable embedded system and create a customized, embedded machine control solution. This session discusses how CompactRIO can replace and is more flexible than custom circuit boards normally used in the machine control industry.

Todd Dobberstein, Data Acquisition Marketing Engineer, NI

Wednesday	*2:45-3:45*	*Room 16 A*

Creating High-Performance Distributed Real-Time Systems

Learn how to develop high-performance, real-time, distributed systems in this hour-long session. Find out how to solve challenges by reviewing user solutions on topics such as high-performance data streaming with distributed shared memory and multiclient monitoring and control. This session discusses architecting distributed systems and creating efficient communication frameworks.

Daniel Elizalde, Systems Engineer, Embedded Technologies, NI

Tuesday	*4:00-5:00*	*Room 15*

NIWeek Session Guide

Real-Time Control and Embedded

Design and Synchronization of Multichassis PXI Systems

This session discusses synchronization of multiple PXI chassis for implementation of high-channel-count measurement systems. Learn about several techniques, including long-distance GPS-based synchronization and distributed data acquisition. View the methods used at the Lockheed Martin F-35 Joint Strike Fighter Vehicle Systems Integration Facility as a case study.

Michael Fortenberry, Vice President of Strategic Technology, G Systems Inc.

Thursday   11:45-12:45   Room 15

Developing Graphical Models for Embedded Control Applications

Learn how you can use graphical design packages such as LabVIEW and MATRIXx in the embedded control system design process to improve time to market, testing quality, and product performance. This session draws from production examples to introduce the key principles of system architecture, style, and testing necessary to effectively manage graphical modeling environments.

George Brunemann, Embedded Systems Architect, NgEK, Inc.

Tuesday   1:30-2:30   Room 15

Development of an Autonomous Land Vehicle to Navigate a $1 Million Course

This session features a vehicle that competed in an autonomous land vehicle challenge sponsored by the Defense Advanced Research Projects Agency and the United States Congress. Using NI hardware and NI LabVIEW software, the vehicle was designed to navigate through given waypoints and avoid obstacles without any interaction by a human operator. PXI computers processed incoming data from external sensors and commanded motors to drive the vehicle. Self-monitoring and emergency shutdown programs were also used to ensure safety.

Charles Reinholtz, Alumni Distinguished Professor, Virginia Tech

Wednesday   11:45-12:45   Room 14

DSP Design Using Graphical Programming

Learn how to use graphical programming to quickly and efficiently program real-time algorithms for DSP hardware. Explore features such as code profiling, interrupt processing, and conditional operations that are normally associated with the DSP development process with the Hypersignal RIDE DSP software.

Jim Zachman, Principal Engineer, and Steve Zachman, Senior Software Engineer, Hyperception, Inc., a National Instruments Company

Wednesday   10:30-11:30   Room 14

DSP HIL Testing with LabVIEW Real-Time Simulations and the LabVIEW DSP Test Integration Toolkit

This session shows you how Viodia, Inc., used LabVIEW Real-Time, the LabVIEW DSP Test Integration Toolkit, and PXI hardware to simplify hardware-in-the-loop (HIL) testing on a variety of flight control systems for rocket guidance and navigation. The LabVIEW-PXI combination proved to be a high-performance and flexible platform for testing DSP-based control algorithms against simulated devices for proof of concept and for verification before live system testing.

Chris Clark, President, and Chip Grandits, Software Engineer, Viodia, Inc.

Wednesday   1:30-2:30   Room 14

Extend LabVIEW Real-Time Applications through ANSI C Integration

Leverage the LabWindows/CVI real-time capabilities to reuse existing code in your real-time applications. Attend this session to learn about the new remote debugging capabilities, as well as the LabWindows/CVI to LabVIEW Real-Time integration features.

Joel Shapiro, ELP Engineer, NI

Thursday   1:30-2:30   Room 14

FieldPoint Architecture and Tips to Improve Performance with LabVIEW Real-Time

In this session, NI FieldPoint designers explain the inner workings of the FieldPoint architecture. They discuss the timing of the data bus, multiple loop creation in NI LabVIEW, and ways to reduce system jitter. They also examine the upper speed limits of FieldPoint for acquisition and control with a focus on new fast analog input and analog output modules. Learn how to achieve accurate code execution when building embedded real-time systems on NI FieldPoint and Compact FieldPoint platforms.

Sadia Malik, Software Group Manager, and Charles Crain, Senior Software Engineer, NI

Wednesday   10:30-11:30   Room 15

Hands-On: CompactRIO Fundamentals

Learn the basics of the NI CompactRIO reconfigurable control and acquisition system programming fundamentals for developing data acquisition and control systems. This hands-on session introduces you to the basics of developing LabVIEW FPGA applications for CompactRIO. Topics include configuration, targeting, I/O, FPGA-to-host communication, and data scaling.

Patrick Robinson, Applications Engineer, NI

Wednesday   1:30-2:30 / 2:45-3:45 / 4:00-5:00   Room 18 C

Hands-On: CompactRIO Intermediate

In this NI CompactRIO hands-on session, learn intermediate programming skills such as FPGA/host synchronization and timing/triggering. Also explore programming techniques to optimize your applications and take full advantage of Compact RIO flexibility and optimization.

Chris Farmer, CompactRIO Product Support Engineer, NI

Thursday   10:30-11:30 / 11:45-12:45 / 1:30-2:30   Room 18 C

Hands-On: Introduction to LabVIEW Real-Time

Discover how you can extend the power of LabVIEW into small, deterministic, embedded applications. Learn how to build a complete LabVIEW Real-Time application, download it to an embedded processor, and control the application remotely over a network.

Vineet Aggarwal, ELP Engineer, NI

Tuesday   11:45-12:45 / 1:30-2:30 / 4:00-5:00   Room 18 B

Hands-On: Introducción a LabVIEW Real-Time

Descubra cómo usted puede ampliar el poder de LabVIEW para aplicaciones determinísticas, autónomas y que requiere ser altamente confiables. Aprenda cómo construir una aplicación completa en LabVIEW Real-Time, descargando a un procesador embebido y controlando el uso remotamente desde una red.

Gustavo Valdes, ELP Engineer, NI

Tuesday   2:45-3:45   Room 18 B

Real-Time Control and Embedded

Improved Methods of Controller Performance Assessment and Condition Monitoring

Over the last decade, controller performance assessment and benchmarking has attracted considerable interest because it is intimately related to good controller design. The presentation covers a benchmarking introduction, basic minimum variance benchmarking methods, GMV and LQG benchmarking, restricted structure benchmarking and controller tuning, extensions to multivariable systems, structure performance assessment using benchmarking measures, lessons for condition monitoring, and advantages illustrated through industrial advantages examples.

Dr. Mike Grimble, Director, Industrial Control Centre, University of Strathclyde

Tuesday   1:30-2:30   Room 16 A

Introducing the NI CompactRIO Reconfigurable Control and Acquisition System

The new NI CompactRIO platform is an embedded control and acquisition system based on reconfigurable I/O (RIO) FPGA technology. This revolutionary new system combines the extreme performance and customization of reconfigurable FPGA circuitry with a small, rugged, DC-powered form factor; isolated industrial I/O modules; and a real-time embedded processor. In this session, learn about the CompactRIO system and see a demonstration. Topics also include performance benchmarks, applications, and developer tools.

Todd Dobberstein, CompactRIO Product Marketing Engineer, and Brian MacCleery, CompactRIO Product Marketing Manager, NI

Tuesday   2:45-3:45   Room 15

LabVIEW Real-Time and PXI Hardware for Reliable and Autonomous Control

This session discusses options for real-time PXI equipment control using LabVIEW Real-Time. It also includes a LabVIEW Real-Time architecture review, a comparison of different PXI targets, target and communication procedure demonstrations, and demonstration of LabVIEW Real-Time support for modular instruments.

Robert Jackson, PXI Product Manager, PXI Chassis, and Kevin Bisking, Marketing Engineer, DMMs and Switching, NI

Thursday   2:45-3:45   Room 14

Measurement-Based Modeling, Simulation, HIL, and Testing under LabVIEW

X-by-wire and driver assistance systems for automobiles are just a few examples where measurement, model-based development, simulation, control engineering, and testing play important roles to gain and efficiently ensure product quality and safety. This presentation shows how you can use the integrated tool environment of LabVIEW 7.1 and ecICP for LabVIEW in the different development steps ranging from measurement up to real-time simulation and hardware-in-the-loop (HIL) testing.

Dr. Helmuth Stahl, Vice President, ITK Engineering GmbH

Tuesday   11:45-12:45   Room 19 A

Qualitative Simulation for Design and Diagnosis

This session demonstrates how, given a qualitative description of a system (an abstraction of an ODE and initial state), a qualitative simulator such as QSIM creates a transition graph of qualitative states guaranteed to describe every real solution of every ODE initial-value problem consistent with the given qualitative model.

Dr. Benjamin Kuipers, Professor, University of Texas

Wednesday   2:45-3:45   Room 14

Teaching Control with LabVIEW

This session begins with an introduction to control systems using a DC servo motor as a model. By utilizing the LabVIEW attractive user interface, coupled with its powerful data acquisition capabilities, Quanser has developed fully integrated hands-on laboratories aimed at introducing students to control concepts. The session, includes a full demonstration starting with the development of a complete closed-loop controller and finishes with a hybrid controller designed to swing up and balance an inverted pendulum.

Dr. Jacob Apkarian, Founder and Chairman, and Paul Karam, Design Engineer, Quanser

Wednesday   10:30-11:30   Room 18 A

Virtual and Physical Testing in Product Development

This presentation examines several design attributes of an automobile, including durability; noise, vibration, and harshness; crash; and vehicle performance to illustrate the changing relationship between virtual and physical test in product development. More and more, virtual tests are used in areas where simulation technology has matured in order to explore design alternatives. Physical tests continue to be used to drive innovation in new technology areas. Through examples, presenters demonstrate the integration of NI tools for physical testing and MSC tools for virtual testing.

Patrick McNally, Senior Director of Industry Business Development, MSC Software

Wednesday   4:00-5:00   Room 15

What's New in LabVIEW Real-Time

Discover the powerful new features of the latest version of LabVIEW Real-Time. Observe the debugging and analysis capability of the LabVIEW Execution Trace Toolkit as it displays precise tracing of thread execution and preemption. Learn how you can now deploy a LabVIEW Real-Time application to a desktop PC.

Kristi Hummel, ELP Engineer, NI

Tuesday   10:30-11:30   Room 18 B

Thursday   10:30-11:30   Room 19 A

NIWeek Session Guide

Software Development Techniques

Advanced Data Acquisition in Visual C# .NET

Attend this session to learn how to develop data acquisition applications in Visual C#. Explore the power of the DAQ Assistant as a .NET designer for powerful code generation, and understand how to leverage the NI-DAQmx .NET application programming interface (API) to quickly develop applications.

Chris Wood, Measurement Studio R&D Staff Software Engineer, NI

Thursday   *11:45-12:45*   *Room 12 B*

Advanced Instrument Control with LabVIEW

Are you ready to move beyond simple Virtual Instrument Software Architecture reads and writes for your LabVIEW instrument communication? This session covers advanced LabVIEW instrument control techniques, when and how to use service requests to build more efficient applications, the differences between NI-488.1, NI-488.2, and NI-VISA, and how to design for instruments that can communicate with USB and Ethernet in addition to GPIB.

Noel Adorno, LabVIEW R&D Senior Software Engineer, NI

Thursday   *10:30-11:30*   *Room 11*

Advanced LabVIEW Design: Usability, Reusability, and Maintainability

Are you developing LabVIEW code for others to use or maintain? Attend this session to learn how to develop VIs that integrate well into the LabVIEW environment. Acquire tips and techniques for designing VIs that balance ease of use and advanced capabilities and learn how to make your VIs easier for others to learn using palette organization, icon design, and organized documentation.

Brian Powell, LabVIEW R&D Senior Group Manager, NI

Wednesday   *1:30-2:30*   *Room 12 A*

Advanced LabVIEW Event-Driven Programming Topics

Learn how and when to use dynamic and user-defined events in your LabVIEW applications. To get the most out of this session, you should be familiar with LabVIEW VI server concepts and basic LabVIEW event usage.

Craig Smith, Senior Software Engineer, NI

Tuesday   *2:45-3:45*   *Ballroom G*

Advanced LabVIEW Programming Tips and and Techniques

Enhance your programming expertise with these powerful tips and techniques for developing advanced LabVIEW applications. Learn to take full advantage of smart probes, timed loops, event-driven programming, memory management tools, and file I/O performance enhancements.

Jeff Boettcher, Software Engineer, NI

Tuesday   *11:45-12:45*   *Room 12 A*
Thursday   *2:45-3:45*   *Room 17 B*

Advanced Programming with LabVIEW

This session focuses on reusing existing code created with other programming languages. The three primary objectives include building LabVIEW VIs into DLLs and using them in other applications, accessing LabVIEW functionality from other applications through a VI server, and discussing advanced topics like data-type and memory issues.

Murali Parthasarathy, Group Manager, NI

Wednesday   *10:30-11:30*   *Room 13*

Best Practices for Writing, Retrieving, and Reporting Test Data with LabVIEW

The format in which you save your test data directly impacts how effectively your company can process information and make informed decisions. This session investigates what it means to manage test data by looking at the several different NI LabVIEW data formats available to you, and by discussing the common methods for reporting data with NI DIAdem. Obtain recommendations to improve your efficiency at converting your test data into decision-driving results.

Tom Ferraro, DIAdem Marketing Engineer, NI

Tuesday   *11:45-12:45*   *Room 14*

Connectivity with LabWindows/CVI

Learn how to connect your data and applications with the external world using TCP/IP, ActiveX, Web-based technologies, data-logging libraries, and other tools in LabWindows/CVI.

Madras Mohanasundaram, Staff Software Engineer, NI

Thursday   *10:30-11:30*   *Room 12 A*

Designing Multilingual Applications in LabVIEW

This session discusses different designs and techniques for building LabVIEW applications that facilitate translation into different languages.

Robert A. Morton, Software Engineer, NI

Thursday   *1:30-2:30*   *Room 12 A*

Design Patterns for Implementing Asynchronous Processes in LabVIEW: LabVIEW User Group Meeting

Attend this special LabVIEW user group meeting to learn about launching, managing, and communicating with asynchronous processes such as a dynamically called VI, a cloned front panel, an embedded panel, or any parallel task. Investigate these processes and messaging architectures with presenter Michael Aivaliotis, who has more than 10 years of experience in developing complex LabVIEW applications and is leader of the Southern Ontario LAVA User Group in Canada.

Michael Aivaliotis, Vice President, mmWave Integrated Solutions Inc.

Wednesday   *1:30-2:30*   *Room 12 B*

Develop Instrument Control Applications in Visual C# .NET

Learn how to use the NI-488.2 and VISA.NET interfaces to connect to and control your instrumentation systems in Visual Studio .NET. Discover how to integrate legacy instrument drivers, increase throughput with asynchronous communication, and reduce development time with the Instrument I/O Assistant .NET designer automatic parsing and code generation capabilities.

Glenn Burnside, Senior Software Engineer, NI

Thursday   *1:30-2:30*   *Room 11*

Developing a Reusable NI TestStand Software Framework

This session discusses how to architect a customized NI TestStand software framework. See examples of reusable NI TestStand software framework development based on user-defined operator interfaces, process models, step types, and reports.

Marcela Maldonado, Senior Software Engineer, Data Science Automation

Thursday   *1:30-2:30*   *Room 17 B*

Software Development Techniques

Developing Custom Operator Interfaces with NI TestStand User Interface Controls

Learn how to effectively use the new NI TestStand user interface controls to develop your custom NI TestStand operator interfaces with 90 percent less code. This session demonstrates the 12 user interface controls and provides examples of custom operator interfaces developed using the new controls. NI TestStand experts also discuss your specific questions regarding custom operator interface development.

James Grey, NI TestStand Principal Engineer, NI

Wednesday   11:45-12:45   Room 13

Developing LabVIEW Applications on PDAs

This session highlights the LabVIEW PDA Module 7.1 features, as well as techniques for developing well-architected applications for mobile devices. See how to build Bluetooth applications for PDAs and demonstrate other scenarios where PDAs are useful.

JR Andrews, LabVIEW Real-Time and PDA Product Support Engineer, NI

Wednesday   10:30-11:30   Room 12 B

Developing More Powerful Applications Using State Machine Architectures in LabVIEW

The state machine architecture is one of the most powerful and flexible tools that a programmer can bring to LabVIEW code. This session provides an in-depth exploration of state machine architecture in LabVIEW, including simple state machines, the LabVIEW State Machine Toolkit, and queued message handlers.

Robert Humfeld, Senior Project Engineer, Innoventor, Inc.

Tuesday   2:45-3:45   Room 19 B

Developing Your Own Express VIs

In this session, learn the basic components of Express VIs and tips and techniques to help you create your own. See how to create Express VIs that you can share with customers and colleagues or simply reduce the complexity of your own LabVIEW development tasks.

Crystal Drumheller, Staff Software Engineer, NI

Wednesday   11:45-12:45   Room 12 A

GUI Implementation in LabVIEW

Creating a good GUI in LabVIEW has become easier with every release. There are now a plethora of tools available for GUI development. But how do you put them all together to get a responsive GUI that is easy to maintain and modify? This session shows you several options and gives an example of a simple, extendible GUI architecture.

Dr. Damien Gray, Instruments R&D Senior Software Engineer, NI

Thursday   10:30-11:30   Room 12 B

Hands-On: DIAdem Advanced Data Analysis and Report Generation

In this session, you learn how to manage, inspect, analyze, and report your test data using DIAdem. The session includes a series of exercises that highlight the interactive data analysis and reporting features DIAdem offers, and shows you how DIAdem significantly reduces the time it takes to analyze and report test data.

Paco Nieto, ELP Engineer, NI

Wednesday   11:45-12:45 / 1:30-2:30 / 2:45-3:45   Room 18 A

Hands-On: DIAdem para del Análisis y Generación de Reportes Avanzados

La sesión incluye una serie de ejercicios enfocados en el análisis de datos interactivo y el proceso de las características que DIAdem ofrece, y le demostraremos cómo DIAdem notoriamente reduce el tiempo que toma para analizar y procesar datos de prueba.

Paco Nieto, ELP Engineer, NI

Wednesday   10:30-11:30   Room 18 A

Hands-On: LabVIEW PDA

This session teaches you how to build and run applications on handhelds. Walk through the process step-by-step and learn tips and tricks for building well-designed mobile applications.

Miko Hadikusuma, Staff Software Engineer, NI

Wednesday   11:45-12:45 / 1:30-2:30 / 2:45-3:45   Room 18 D

Hands-On: LabVIEW PDA (Spanish)

Esta sesión le enseña cómo construir y emplear el uso en PDAs. Explicamos paso a paso el proceso y le damos ideas y trucos que le ayudarán a construir aplicaciones móviles eficientes.

Juan Contreras, ELP Engineer, NI

Wednesday   4:00-5:00   Room 18 D

Hands-On: Introduction to SignalExpress

Develop a greater understanding of how SignalExpress helps you, your customers, and your coworkers automate the world by taking measurements, performing complex analysis, and comparing measured test results to simulated results from design tools.

Richard McDonell, Senior Software Product Manager, NI

Tuesday   1:30-2:30 / 2:45-3:45 / 4:00-5:00   Room 18 C

Hands-On: What's New in LabVIEW 7.1

In this session, you experience the new additions to LabVIEW firsthand. We also review examples of the most successful features introduced with LabVIEW 7 Express, including the event structure, Express VIs, and measurement assistants.

Brandon Steele, LabVIEW Product Support Engineer, NI

Tuesday   11:45-12:45 / 1:30-2:30 / 2:45-3:45   Room 18 D

Hands-On: ¿Qué Hay de Nuevo en LabVIEW 7.1?

En esta sesión, usted experimentará de primera mano las nuevas funciones de LabVIEW. También repasamos ejemplos de las características más exitosas introducidas con LabVIEW 7 Express, incluyendo estructura de eventos, Express VIs y los asistentes de medición.

Eugenio Bernal, ELP Engineer, NI

Tuesday   4:00-5:00   Room 18 D

How to Improve Your VIs with the NI LabVIEW VI Analyzer Toolkit

LabVIEW is incredibly easy for new users to learn, and expert programmers can develop applications with unlimited complexity. In this session, you learn how to use the VI Analyzer Toolkit, which provides LabVIEW users of all skill levels with the ability to improve VI maintainability, performance, and power.

Darren Nattinger, LabVIEW R&D Staff Software Engineer, NI

Wednesday   2:45-3:45   Ballroom G

Increasing Quality and Reducing Development Time Using Software Engineering Practices in LabVIEW

As software continues to grow as a percentage of the total system cost, many organizations are focusing on ways to decrease development time while increasing quality. This session discusses capability maturity model integration (CMMI) and the critical steps to developing and implementing a professional software engineering process.

Wyatt Meek, VISTA Product Manager, VI Engineering

Tuesday   4:00-5:00   Room 12 B

NIWeek Session Guide

Software Development Techniques

Inside Your Computer: An Introduction to How Computers Work

Have you ever wondered exactly how your computer works? During this one-hour session, explore the details of the different hardware pieces, such as the CPU, RAM, motherboard, and system clock, and take an in-depth look at how they interact with each other to make up a computer.

Kaustubh Wagle and Matthew Friedman, Applications Engineers, NI

Tuesday	11:45-12:45	Room 19 B
Wednesday	4:00-5:00	Room 12 A

Insights for Successful Deployment of NI TestStand and LabVIEW Applications

This session provides essential steps you can follow to ensure successful NI TestStand and LabVIEW application deployment. During this session, see new tools (such as the NI TestStand Deployment Utility) that simplify deployment. Also discuss development guidelines for easing test system deployment and maintenance.

Marcela Maldonado, Senior Engineer, Data Science Automation

Wednesday	1:30-2:30	Room 16 A

Introduction to the Event Structure and Event-Driven Programming in LabVIEW

In this session, review the basic technologies and concepts behind event-driven programming in LabVIEW. Learn how you can adopt this UI-management model into your VI development.

Jason King, Staff Software Engineer, NI

Tuesday	1:30-2:30	Room 13

Introduction to SignalExpress

This presentation gives you an introduction to SignalExpress, the latest software initiative from National Instruments to lower the barrier to automation and virtual instrumentation. Using this completely configurable interactive software, you can quickly automate your measurements and get to your signals faster than ever before. You also can directly generate LabVIEW code for low-level customization. You can use this software to prototype your applications or use Express technology to help your nonprogrammers build objects in NI LabVIEW.

Richard McDonell, Senior Software Product Manager, NI

Tuesday	10:30-11:30	Room 12 B

Lab Automation: Issues and Challenges Addressed by IMATIS, a LabVIEW-based LIMS

This session discusses trends in the lab automation industry and gives an example application. It also describes how to use an IMATIS LabVIEW-based LIMS, LabVIEW, vision, instrument integration, and other tools for automating laboratory equipment, and discusses validation and verification, including 21 CFR Part 11.

Morten Andresen, President, CARDIAC AS

Wednesday	2:45-3:45	Room 13

LabVIEW FPGA: Introduction and Common Applications

This session includes a definition and demonstration of how to build a simple application and a discussion of practical, real-world customer applications.

Mike Trimborn, DAQ Marketing Manager, NI

Tuesday	10:30-11:30	Room 18 C
Wednesday	10:30-11:30	Room 18 D

LabVIEW Math Algorithms and Applications: Making Math Work

LabVIEW 7.1 includes many significant improvements to its core mathematic capabilities. Instead of incorporating functionality from third-party mathematics and analysis packages, you now can use LabVIEW, shortening development time and complexity and often showing significant gains in application performance.

Darren Schmidt, Senior Software Engineer, and Jim Nagle, Staff Software Engineer, NI

Tuesday	1:30-2:30	Room 19 A

Managing Large Data in LabVIEW

Learn straightforward techniques to deal with large memory objects in LabVIEW. This session teaches you how to acquire, store, and display data without slowing down your VI or running out of resources.

Dr. Damien Gray, Instruments R&D Senior Software Engineer, NI

Tuesday	2:45-3:45	Room 12 B

Managing Ultrahigh-Density Switch Systems with NI Switch Executive

See how the latest NI Switch Executive features simplify the configuration and programming of ultrahigh-density switching applications. Set up IVI switches in Measurement & Automation Explorer (MAX), configure channels, create hardwires and route groups, and validate your entire switch application.

Ron Harrison, Software Product Marketing Engineer, NI

Thursday	10:30-11:30	Room 17 B

Mastering the NI Certification Exams

Master the NI certification exams by learning about common pitfalls, preparation tools, grading criteria, and the certification process in this comprehensive session. By attending this session, you can gain insight to avoid common mistakes and increase your chances to successfully complete the certification exam.

Zaki Chasmawala, Staff Course Development Engineer, NI

Tuesday	1:30-2:30	Room 12 A

Maximize Flexibility through Extensible .NET UI Components

Attend this technical session to see how you can easily customize your user interface control appearance with minimal code. The session covers creating custom line styles and point styles for use with plots and custom control styles through events. You also learn about the extensible Measurement Studio user interface API, providing the foundation for a flexible user interface presentation.

Abhishek Ghuwalewala, Software Engineer, NI

Tuesday	1:30-2:30	Room 12 B

New LabVIEW Tools for Quickly Creating Better LabVIEW Instrument Drivers

This session shows both novice and experienced users new tools and techniques for quickly developing high-quality native LabVIEW instrument drivers. See what the latest instrument driver templates, Web-based development guidelines, and icon art, and learn how to use the VI Analyzer.

Jason Hobbs, Software Group Manager, NI

Tuesday	10:30-11:30	Room 12 A
Thursday	1:30-2:30	Room 19 A

NI "UltimATE II" Manufacturing Test Architecture Case Study

This session discusses the state-of-the-art modular test software and hardware architecture developed for internal National Instruments product testing throughout the product development life cycle. It covers the Ultimate II framework based on NI TestStand, LabVIEW, and PXI.

Roberto Piacintini, Manufacturing Test Software Engineer, NI

Wednesday	2:45-3:45	Room 12 A

Software Development Techniques

Optimizing Your VI Performance

This session features ways to find and eliminate performance issues in your LabVIEW applications using built-in utilities. Also learn some secrets behind LabVIEW execution engine behavior.

Daniel Hedges, Group Manager, NI

Tuesday   *11:45-12:45*   *Room 12 B*

Pick Your Protocol: Interfacing to External Components and Systems with LabVIEW FPGA and RIO-Enabled Hardware

Do you need to communicate to a device that speaks an uncommon digital protocol? Or perhaps you would like to add more memory to your R Series hardware or integrate an ADC or DAC with higher resolution or speed. This session discusses how to configure the FPGA on RIO-enabled hardware to communicate using almost any digital protocol.

Christian Loew, Project Manager, NI

Thursday   *1:30-2:30*   *Room 12 B*

Reducing Development Time by Improving Debugging Skills in LabVIEW

How many times have you spent too much time during a software project debugging your code? This session explores all of the LabVIEW tools that help you detect and prevent software errors. It focuses on learning to take full advantage of 10 key LabVIEW features that can reduce errors in your code and make testing your code less time-consuming.

Robert Humfeld, Senior Project Engineer, Innoventor, Inc.

Wednesday   *4:00-5:00*   *Room 12 B*

Reducing Software Life-Cycle Costs by Using Object-Oriented Programming Techniques in LabVIEW

Graphical object oriented-programming (GOOP) provides advanced design techniques for component management in complex applications where flexibility and easy maintenance are key. This presentation discusses system architectures that utilize classes and sequence diagrams to replace the traditional top-down design, composed of a hierarchical tree of subVIs.

Dan Woods, Senior Product Engineer, VI Engineering

Wednesday   *11:45-12:45*   *Room 16 A*

Refactoring LabVIEW Programs: A Systematic Approach for Improving Existing VIs

Do you need to add features or debug a program with a difficult-to-understand source? If so, you might consider refactoring the code. In this session, learn how you can refactor LabVIEW programs efficiently in a controlled manner.

Kosta Ilic, Senior Software Engineer, NI

Wednesday   *11:45-12:45*   *Ballroom G*

Resource-Aware Programming

This session examines why traditional high-level programming languages can be inappropriate for embedded systems applications, and introduces the idea of resource-aware programming (RAP) languages.

Dr. Walid Taha, Assistance Professor, Department of Computer Science, Rice University

Thursday   *11:45-12:45*   *Room 14*

Software-Based Motion Control Solutions with LabVIEW Real-Time

Learn how the new NI-SoftMotion Development Module for LabVIEW can help you develop software-based motion control solutions for a wide range of applications. With NI-SoftMotion, you have complete flexibility in implementing your custom motion application using LabVIEW with a data acquisition board, CompactRIO, or Compact FieldPoint. See live demonstrations to learn how you can use this new technology to create custom, robust, software-based motion control applications tailored to your specific needs.

Sundeep Chandhoke, Principal Architect for Motion Control, NI

Tuesday   *11:45-12:45*   *Ballroom G*

Software Engineering with LabVIEW

You have probably heard that using sequence structures is bad, but do you know why? You know VIs need to be organized and easy to read, but do you know what makes a diagram easy to read? This presentation covers many aspects of VI design that become important when building large LabVIEW applications.

Brian Powell, LabVIEW R&D Senior Group Manager, NI

Tuesday   *2:45-3:45*   *Room 12 A*

Wednesday   *2:45-3:45*   *Room 12 B*

Storage VIs in LabVIEW 7.1 and DIAdem 9.0

The LabVIEW 7.1 storage VIs provide foolproof data exchange between LabVIEW and DIAdem, as well as a new convenience in storing waveform data to files. See how to efficiently store data using the TDM file format in LabVIEW 7.1 and DIAdem 9.0.

Herbert Engels, LabVIEW Senior Software Engineer, NI

Tuesday   *4:00-5:00*   *Room 14*

The Nuts and Bolts of Part Identification and Classification

Optical character recognition (OCR) and 2D barcodes are just the tip of the classification iceberg. Learn about new classification algorithms, how they work under the hood, and when you should use them.

Kyle Voosen, Product Marketing Engineer, NI

Tuesday   *4:00-5:00*   *Room 12 A*

Thursday   *11:45-12:45*   *Room 17 B*

The Tale of Two Pattern-Matching Algorithms

This in-depth session focuses on the National Instruments patented correlation-based pattern-matching and new geometric-based pattern-matching techniques. In addition, it discusses the theory behind both tools and how to effectively use them.

Dinesh Nair, Principal Architect, NI

Wednesday   *10:30-11:30*   *Room 12 A*

Thinking Inside the Chip: Graphical Design Techniques for FPGA Configuration

What concepts and techniques should a LabVIEW or LabVIEW Real-Time user know about developing with LabVIEW FPGA? In this session, discuss LabVIEW FPGA under the hood to better understand how to develop more powerful and efficient applications.

Joe Peck, Principal Architect, NI

Wednesday   *1:30-2:30*   *Room 13*

Tips and Techniques for Accurate and Reliable Measurements in LabVIEW

This session covers a variety of software techniques to ensure measurement reliability traceable to national laboratory references and includes a simple list of checks to perform before taking a measurement.

Alain Moriat, Principal Architect, LabVIEW - Measurement and Analysis, NI

Wednesday   *11:45-12:45*   *Room 12 B*

NIWeek Session Guide

Software Development Techniques

Trash to Treasure: Getting the Most Value Out of Your Custom LabVIEW Code

Almost everyone likes to talk about the benefits of reusable software. This session covers the basics of developing and organizing your code into functional groups you can use to implement your experience in future projects.

Tim Jones, Sr. Test Equipment Systems Integrator, Hamilton Sundstrand

Wednesday   2:45-3:45   Room 16 B

Understanding Digital Technologies: LVDS, JTAG, and Others

New digital technologies such as LVDS, FPGAs, and JTAG can make it difficult for a system developer to keep pace. This session addresses these trends and how you can use high-speed digital devices to take advantage of new cutting-edge technologies.

Allen Hall, Product Support Engineer, NI

Tuesday   11:45-12:45   Room 17 B

Use of LabVIEW and IDL to Control Jet Printing for the Fabrication of Organic-Based Thin Film Transistors

At this session, presenters from Xerox's Palo Alto Research Center describe their printing system, which includes the first plastic semiconductor transistor array entirely patterned using jet printing. They also explain how NI LabVIEW has been effective and essential in their research and manufacturing setting. They then demonstrate a technique to completely eliminate photolithography in the production of transistor arrays for displays and image sensors.

Steve Ready, Sr. Member of the Research Staff, Electronic Materials Lab, Xerox

Tuesday   4:00-5:00   Room 19 B

User-Configurable LabVIEW GUIs

This session discusses several methods for programmatically enabling custom LabVIEW front panel configuration at runtime. It also demonstrates use cases, architectural aspects, and three LabVIEW examples, including configurable, fixed-position panel regions, drag-and-drop UI objects, and instantiated UI objects.

Dave Baker, Vice President of Engineering, G Systems, Inc.

Thursday   11:45-12:45   Room 11

Using Classes and References in LabVIEW

Learn how to effectively use classes and references in LabVIEW. This session, features the history of attribute/property nodes, the object-oriented API to controls, relationships between classes, and elements of using control references. Also learn some tips and techniques for more effective LabVIEW development and demonstrate these concepts with useful examples.

Jason Case, Staff Software Engineer, NI

Thursday   2:45-3:45   Room 11

Using Database Connectivity Tools in LabVIEW

The LabVIEW Database Connectivity Toolkit makes it easy to develop and communicate with local and remote commercial databases such as Microsoft Access, SQL Server, and Oracle. Attend this session for an overview of database technologies, and learn how you can incorporate these tools into your LabVIEW applications.

Feroz Patwa, ELP Engineer, NI

Thursday   2:45-3:45   Room 12 B

Using NI TestStand for Testing Regulated Devices

This session discusses using NI TestStand to test medical devices and other regulated products. It also demonstrates techniques to reuse your NI TestStand tests to simplify IQ/OQ/PQ and risk-assessment validation efforts.

James Campbell, President, Viewpoint Systems, Inc.

Thursday   11:45-12:45   Room 12 A

Using XML in LabVIEW Applications

LabVIEW now offers tools specifically to incorporate extensible markup language (XML) technology into your VIs to help you write, read, and edit XML-based documents straight from your application. In this session, learn how to use these tools and share data with other applications.

Elliot Rapp, Staff Software Engineer, NI

Thursday   2:45-3:45   Room 12 A

Virtual and Physical Testing in Product Development

This presentation examines several design attributes of an automobile, including durability; noise, vibration, and harshness; crash; and vehicle performance to illustrate the changing relationship between virtual and physical test in product development. Through examples, presenters demonstrate the integration of NI tools for physical testing and MSC tools for virtual testing.

Patrick McNally, Senior Director of Industry Business Development, MSC Software

Tuesday   2:45-3:45   Room 19 A

VIs: The Good, the Bad, and the Ugly

In this interactive session, review anonymous VI original source code and see changes that help performance, UI appearance, usability, and diagram comprehension.

Greg McKaskle and Christina Rogers, LabVIEW Staff Software Engineers, NI

Wednesday   10:30-11:30   Ballroom G

Thursday   2:45-3:45   Room 19 A

What's New in LabVIEW 7.1

View demos for new and advanced LabVIEW programmers. In addition, review some of the new features in the LabVIEW product family.

Jeff Boettcher, LabVIEW Product Support Engineer, NI

Tuesday   10:30-11:30   Room 18 D

*   1:30-2:30   Room 19 B*

What's New in LabWindows/CVI

Get a firsthand look at new features in the latest version of LabWindows/CVI. Hear from the developers about the new environment capabilities, new productivity tools that expand your application connectivity, and tools to shorten your development time.

Luis Gomes, Software Group Manager, NI

Tuesday   10:30-11:30   Room 19 B

What's New in NI TestStand

This session discusses several advanced NI TestStand development features such as the use of flow-control step types, autoscheduled parallel testing, controlling deterministic processes from NI TestStand, and XML integration capabilities. NI TestStand experts answer advanced questions on these and other NI TestStand-related topics.

Jose Hernandez, NI TestStand Software Engineer, and Vishal Arora, NI TestStand Software Engineer, NI

Wednesday   10:30 -11:30   Room 16 A

Customer Education Courses at NIWeek

Build on the knowledge you gain during NIWeek 2004 sessions by attending National Instruments customer education courses before or after NIWeek. Offered at the NI corporate campus, these courses help you:

• Use LabVIEW, LabWindows/CVI, NI TestStand, or DIAdem software

• Set up high-performance, instrument-control systems

• Develop real-world data acquisition systems

• Solve high-channel-count application challenges

• Design real-time control systems

• Develop motion and vision systems

Earn Certification Credentials

Take any National Instruments certification exam for $195. Certifications available are Certified LabVIEW Developer, Certified NI TestStand Developer, Certified LabVIEW Architect, Certified NI TestStand Architect, and Certified LabWindows/CVI Developer. NI also conducts certification preparation courses during NIWeek.

To register for a course or to find out more about the NI certification program, visit ni.com/info from the Cyber Café and enter exs92d or call (800) 813-4718.

Spanish Sessions

Several NIWeek sessions are offered in Spanish during the conference. These sessions include:

Hands-On: DIAdem para del Análisis y Generación de Reportes Avanzados (pg. 19)
Paco Nieto, ELP Engineer, NI

Wednesday	10:30-11:30	Room 18 A

Hands-On: Fundamentos de NI-DAQmx (pg. 11)
Fernando Dominguez, ELP Engineer, NI

Tuesday	1:30-2:30	Room 18 A

Hands-On: Introducción a LabVIEW Real-Time (pg. 16)
Gustavo Valdes, ELP Engineer, NI

Tuesday	2:45-3:45	Room 18 B

Hands-On: LabVIEW PDA (pg. 19)
Juan Contreras, ELP Engineer, NI

Wednesday	4:00-5:00	Room 18 D

Hands-On: ¿Qué Hay de Nuevo en LabVIEW 7.1? (pg. 19)
Eugenio Bernal, ELP Engineer, NI

Tuesday	4:00-5:00	Room 18 D

NIWeek Exhibition Guide

NIWeek 2004 Exhibition

This year, the NIWeek Exhibition is larger than ever, boasting more than 125 exhibiting companies and four pavilions and a new product area featuring NI SignalExpress, embedded LabVIEW design solutions, LabVIEW academic resources, and an NI vision neighborhood.

Add depth to your NIWeek experience by visiting our NIWeek measurement and automation vendors, system integrators, and technology experts. In the Exhibit Hall, you have the opportunity to view live product demonstrations, test-drive the latest advancements in NI software and hardware, network with fellow engineers and developers, and much more.

ROBOLAB Challenge

New Technology Pavilions and Product Areas

Embedded LabVIEW Pavilion
The Embedded LabVIEW Pavilion showcases the present and future of National Instruments LabVIEW for embedded design and test. Witness the continued evolution of graphical programming through NI LabVIEW prototypes targeting smaller and smaller systems. Companies collaborating with NI demonstrate how they assisted in miniaturizing LabVIEW.

Analog Devices　　*Hyperception*
Celoxica　　*Isystems*
Charmed Labs　　*Sütron*
Drivven　　*Wind River*

SignalExpress Measurement Pavilion
NI SignalExpress is new interactive software for quickly acquiring, comparing, automating, and storing measurements. Industry experts from National Instruments and five leading vendors demonstrate the time savings SignalExpress delivers for design and test engineers developing design characterization, debugging, and prototyping applications.

Analog Devices – *ADC/DAC characterization measurements*
Ansoft – *Ansoft Designer RF design software connectivity*
Electronic Workbench – *Multisim mixed-signal design and simulation*
EMA Design Automation – *OrCad PSpice integration*
National Instruments – *Filter design and characterization with 200 MS/s modular instruments*
National Semiconductor – *WEBENCH online design environment*

Learning with LabVIEW Pavilion
Take a tour to see firsthand how virtual instrumentation has brought engineering and science concepts to life for students from kindergarten through college. Discover how National Instruments LabVIEW is used to teach, design, build, and research everything from LEGO robotics to autonomous vehicles.

Fredericksburg Rocketry Club
LBJ Local Arts and Science Academy
Rice University
Tufts University
Virginia Tech

NI Resource Pavilion
Members of the National Instruments sales, marketing, customer education, and academic teams discuss the latest NI products and services as well as answer questions. NI is committed to helping you be successful by providing computer-based measurement and automation solutions and services.

ISR • ni.com • NI News Booth • Customer Education

The Vision Neighborhood
The Vision Neighborhood is a showcase for the industry's premier suppliers of imaging components and solutions. Experts in vision, lighting, cameras, optics, and automation help answer your questions. The neighborhood also features the National Instruments Vision Booth, which highlights new NI vision software and compact vision systems.

Join the Fun at the Fifth Annual NIWeek ROBOLAB Challenge
Join the fun on Tuesday and Wednesday as teams of NIWeek attendees from around the world build and program LEGO robots to compete in the fifth annual ROBOLAB Challenge.

Teams have a total of five hours to design, build, and program a LEGO robot to maneuver a challenge course using National Instruments LabVIEW-based ROBOLAB software and the LEGO Mindstorms Robotic Invention System. No experience is required as an NI technical mentor will be on hand. To compete, you can gather a team or register and be assigned a team.

Each member of this year's winning team receives a LEGO Mindstorms team challenge kit and ROBOLAB software in addition to other prizes. Plus, National Instruments will award an Austin-area classroom with LEGO Mindstorms team challenge kits and ROBOLAB software in honor of each winning team member.

Visit the ROBOLAB Challenge Arena in the expo hall to register and obtain further details.

Build Night - Tuesday, August 17
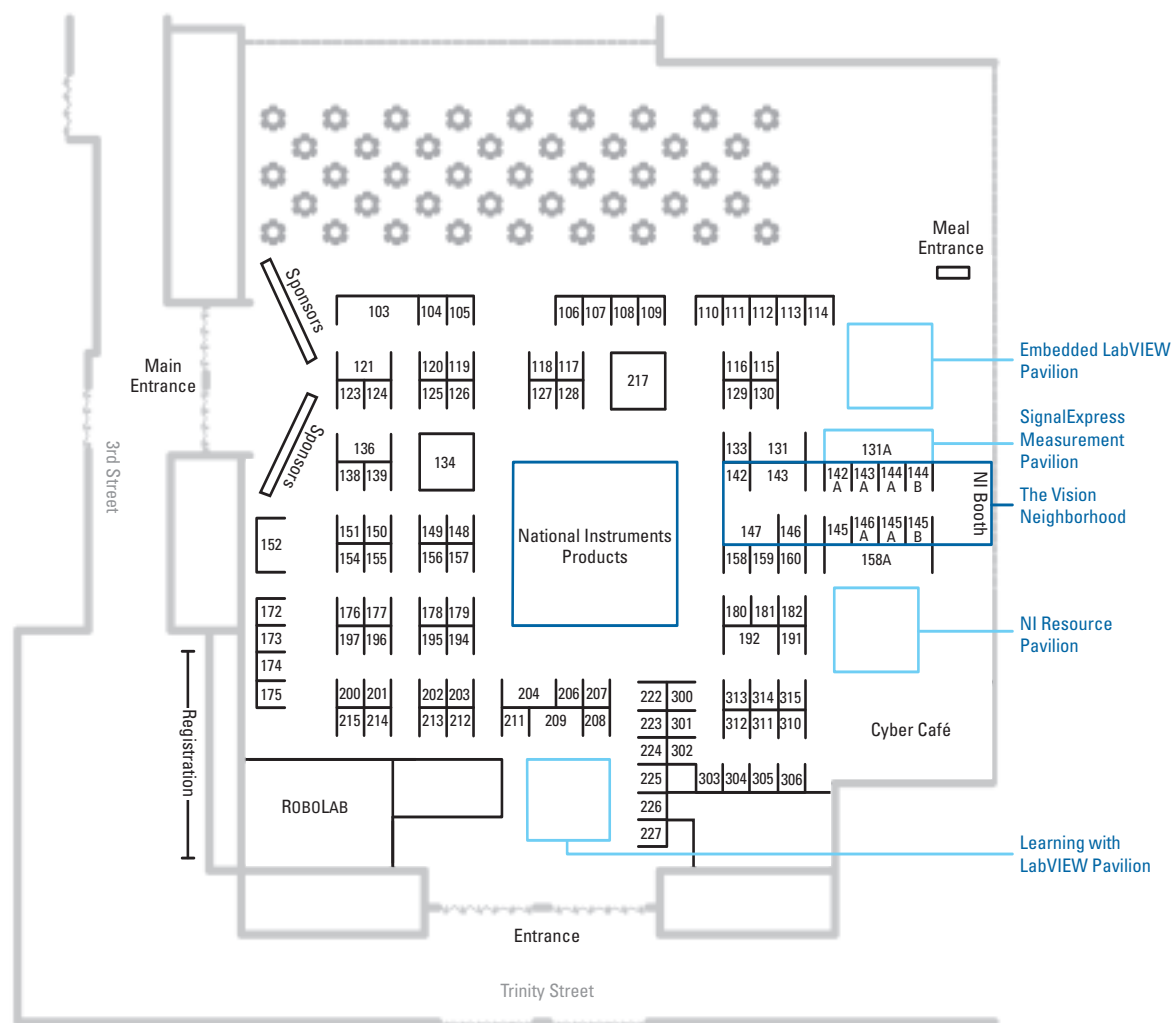5:00-8:00 p.m., Exhibit Hall
Competition - Wednesday, August 18
5:30-7:00 p.m., Exhibit Hall

Everyone is invited to cheer on fellow NIWeek attendees at the competition Wednesday, August 18.

NIWeek 2004 Exhibition

NIWeek 2004 Exhibitor List

Advanced illumination
Aeroflex Test Solutions
American Reliance Inc.
AmFax Ltd
Analog Devices
Ansoft
Apple
Ascor
ASSET InterTech
Avia OK
B&B Technologies
Basler Vision Technologies
Bayside Motion Group
Biometrics View/JYE Studio
Bloomy Controls Inc
Bruel & Kjaer S&V A/S
Cal-Bay Systems, Inc
Captronic System
CCS America
CEC
Celoxica
Charmed Labs
Christensen Display Products
Chroma ATE, Inc.
Cohu Electronics Division
Concurrent Computer Corporation
Condor Engineering
Conduant
Cyth Systems
DAP Technologies
Design to Assembly
Diagnostic Instruments
Digalog Systems, Inc.
Drivven
DVC Company
Dynamic Technology, Inc.
Edmund Industrial Optics
Electrophysics Corp.
EMA Design Automation
Endevco
Flextronics
FLIR Systems, Inc.

Fredericksburg High School
Rocketry Club
GOEPEL electronic LLC
Graftek Imaging, Inc.
GRAS Sound & Vibration
G Systems, Inc.
HBM Soft
Huntron, Inc.
Hydro Technologies
Hyperception
Ideal Aerosmith
Imaging Solutions Group
InfoDat
Innovative Technologies, Inc.
Instrument Rental Labs1
IPTE
Isystems
ITK Engineering GmbH
JTAG Technologies
Kistler Instrument Corporation
KYOWA
LabVIEW User Group (LAVA)
LBJ Liberal Arts
and Science Academy
Lebow Products Inc.
Lion Precision
LTR Publishing, Inc.
MAC Panel Company
Macro Sensors
MAGMA
Maplesoft
MAPRO Test Systems
Men Micro, Inc.
microLEX Systems A/S
Millennial Net
MSC.Software Corporation
MTS Systems
Nanomotion
National Semiconductor
Navitar, Inc.
New Focus
Olson Instruments, Inc.

Optimation Technology
PCB Piezotronics, Inc.
Polytec PI, Inc.
Precision Metrology, Inc.
Prosilica, Inc.
PXIT
QSI Corporation
Quanser, Inc.
Rice University
RSI
Semiconductor Test Consortium
SigmaQuest, Inc.
SignalLink
SofTest Designs Corporation
SolidWorks
Soliton Automation Pvt Ltd.
Sony Visual Imaging Products
Sumaj ATE Engineering
Sütron
Symtx
Technisource Engineering
Solutions
Tektronix, Inc.
Thermotron Industries
The Infinity Project
Transducer Techniques
Tufts University
VentureCom
VI Engineering
VI Service Network
VI Technology
ViAcoustics
Vibrant Technology, Inc.
Viewpoint Systems, Inc.
Virginia Panel Corporation
Virginia Tech
ViTec Co Ltd.
Watlow
Weed Instrument
Wilcoxon
Wind River

Exhibition Floor Map

NIWeek Alliance Day

Monday, August 16

Keynotes: *Expanding the Business of Measurement and Automation* 8:00 a.m. Ballroom D
Success through Partnering 9:00 a.m. Ballroom D

	10:00 a.m.	11:00 a.m.	12:00 p.m.	1:00 p.m.	2:00 p.m.	3:00 p.m.	3:30 p.m.	4:30 p.m.
Product Advantages and Training								
Room 15	Advanced LabVIEW Design: Usability, Reusability, and Maintainability	Advanced LabVIEW Design: Usability, Reusability, and Maintainability	**LUNCH** Ballroom D	The Basics of Software Licensing	New Tools for Creating LabVIEW Instrument Drivers	**BREAK**	New Features and Application Areas for LabVIEW PDA	New Features and Application Areas for LabVIEW PDA
Room 16 A	Streaming with Modular Instruments! Megabytes to Terabytes!	Streaming with Modular Instruments! From Megabytes to Terabytes!	**LUNCH** Ballroom D	New Modular Instruments: Analog, Digital, DMM, Audio, and Switching	New Modular Instruments: Analog, Digital, DMM, Audio, and Switching	**BREAK**	Replacing Legacy Instruments: Using LabVIEW and PXI to Emulate Instrument Firmware	Architecting a Reusable NI TestStand Framework for Accelerating Integration
Room 16 B	What the @!$# is PAC?	What the @!$# is PAC?	**LUNCH** Ballroom D	Upgrading Windows, Mac, and Linux Users to NI-DAQmx	Upgrade Your DAQ Customers to Sensors Plug&Play	**BREAK**	New LabVIEW FPGA Targets	New LabVIEW FPGA Targets
Product Strategies								
Room 17 B	NI TestStand Strategies	LabWindows/CVI and Measurement Studio Strategies	**LUNCH** Ballroom D	Data Management Strategies	DAQ Strategies	**BREAK**	Modular Instruments Strategies	Industrial Strategies
Room 17 A	Modular Instruments Strategies	Control Design and Simulation Strategies	**LUNCH** Ballroom D	LabVIEW Real-Time and Embedded Strategies	LabVIEW Real-Time and Embedded Strategies	**BREAK**	Core LabVIEW Strategies	Core LabVIEW Strategies
Business Sessions								
Room 13	Project Management: The Method Behind the Madness	Business Development: Finding, Keeping, and Growing Customers	**LUNCH** Ballroom D	Financial Management: Making Dollars and Sense of Your Business	General Management: Building A Successful Integration Business	**BREAK**		
Room 14	Hitting the Campaign Trail	Spinning Your Web	**LUNCH** Ballroom D	Start Spreading the News	Be a Showstopper: Planning for Successful Tradeshows	**BREAK**	Secrets Revealed! Getting Prospect to Say YES	
Hands-On Sessions								
Room 18A	LabVIEW 7.1 Real-Time Module		**LUNCH** Ballroom D	LabVIEW 7.1 Real-Time Module		**BREAK**	LabVIEW 7.1 Real-Time Module	
Room 18 B	New Software Tool for Interactive Measurements		**LUNCH** Ballroom D	New Software Tool for Interactive Measurements		**BREAK**	New Software Tool for Interactive Measurements	
Room 18 C	Raising the Bar for DAQ Value with New Products		**LUNCH** Ballroom D	Raising the Bar for DAQ Value with New Products		**BREAK**	Raising the Bar for DAQ Value with New Products	

7:00-10:30 p.m. *Alliance Appreciation Party at Hula Hut*

Alliance Day Keynotes

Expanding the Business of Measurement and Automation

Pete Zogas, NI senior vice president of Sales and Marketing, addresses both NI Alliance Partners and the NI worldwide sales and marketing organization. In addition, Alex Davern, NI chief financial officer, gives an assessment of the industry and the competitive position of NI. This is a unique opportunity to hear about NI business, markets, and strategies and how they can enhance your business!

Pete Zogas, Senior Vice President of Sales and Marketing, National Instruments
Alex Davern, Chief Financial Officer, National Instruments

Success through Partnering

During the sales conference, take a few moments to hear about successes in the field. The combined Alliance Day keynote features some of the best examples of how NI has worked with Alliance Partners. Attend this session to find out about these successes and how to emulate them.

Jack Barber, Alliance Partner Program Manager, National Instruments

Product Advantages

Products and technologies form the basis of the business partnership between NI and Alliance Partners. Alliance Day features technical product sessions that are not sales pitches about recent product announcements. Instead, they contain key information that helps you close business. Sit shoulder-to-shoulder with the NI sales team, so you can learn how to beat the competition and seal more of your prospects.

New Features and Applications for the LabVIEW PDA Module

The LabVIEW 7.1 PDA Module introduces several new features, increases the number of supported hardware devices, and opens up a large number of new opportunities for NI. This session demonstrates the new capabilities of the LabVIEW PDA Module and shows you resources to work with your customers.

Eric Reffett, Product Marketing Manager, NI

New LabVIEW FPGA Targets

NI CompactRIO is a small, industrially rugged embedded system for advanced industrial control, acquisition, and data logging. The session discusses real-world success stories, customer feedback, application notes, example code, sales demo hardware, and other tools available to help you sell reconfigurable I/O (RIO) hardware to the appropriate customers in your territory.

Brian MacCleery, Product Marketing Manager, NI

New Modular Instruments: Analog, Digital, DMM, Audio, and Switching

Modular instruments, one of the fastest-growing NI product lines, are opening up a new range of applications and opportunities. In this session, discuss the advantages of our NI digitizers, signal generators, audio, precision DC, and switching products. Learn about key technical specifications, capabilities, software interfaces, and demonstration techniques that can give you the upper hand in the test business.

Kevin Bisking, Product Marketing Manager, NI

The Basics of Software Licensing

The software is the instrument, and virtual instrumentation gives you the power to build your own solutions. But this means you have to monitor more licensing issues. Discover how to stay in compliance with software licensing and gain insights on how to make sure your customers can do it easily.

Melissa Garrity, Product Marketing Manager, NI

Upgrade Your DAQ Customers to Sensors Plug&Play

LabVIEW 7.1, NI-DAQmx 7.2, SCXI, and SCC have new functionality to read and write to virtual and smart TEDS sensors. This presentation reviews the concepts and benefits of IEEE 1451.4, demonstrates how NI Sensors Plug&Play hardware and software works, and highlights several user applications. In addition, see a competitive TEDS measurement system, and learn how SCXI and SCC work with LabVIEW to destroy HBM.

Ryan Wynn, Product Marketing Manager, NI

Upgrading Windows, Mac, and Linux users to NI-DAQmx and NI-DAQmx Base

Now is the time for your customers to upgrade their traditional NI-DAQ code to NI-DAQmx. Learn about the latest resources to help with the transition, and how NI-DAQmx can help you sell to your customers.

Malcolm Borgendale, Product Marketing Manager, NI

What the @!$# is PAC?

More customers are looking at PC-based (PCI/PXI) solutions as an alternative to PLCs for industrial automation and control. See how the advanced software features on LabVIEW Real-Time complement the high-reliability industrial hardware features on new NI digital I/O boards to provide a low-cost, highly reliable, scalable solution for your industrial automation accounts.

Todd Walter, Product Marketing Manager, NI

Product Strategies

In these sessions, NI staff share the NI vision for key products areas, with very little marketing fluff. These sessions dive into the strategic implications of these product initiatives – how they will increase the NI market share and penetrate new markets. Do not miss this vital information that will affect your business as well as open up new opportunities.

Control Design and Simulation Strategies

John Limroth, Product Strategist, NI

Core LabVIEW Strategies

Tamra Kerns, Product Strategist, NI

DAQ Strategies

John Hanks, Measurements Product Manager, NI

Data Management Strategies

Tamra Kerns, Product Strategist, NI

Industrial Strategies

David Potter, Product Strategist, NI

LabVIEW Real-Time and Embedded Strategies

Yiannis Pavlou, Product Strategist, NI

LabWindows/CVI and Measurement Studio Strategies

John Pasquarette, Product Strategist, NI

Modular Instruments Strategies

Ed Kruft, Product Strategist, NI

NI TestStand Strategies

John Pasquarette, Product Strategist, NI

NIWeek Alliance Day Session Guide

Product Training

This year, the technical track runs the full day, so your engineering team can get specialized training on how to develop products based on NI technologies. And NI has created custom sessions for Alliance Partners.

Advanced LabVIEW Design: Usability, Reusability, and Maintainability

Are you developing LabVIEW code for others to use or maintain? Come to this presentation to learn tips and techniques for how best to fit into the LabVIEW environment. Learn how to design your VIs to balance ease of use and advanced capabilities. Discuss how to make your VIs easier for others to learn using palette organization, icon design, and organized documentation.

Brian Powell, Senior Group Manager, NI

Architecting a Reusable NI TestStand Framework for Accelerating Integration

Attend this session to learn how NI TestStand Certified Architect Alliance members use NI TestStand to accelerate system integration in their automated test applications. In-depth topics demonstrate how to architect your own NI TestStand framework. See real-world case studies presented by leading NI TestStand Alliance Partners.

Ron Harrison, Product Marketing Manager, NI

Alliance Appreciation Party*

National Instruments is pleased to host the NIWeek Alliance Program Member Appreciation Party at Austin's famous Hula Hut, located on beautiful Lake Austin. Enjoy live music and entertainment from exotic hula dancers while feasting on Hawaiian cuisine.

Monday   *7:00-10:30 p.m.*   *Hula Hut*

* Special reminder: Event ticket is required to get in the door. Shuttles will run continuously from the Austin Convention Center to the event locations and the Austin Hilton Hotel.

New Tools for Creating LabVIEW Instrument Drivers

For novice and experienced users alike, this presentation shows new tools and techniques for quickly developing high-quality native LabVIEW instrument drivers. See the latest instrument driver templates and the latest Web-based development guidelines and icon art, and learn how to use the VI Analyzer to assist in development.

Nicole McGarry, Product Marketing Manager, NI

Replacing Legacy Instruments: Using LabVIEW and PXI to Emulate Instrument Firmware

Many engineers today, especially in military and aerospace, are faced with a similar problem – they are tasked with updating systems that contain obsolete instruments, but are restricted from making any changes to the original test program set. This is challenging, given that the software programs often were written 20 or more years ago and cannot be modified at all to accommodate today's new technology. This session presents a solution to this problem using a combination of hardware and software.

Dany Cheij, Product Marketing Manager, NI

Streaming with Modular Instruments: From Megabytes to Terabytes!

One of the biggest PXI differentiators is high data throughput. With the latest NI arbitrary waveform generators, digitizers, and RF hardware, you can stream data to and from a disk at very high rates. With the Conduant Streamstor product, the storage capacity ranges up to a terabyte with speeds of over 100 MB/s. Learn how to use NI hardware for low-cost, high-performance streaming applications.

Brian Anderson, Product Marketing Manager, NI

Hands-On Sessions

Alliance Day includes hands-on product sessions that are not just NIWeek repeats. Instead, NI shares the same tips and techniques NI sales force members learn on how to demo and position NI products for more design wins.

A New Software Tool for Interactive Measurements

Come to this session to learn about the new, interactive NI software product for making measurements with NI hardware. It has built-in key features, such as integration with SPICE simulators, interactive signal comparison tools, and swept measurements, to make the NI platform attractive to electronic product designers.

Richard McDonell, Product Marketing Manager, NI

The LabVIEW 7.1 Real-Time Module

Build your expertise in the latest features of LabVIEW Real-Time, including the timed loop, the LabVIEW Execution Trace Toolkit, and NI-DAQmx. See how you can integrate modular instruments with real-time performance to add reliability to test systems. Learn how these features and new LabVIEW Real-Time hardware targets can create new business for your territory.

Gerardo Garcia, Product Marketing Manager, NI

Raising the Bar for Value with NEW DAQ Products

Learn about the new DAQ products that are revolutionizing the multifunction DAQ product line. This session details new features and technologies used in these DAQ devices. These technologies not only improve product capabilities and prices, but also improve your selling power!

Brian Betts, Data Acquisition Product Marketing Manager, NI

Business Empowerment

Here about techniques that NI uses to generate leads through sales and marketing activities. Learn how to generate more hits through search engines, work with trade publications, and more.

Be a Showstopper: Planning for Successful Tradeshows

The power is in your hands! Get the basic tools for developing your tradeshow marketing program. In this session, take the planning process from beginning to end. Discuss choosing the right shows, setting realistic lead goals and show objectives, planning effective marketing campaigns (preshow, on-site, and post-show), creating an outstanding booth, training booth staffers, and managing leads.

Marti McCollough, Tradeshow Team Lead, NI

Hitting the Campaign Trail

Bypass the typical Alliance Program 101 information to dive directly into how you can really tap into the NI marketing machine. Hear from the NI marketing campaign team on major campaigns and find out how you can get involved and implement NI efforts in your own marketing plans.

Christie Campbell, MarCom Manager, NI

Secrets Revealed! Getting Prospects to Say YES

Did you notice that sometimes you say yes to some people more easily than others? It is not random: there is a science. The psychology of compliance ensures that you increase dramatically the rate of YES that you get to your requests. With little effort, professionals of compliance (marketers, sales professionals) use this science to encourage people to say yes. In this session, you learn to leverage the power of social proof, the power of authority, the principle of commitment, and put them to work for you.

Maurizio Basso, International Sales Manager, NI

Spinning Your Web

Come to this session to learn how to increase your efficiency on the Web. Learn tricks of the trade to make your site better, optimize your Web searches, and make your Web copy stand out. Also see ways to effectively use NI trademarks and logos, provide information on the "Powered by NI" program, and learn code for cross-linking between NI and your site.

Jeff Watts, Web MarCom Manager, NI

Start Spreading the News

Getting your story out through the media can be an effective and cost-efficient way to promote and obtain third-party credibility for your products, services, and solutions. Explore a number of PR tactics, from writing and distributing news releases and case studies to pitching articles to the right journalist and the right media. How does PR differ by country or region? When and how should you work with NI on publicity opportunities? Learn how to increase your chances of getting coverage.

Jennifer Radabaugh, Kellie McCoy, and Nathan Guitrau, Communications, NI

Better Business Practices

Exotek, the official auditing firm for evaluating NI Select Alliance Partners, presents four professional workshops on how to improve your business. Exotek works with hundreds of integrators and can provide great knowledge and insight that you can apply to your business.

Business Development: Finding, Keeping, and Growing Customers

Marketing and selling services and solutions is quite different from selling standard products. Learn the key concepts of business development and the tradeoffs of being a general-purpose integrator versus specialty shop. Also learn key strategies for direct sales, vendor relationships, and account management.

Don Roberts, President, Exotek

Financial Management: Making Dollars and Sense of Your Business

The technical expertise to successfully complete system integration projects does not mean much unless you can run a profitable business. Learn about the accounting fundamentals that apply to a project-based company and the most common places to make (or lose) money. In addition, review financial packages and systems, from minimal implementations to high-end solutions.

Brian Mullen, President, Exotek

General Management: Building a Successful Integration Business

Most of us are engineers first and business people second, but we must take on a variety issues to successfully manage our system integration business. Find out the keys to running a successful business, including strategic planning, capital raising, human resources, and quality management. Discuss where you can find guidelines to assist you in your efforts.

Don Roberts, President, Exotek

Project Management: The Method behind the Madness

Good project management is essential to a successful system integration business. So, what exactly constitutes good project management practices, and why is it important to document it into a repeatable process? Find out how to implement your project methodology and get your engineering team onboard, and learn potential pitfalls to avoid.

Brian Mullen, President, Exotek

NIWeek 2004 Finalists

Virtual Instrumentation Applications Paper Contest

Academic

Wednesday   *11:45-12:45*   *Room 19 A*

Neurophysiological Experiment Execution in Real Time

Chris Bryant, University of Pittsburgh

A User-Friendly and Intelligent Laser Acupuncture System

Tan Yong Chuan, Tai Wee Lin, and Shum Ping, School of Electrical and Electronic

Engineering, Nanyang Technological University, Singapore

PosiCon Ball: A Laboratory for Discovery Learning Control Systems Design

Wolfgang Werth, School of Electronics, Carinthia Tech Institute

University of Applied Sciences, Austria

Aerospace Defense

Tuesday   *4:00-5:00*   *Room 17 B*

F-35 Vehicle Systems Integration Facility (VSIF) Data Acquisition System

Michael Fortenberry, G Systems, Inc.

Integrated Laser Beam Characterization and Long-Term Test System

Eric Lyness, Mink Hollow Systems, Inc.

Paul Stysley, Department of Physics, American University

Barry Coyle, NASA/Goddard Space Flight Center, Code 920

PXI-Controlled SCXI Strain Gage and Accelerometer Modules in Parallel Acquisition

Is the Solution for Complex Aerospace Testing

James Slemp, Radical Systems, Inc.

Automotive

Tuesday   *10:30-11:30*   *Room 16 A*

Automated Instrument Cluster Calibration and Inspection System

Anand Chinnaswamy, B. Sudha, G. Mahendran, J. Rajeswari, and M. Senthil Kuma

Soliton Automation Private Limited, India

Automated Electronic Cluster Test System

Anu Kalidas M. and Mondeep Duarah, Captronic Systems, India

PCI-Based Testing Ensures Quality of Automotive Navigational Systems and Radios

from an Automated Test Station

Eric King, Radical Systems, Inc.

Biotechnology/Life Sciences

Wednesday   *4:00-5:00*   *Room 19 A*

Integrated Spectral Water-Analysis System

Eric Lyness, Mink Hollow Systems, Inc.; Richard Cox, Kaitech, Inc.

Automated Optical Inspection of X-Ray Ceramic Matrices

Anand Krishnan, Anish Mathews, and Dr. Ganesh Devaraj

Soliton Technologies Private Limited, India

Cell Boundary Analysis Application and Electronic Records System

for Biomedical Research

Carlos Yapura, Dave Baker, Giovanni Sanchez, and Diego Lopez

G Systems, Inc

Communications

Thursday   *1:30-2:30*   *Room 16 A*

Global Manufacturing Test System for Fixed Wireless Telephone

Bill Crook, CSI Wireless; Nader Fathi, SigmaQuest

Telepathy Microscope Control Using High-Speed Network Connections

Thomas Klinger, School of Electronic and Equipment Engineering,

Carinthia Tech Institute, University of Applied Sciences, Austria

LabVIEW with Databases Automates Testing of Land Mobile Radios for Public Safety

Julie Kub and Eric Nelson, Institute for Telecommunications Sciences (ITS),

National Telecommunications and Information Administration (NTIA)

Control Design and Simulation

Tuesday   *4:00-5:00*   *Room 16 A*

Automated TIG-Welding Control System

Mondeep Duarah and Vinod Mathews, Captronic Systems, India

A System for Dynamic Visuomotor Inspection Task Simulation

Praveen J. Chellakumar, Kiran Kumar V. Kunderu, and Aaron W. Schopper

National Institute for Occupational Safety and Health (NIOSH), Engineering and

Control Branch (ECTB)

Discrete Manufacturing Process Control

Wednesday   *10:30-11:30*   *Room 19 A*

NI Solution for Real-Time Control of Canadian National Railways Hump Process

Shahzad Sarwar, Averna Technologies, Inc.

Measurement on Edge

Helmut Urban and Oliver Sidla, Joanneum Research, Austria

Automated Application of Heat Sink to Printed Circuit Boards

J.P. Schmitz, Design & Assembly Concepts, Inc.

Manufacturing Functional Test

Thursday   *2:45-3:45*   *Room 16 A*

Functional Test Bench for Power Tools

Sukesh Kumar and Mondeep Duarah, Captronic Systems, India

Carburization Furnace Control System

Ramanathan Varadharajan, Marcela Maldonado, and Dr. Gregory C. Cala,

Data Science Automation, Inc.

Pressure Tester

Ted White, E-JAZ Test and Measurement, Inc.

R&D/Lab Automation

Wednesday   *10:30-11:30*   *Room 17 A*

Electro-Spark Deposition: The Hard Chromium Alternative Technology

Jeffrey Bailey, Pacific Northwest National Laboratory (PNNL), Operated by Battelle

for the U.S. Department of Energy

Determining the MTBF of Multi-Output Power Supply Units

Dr. Ganesh Devaraj, P. Kannan, P. Venkateswaran, S. Venkatakrishna,

and Karthik Nanjappan, Soliton Technologies Private Limited, India

Stabilization of a Fabry-Perot Interferometer

Kristie A. Elam, Akima Corp./NASA Glenn Research Center

Semiconductor

Thursday   *2:45-3:45*   *Room 13*

PXI-Based Embedded System Controls Semiconductor Metrology Tool

Jim Kring and Dave Houser, James Kring, Inc.; Craig Moore, EUV Technology

Hybrid Circuits – ATE Functional Test Executive

Shenkeshi Kumar, G Systems, Inc.

LabVIEW Makes a SCADA System for Vacuum Deposition

N.D. "Buck" Smith, Cal-Bay Systems, Inc.; Paul Diffendaffer, Venture Technology

CONTROL
FOR THE PROCESS INDUSTRIES

CONTROL magazine is the only magazine dedicated to satisfying the information needs of technical and management professionals involved in the automation, control, and instrumentation of the process industries.

controlmag.com

control design

With an exclusive circulation to industrial OEMs and system integrators, *CONTROL DESIGN* magazine is dedicated to satisfying the information needs of technical design and management professionals involved in specifying automation, instrumentation, and control technologies for use in industrial machines.

controldesign.com

MACHINE DESIGN

Machine Design magazine continues 75 years of industry leadership by providing a complete editorial package that includes the powerful how-to editorial, as well as technical news coverage, application case histories, and personal, professional, and management information.

machinedesign.com

Desktop Engineering®
DESIGN SOLUTIONS FROM CONCEPT THROUGH MANUFACTURE

Desktop Engineering (DE), the magazine that provides design solutions from concept through manufacture, focuses on the latest hardware, software, and technologies for mechanical and design engineers in the process and manufacturing industries, including CAD/CAM/CAE, data analysis, EDM/PDM/PLM, and data acquisition. Current free issues are available at NIWeek. Free subscriptions are available to qualified U.S. residents at deskeng.com/subscribe.

deskeng.com

EETIMES

EETimes is the premier technology and business news weekly serving the information needs of engineers and technical managers. Together with *EETimes Asia* and China editions, *EETimes* print editions reach more than 200,000 electronics professionals. EETimes.com, its regional online local language editions – EETAsia, EETChina, EETUK, EETimes.de and EETimes.fr – and specialized online communities (CommsDesign.com, EEdesign.com, eeProductCenter, Embedded.com, PlanetAnalog.com, Silicon Strategies, and The Career Center) average more than 1,000,000 unique visitors worldwide each month.

eet.com

EE
Evaluation Engineering

For more than 40 years, engineers and engineering managers have turned to *Evaluation Engineering* for information on the latest technologies in electronic testing, evaluation, and total product quality. *EE* continues its leadership role by delivering unique perspectives and technical analysis for this vital segment of the industry – both in print and online.

evaluationengineering.com

Tech Briefs
ENGINEERING SOLUTIONS FOR DESIGN & MANUFACTURING

America's largest-circulating design engineering magazine, *Tech Briefs* reports NASA innovations first to over 196,000 engineers and managers throughout OEM industries. Discover a wealth of new product ideas and engineering solutions in electronics, computing, software, sensors, test and measurement, manufacturing, and much more. *Tech Briefs* is now available in a fully searchable PDF edition.

techbriefs.com

Reed Business Information™ Science Group

The Reed Business Information Science Group is the leading provider of information to the scientific research and development community. Our wide range of technology-focused products and services are relied upon by scientists, researchers, engineers, technical managers, and corporate R&D executives at leading research-based organizations in every industry, from life sciences to electronic and chemicals, to communications, and throughout academia and government. Our market-leading publications include *Laboratory Equipment*, *R&D Magazine*, and *Scientific Computing & Instrumentation*.

reedscientific.com

R&D LABORATORY EQUIPMENT® SCIENTIFIC COMPUTING & INSTRUMENTATION™

Reed Business Information™

Reed Business Information is the largest business-to-business publisher in the U.S., provides critical information and marketing solutions to business professionals in media, manufacturing, electronics, construction, and retail industries. Its market-leading properties include more than 100 business-to-business publications, over 75 Webzines and Web portals, as well as online services, custom publishing, directories, research, and direct marketing lists.

reedbusiness.com

CONTROL ENGINEERING® Electronic BUSINESS EPN Test & MEASUREMENT

design news 电子制造 Electronics Manufacturing China IAN Instrumentation & Automation News WIRELESS Design & Development®

ECN EITD ElectronicNews INDUSTRIAL Product Bulletin

EDN Energy for the Design Mind ElectronicsWEEKLY ProductDesign and development