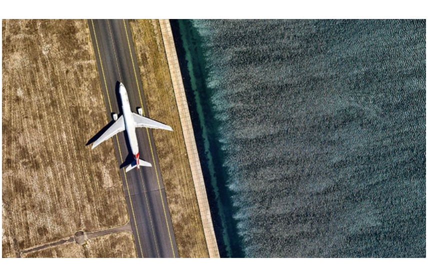
NI Connect Technical Sessions

Explore the latest test technologies and approaches to boost your business performance for a real competitive edge.

Aerospace & Defense | Automotive | Semiconductor & Electronics | Connectivity, Data, & Insight | Software & Technology | Life Science & Academic | Tech-Talk

Aerospace & Defense Sessions

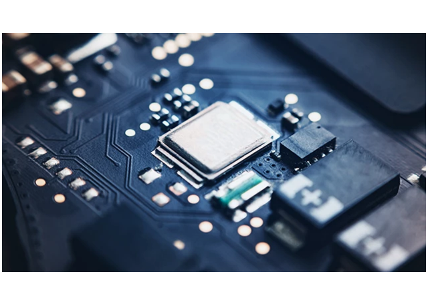


Session	Abstract	Session content
A Model-Based Workflow for USAF Automatic Test Systems (ATS) Digital Transformation	Get a first-hand look at generic SysML and ATML models for test stations, instruments, and signals. See a style guide created for the USAF Automatic Test Systems Innovation/Digital Transformation Cell.	Download PDF
Using NI SystemLink™ and Viviota Analytics Studio for Flexible and Performant Data Ingestion, Analysis, and Exploration at Sierra Space	See how Sierra Space used NI SystemLink software and Viviota's Analytics Studio to create a flexible data ingestion and analytics pipeline. This supports custom file types, metadata, and TDMS conversion for efficient data access.	Download PDF
Open Source FPGA Workflows for Software Defined Radio with the USRP	Get an overview of the FPGA framework for USRP radios (RFNoC). Discuss design workflows and rapid customization and deployment of USRP signal processing for EW, radar, and communication applications.	Download PDF
Real-Time Testing with REPLICA: Ultra-Low Latency Networking Solutions	REPLICA leverages RDMA to implement Reflective Memory concepts enabling ultra-low latency, synchronized data sharing over traditional network infrastructure for advanced testing of distributed XIL systems.	Download PDF
Scalable System Validation for EMSO	Modern defense systems integrate RF functionalities like sensors, communication, and self-protection. This session covers testing challenges, NI's latest capabilities, and scaling validation in complex environments.	Download PDF
Test Software Platform Conceptualization and Thinking	Learn key principles, strategies, and modules for designing and implementing highly effective test automation platforms, focusing on reusability and modularity.	Download PDF
Embedded Software and HIL Test: What's New Today and Tomorrow?	Learn about what NI is working on for embedded software, HIL, and integrated testing in aerospace and defense. We'll talk system design, software architectures, hardware upgrades, and more. See new NI VeriStand features, updated system documentation, and signal paths.	Download PDF
Radar Parametric and Validation Test Using NI RF COTS Tools	Take a deep dive into using NI RFmx in NI InstrumentStudio™ software for parametric tests, radar target generation, agile attenuator switch modules, and FPGA coprocessors for inline analysis.	Download PDF
SDR Rapid Deployment, EW, Counter UAS and More	The discussion will focus on emerging challenges in developing communications technology for contested environments, highlighting solutions from NI users and the technical partnership with SignalCraft.	Download PDF
Test System Security: Resources to Help You Create Test Systems for Secure Applications	Tim Cannon of RAM Aviation, Space & Defense presents the steps he took to bring his LabVIEW-based systems into compliance with CMMC. Learn to meet security regulations, including NIST 800-171.	Download PDF
Complex RF Systems and How to Test Them	Utilize the third generation PXI Vector Signal Transceiver for tight synchronization across instrumentation, DUT control, and complex firmware-controlled DUTs. Discuss RF List Mode and other synchronization techniques.	Download PDF
NI's Latest ATE Systems: Advancing Aerospace and Defense Test Infrastructure	Continuing the rack-based test system discussion, this session focuses on core configurations for aerospace and defense and highlighting recent R&D developments.	Download PDF
Architecting Test Software for Aerospace and Defense	See how to combine NI TestStand, NI LabVIEW, and other NI tools to architect for high-mix low-volume scenarios. Take a deep look into software layer and how to make them work for you.	Download PDF
Modern EGSE Implementation Using Software-Defined Instrumentation	See how software-defined telemetry and data link validation solutions reduce overhead and risk and improve scalability at all stages of test.	Download PDF
Evolving Measurement Science to Create Modern Integrated Digital + RF Devices in Radar and EW	Leverage COTS NI hardware and software to synchronize and automate measurements through the production lifecycle across digital and analog domains.	Download PDF
Meeting Secure Application Requirements with NI Linux Real-Time for NI CompactRIO or NI PXI	Meet the new security configurator tool for CompactRIO and PXI to meet security requirements and see how it can impact workflows.	Download PDF

Automotive Sessions

Session	Abstract	Session content
Advancing Automotive Testing with NI Technology: Comprehensive Capabilities for the Industry	Explore how NI Technology's hardware and software are helping automotive testing. This presentation covers various testing platforms, common automotive tests, and specific examples, including the cRIO, cDAQ and PXI Platform, demonstrating NI's flexible and modular approach to addressing automotive industry challenges.	Download PDF
Detecting Battery Defects with AI and Machine Learning (ML) Testing for Cells and Modules	Detect battery defects using AI and ML in high-volume production. Learn how advanced testing tools improve safety by detecting anomalies missed by traditional methods.	Download PDF
Challenges in End-of-Line Test for Automotive ECUs and Domain/Zonal Controllers	Explore the challenges in testing automotive ECUs and domain/zonal controllers, and learn how the NI platform can help you mitigate them to create a flexible, reusable, test architecture.	Download PDF
The Increasing Connection Between Silicon Development and the Automotive Market	An exploration into the evolving role of silicon in advanced automotive capabilities.	Download PDF
Hardware Validation for Next-Generation Vehicle Architectures	For ADAS and AVs, cameras are mission-critical, complex systems. Learn how NI's flexible, FPGA-based automotive camera interfaces address your hardware validation testing needs today and tomorrow.	Download PDF
Optimizing Automotive Radar Testing with the Vehicle Radar Test System (VRTS)	Explore the latest advancements in radar testing with NI's Vehicle Radar Test System.	Download PDF
Software Validation for Software-Defined Vehicles (SDVs)	SDVs require software-defined test. Learn how NI's hardware-in-the-loop architecture and platform helps you redefine validation strategies for a modern, agile, software-centric approach.	Download PDF

Semiconductor & Electronics Sessions

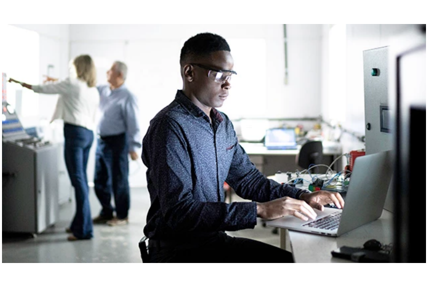


Session	Abstract	Session content
Optoelectronics Testing Including Silicon Photonics and VCSEL	Discover how NI can assist the optical device supply chain from SiPho wafer to optoelectronics component-level test, featuring case studies for EML, VCSEL, MZM, and CPO test solutions.	
Optimizing Low-Power Validation for AMD's Latest Mobile Processors	Explore low-power validation techniques for AMD's newest mobile CPUs. Gain insights for implementing low-power design methodologies with accurate measurement and analysis of power consumption.	Download PDF
Testing the Latest Wireless Connectivity Standards	Learn how NI can help you test the latest developments in Wi-Fi 8, Bluetooth LE Channel Sounding and high data throughput, and next-generation UWB.	Download PDF
Ultrafast Wafer Parametric and Reliability Testing—New Solution Introduction	Foundries are struggling to advance new process node candidates due to technical research limitations. Learn about NI's UFPIV solution, which provides a scalable solution for AC stress experiments.	
The Future of PMICs & AI: What to Expect in Semiconductor Validation	Uncover the interconnection between PMICs and AI, focusing on what the proliferation of AI and PMICs means for validation testing in these fields.	Download PDF
Semiconductor ATE Software Improvements	Explore the recent NI semiconductor production test software improvements that optimize development and debug efficiency for minimizing time to deployment.	Download PDF
Wide-Bandgap Power Semiconductor Reliability Testing - Industry Standards and Implementations	Learn about the ongoing industry effort to define and implement tests to characterize the reliability of wide-bandgap power semiconductor devices for electric vehicles and new energy.	Download PDF
Data Center Power Monitoring with NI CompactRIO	Leverage NI CompactRIO real-time monitoring, high-speed data acquisition, and analytics to optimize data center power efficiency and reliability.	Download PDF
Improving Test Development Time to Market with IEEE Standards	IEEE standards (STIL & IJTAG) are being updated to support analog and mixed-signal test requirements, addressing key bottlenecks and improving test development time to market.	

Connectivity, Data, & Insight Sessions

Session	Abstract	Session content
Choosing the Right Tool when Excel Falls Short: Advanced Data Analysis with NI DIAdem	Discover how DIAdem excels where Excel falls short, especially with large datasets, waveforms, complex analyses, and advanced visualizations. Join us to explore DIAdem's specialized capabilities.	Download PDF
Streamline Your Lab Operations with NI SystemLink™ Software	Maximize lab efficiency with SystemLink software—plan, monitor, and analyze test results while optimizing lab throughput with this comprehensive solution.	Download PDF
Staying Secure with NI SystemLink™ Software	Learn how to use NI products to minimize vulnerabilities and explore practices and strategies for maintaining security within SystemLink environments.	Download PDF
Revolutionize Validation and Manufacturing: The Role of Machine Learning (ML) and AI in the Testing Process	Explore how AI and ML enhance testing by automating processes and using predictive analytics, anomaly and trend detection, and real-time monitoring to ensure faster, more robust product development.	Download PDF
Reaching Your Full Potential with the NI LabVIEW+ Suite and NI SystemLink™ Software	Let's explore the possibilities of what you can achieve when you combine the LabVIEW+ Suite and SystemLink. This session will uncover new ways to improve your overall test process in validation and production.	Download PDF
Introducing NI SystemLink™ Software for Small Labs	Discover why NI SystemLink software is ideal for small labs. Learn how to effortlessly set up, manage, and control your lab systems in minutes.	Download PDF
From Basics to Brilliance: Mastering NI SystemLink™ Software Dashboards	Discover how to create dynamic and interactive SystemLink software dashboards and out-of-the-box (OOTB) tools to transform data visualization and decision-making.	Download PDF
Discover 7 Hidden Gems in NI DIAdem: Beyond the Basics	Discover how DIAdem excels where Excel falls short, especially with large datasets, waveforms, complex analyses, and advanced visualizations. Join us to explore DIAdem's specialized capabilities.	Download PDF

Software & Technology Sessions



Products & Technology Sessions

Session	Abstract	Session content
DAQ is Back! New Product and Feature Launch Session	New product introduction! The NI Data Aquisision catalog is growing. Get the latest information on the tools available to help you test and measure your world.	Download PDF
Reaching Your Full Potential with the NI LabVIEW+ Suite and NI SystemLink™ Software	Let's explore the possibilities of what you can achieve when you combine LabVIEW+ and SystemLink. This session will uncover new ways to improve your overall test process in validation and production.	Download PDF
Stop Designing, Start Testing: NI's Ready-to-Use Standardized Test Racks	Designing a rack-based test system is complex. Let's discuss common challenges and considerations for building test systems and how NI's newest racks were built to streamline design and integration.	Download PDF
Get Flexible with NI FlexLogger™ Software: DAQ Software Plug-Ins to Speed Up Test Development	Meet NI FlexLogger software's new feature of GitHub-housed libraries containing NI and community developed plug-ins. FlexLogger is NI's DAQ software that supports hardware that uses the NI DAQmx driver.	Download PDF
Optimizing Precision DC Instruments for Accuracy or Speed	Learn essential techniques for optimizing DC instruments (e.g., SMUs) for high accuracy measurements or high throughput.	Download PDF
What's New with NI LabVIEW for Collaborative Development	A redesigned What's New in LabVIEW session that's focused on collaborative development workflows. Learn about recent and upcoming features related to Git, build and test pipelines, and more!	Download PDF
AI Boosted Productivity in NI LabVIEW and NI TestStand	Let's take a practical look at how our AI assistant, Nigel, will help while using LabVIEW and TestStand. From configuring settings to selecting nodes, learn best pratices to help you develop faster.	Download PDF
Best Practices for Combining Precision DC Instruments for Higher Voltage or Current	Learn techniques for properly stacking or ganging DC instruments.	Download PDF
The Future of NI CompactRIO	Take a peek behind the curtain to see what NI R&D is researching and planning for the next wave of NI CompactRIO systems. R&D will share high-level investment areas and take questions from the audience.	
Deep-Dive into Software Development for NI DAQ with Python and C/C++	Learn the ins and outs of NI's driver support for Python and C/C++ in this R&D-led session.	Download PDF
The Future of Production Test with NI TestStand and the NI LabVIEW+ Suite	Get to know the latest and upcoming features of TestStand, but also look at the future of our set of production test software and how we aim to improve the full workflow.	Download PDF
What's New in RF Part 1: Vector Signal Transceiver (VST) Deep Dive	Get an in-depth look at all of the new products and features of NI's VST product line.	Download PDF
Nerdy Topics That Will Help You Take Better DAQ Measurements	This R&D-led session introduces you to NI Data Aquisition hardware technical features that you never knew existed.	Download PDF
What's New in RF Part 2: RF Portfolio Updates	The session offers an in-depth exploration of the new products and features NI has introduced in our RF portfolio.	Download PDF
What's New with NI LabVIEW Interoperability	A redesigned What's New in LabVIEW session focused on integrating multiple languages and technologies into a single application. Learn about .NET, Python, databases, HTTP, SystemLink, and more!	Download PDF
Automated Validation Test with NI InstrumentStudio™ Professional and the NI LabVIEW+ Suite	Accelerate validation test from instrument setup to automation. This session will show you how to leverage the newest capabilities and integrate various programming languages and sequencing.	Download PDF
Electromechanical Test Applications with NI DAQ and the NI LabVIEW+ Suite	Explore practical applications in which NI DAQ and software ensures the reliability of electromechanical systems. See how NI hardware, NI LabVIEW, and NI FlexLogger software work together in critical scenarios.	Download PDF
RF For Beginners	There is a shift to RF technologies, but many test engineers don't know how to work with RF. Get prepared to use NI tools for future tests.	Download PDF
Deep Dive Into PXI Timing & Synchronization	In this session, we'll look at some of the more challenging synchronization scenarios NI has seen in recent years and how the NI platform (products and APIs) address those challenges.	Download PDF
From Requirements to Results: How to Make the Most of AI in NI Software	We will explore how AI assistants can increase your productivity across the electronics test workflow.	Download PDF
Unlocking the Power of NI Digital Pattern Instruments	In this session, explore key features of NI Digital Pattern Instruments and dive into NI's Digital Pattern Editor, an interactive tool for importing, editing, or creating test patterns.	Download PDF
Fast and Flexible: Getting Started with LabVIEW FPGA	New to the LabVIEW FPGA module? This session covers FPGA programming fundamentals such as creating a functional VI from scratch, FPGA clocking, hardware I/O, simulation, debugging, and more.	Download PDF

Software Hands-On Sessions

Session	Abstract	Session content
Data Acquisition: Acquire, Analyze, and Report Data with NI CompactDAQ and the NI LabVIEW+ Suite	Use NI CompactDAQ to take real sensor measurements, acquire and process data with NI FlexLogger™ software and NI LabVIEW, and perform postanalysis in NI DIAdem.	Download PDF
Electronics Test: From Setup to Advanced Automation with PXI and the LabVIEW+ Suite	This hands-on will guide you through setting up a PXI system and automating measurements using NI software including NI InstrumentStudio™, NI LabVIEW, and NI TestStand for electronics functional test.	Download PDF
Test Operations and Workflow Automation with NI SystemLink™ Software	Dive into the robust test operations capabilities of SystemLink. Gain practical experience managing test data, streamlining workflows, building dashboards, and accelerating insights.	Download PDF

Programming Essentials

Session	Abstract	Session content
Open Source Initiative: How NI and the LabVIEW Community Collaborate Towards the Success of NI LabVIEW	Explore how the LabVIEW community and NI collaborate on the open-source VI Icon Editor, its selection as the first candidate, and the plan to integrate community-driven features back into LabVIEW.	Download PDF
Why Certification Exam Matters: Lessons After Training 162 CLDs & 10 CLAs	LabVIEW certification boosts code quality, standardization, and reusability, increasing team productivity, reducing technical debt, and cutting costs, as shown by feedback from 162 CLDs and 10 CLAs.	Download PDF
Introduction to the NI Actor Framework	NI's Actor Framework, included with NI LabVIEW, is especially good for creating medium to large applications. This presentation will show you simple and straightforward ways to get started using it.	Download PDF
Open-Sourcing the Actor Framework: Learn How to Contribute	Learn about the current state of the Open Source Actor Framework initiative: the current code base, how to use it, open issues, and how you can contribute.	Download PDF
Introduction to DQMH	Learn the basics of DQMH, the world's most popular third-party framework for NI LabVIEW. DQMH is a robust framework for developing large LabVIEW applications while still being accessible to Certified LabVIEW Associate Developers and Certified LabVIEW Developers.	Download PDF
The What, Why and How of CI / CD with NI LabVIEW and NI TestStand	Discover how Continuous Integration and Continuous Development (CI/CD) boosts software quality and speeds testing. Explore theory, examples, pitfalls, and NI's efforts to simplify CI/CD in LabVIEW and TestStand for efficient integration and deployment.	Download PDF
A Simple Way to Look at a Complex Automotive Cameras in Your Test System	SerDes camera testing is complex, but by building tools and environments, we've delivered innovative solutions. Learn how we took our customers from scripts to full camera-testing capabilities.	Download PDF
Unified Software Framework for Automated Test: Simplifying Across the Product Lifecycle	Explore development and application of a common software architecture to streamline creation of automated test solutions, facilitating seamless transitions from bench testing to full-rate production.	Download PDF
NI LabVIEW Version Independence AKA: No More VMs	Learn how to maintain older systems with the latest LabVIEW versions—no Save for Previous or virtual machines (VMs). Covers add-ons, drivers, project settings, the agnostic add-ons folder, and NI's plans for LabVIEW Add-ons.	Download PDF
Revive Your Abandoned Projects	Live demo on open-sourcing and lessons learned.	Download PDF
Encapsulating and Reusing UI Code: QControl Introduction	Discover how to modularize UI code by separating it from business logic. Simplify feature updates, reskinning, and reuse, while maximizing the ROI of your UI design with a scalable approach.	
Generic Networking with(in) DQMH	The HSE Generic Networking Modules (GenNets) provide a generic networking endpoint for DQMH. And HSE wants to make them accessible to a broad audience.	Download PDF
NI LabVIEW Everywhere!	Formula 1, x-rays, coffee, satellites, missiles, Olympic athletes, submarines, telescopes, cryogenic cooling, and weird modem noises! A fun look at some of the interesting places LabVIEW is used.	Download PDF
Tips and Tricks for High Performance LabVIEW FPGA Development	LabVIEW FPGA spans many product lines. While the environment is familiar, going from cRIO to PXI (e.g., FlexRIO) can require a significant leap in expertise. We will review some of the key items.	Download PDF
Pushing NI LabVIEW Boundaries: gRPC Integration for Large-Scale Semiconductor Systems	Explore how to integrate gRPC with LabVIEW Actor Framework to create scalable, cross-platform solutions and redefine efficiency in high-precision manufacturing.	Download PDF
Tech Skills for Modern Software Development	Take a look at Waterfall versus Agile and the technical skills needed to make Agile work. See how Git, automated testing, TDD, refactoring, TBD/mobbing, and CI/CD can work together.	Download PDF
Revive Your Abandoned Projects: Live Demo on Open-Sourcing and Lessons Learned	Discover how to transform a dormant or abandoned repo into a thriving open-source endeavor. Learn from real mistakes made by a regular contributor. The presentation will include a live demo and culminate with releasing a new project publicly.	Download PDF

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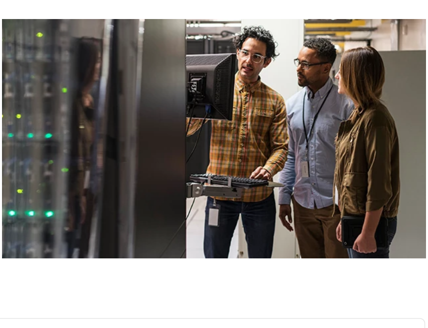
Life Science & Academic



Session	Abstract	Session content
Keynote: Navigating the Complexities of Medical Device Testing	For more than 30 years, NI has been the trusted partner for medical device testing, with 30,000+ system deployments worldwide. Discover how NI addresses challenges across design, test, and deployment.	Download PDF
How Academics Are Building the Next Generation of Testbeds	Explore how universities leverage NI technologies to architect testbeds for tomorrow's cutting-edge research.	Download PDF
How NI is Coming Back into Academia	Discover the latest on NI's academic strategy, initiatives, and tools, designed to empower educators and students in shaping the future of engineering and science.	Download PDF
Standardizing on a Flexible Platform to Innovate Faster and Reduce Time to Market	Standardizing on a flexible platform reduces development and accelerates time to market. Learn how a surgical-robot startup got their product to market faster using the NI platform.	Download PDF
Solving the Top 5 Challenges of Bringing Your Embedded System to Life	Designing embedded systems is a balancing act of optimizing for the right variables. Learn how to identify if your time-to-market is at risk with 5 practical lessons that apply to any industry.	Download PDF
Tackling Testing Challenges in Digital Health	The future of digital health relies on smarter devices, which need smarter testing. Learn how NI is overcoming these challenges, including cybersecurity across wearables, implantables, and patient monitors.	Download PDF
Best Practices for Developing and Testing ISO 13485-Compliant Medical Devices	ISO 13485-compliant devices require best practices in design, development, and testing. Learn how to get compliant products to market faster from NI Partner Realtime Group.	Download PDF

Tech-Talk Stage

Session	Abstract	Session content
3 Ways to Create a Cohesive Team	LabVIEW Champion Sam Taggart talks how to create a cohesive team. Walk away with tools for creating better processes, exercises in learning new technical skills, and techniques for fostering collaboration within your team.	Download PDF
ATE Systems Reimagined: A Smarter Starting Point (ADG)	Curious about the future of test system infrastructure? Explore how NI's latest advancements in ATE Core Configurations are enhancing power management and efficiency in aerospace and defense applications. Learn why these developments are critical for industry success.	Download PDF
I didn't go to school for this!	Becoming an effective automated test engineer requires technical expertise and strong soft skills. Get a unique perspective from a "new grad" test engineer, addressing gaps between academic training and real-world test engineering, including core skills and techniques.	Download PDF
LabVIEW+ Lunch!	Learn favorite new features and roadmap investments in LabVIEW, InstrumentStudio™ software, TestStand, FlexLogger™ software, VeriStand, and SystemLink™ software.	Download PDF
RF Test Solutions in Validation and Production for Connected Devices	Learn how to bring the wireless world into the lab spanning smart home, IoT and automotive applications. Discuss testing needs — from simple RF signaling tests to multichannel monitoring applications or high	Download PDF

Devices	Discuss testing needs—from simple RF signaling tests to multichannel monitoring applications or high-speed production tests.	
Unlocking Efficiency: When to Integrate AI in Your Production	Learn how to identify suitable applications for AI and machine learning in modern manufacturing and testing processes within your organization. Discuss specific applications such as predictive maintenance, quality control, and process optimization and how AI can revolutionize these areas.	Download PDF
Validating Satellite Communication Protocols (ADG)	See how IngeniArs, a Satcom startup, uses NI's FlexRIO and a Vector Signal Transceiver within the Data Link Test Framework to test and validate proprietary IP cores and accelerates time to market.	Download PDF
Validation and Test Solutions for Semiconductor and Electronics (SEBU)	Learn new validation and test strategies and products for advanced RF and power management semiconductors and electronic products.	Download PDF

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