Technical Paper Submission Guide

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NIWeek is the ultimate learning environment that gives customers the tools and knowledge to increase their proficiency and develop applications faster, smarter, and cheaper.

NIWeek’s technical session information is a key reason customers attend, so we work carefully to select and offer the session content they need. For NIWeek 2017, survey respondents gave the quality of technical sessions an average 8 out of 10 rating, which has trended up the last three years. We need your help to continue this trend. Through the conference survey and in-person discussions, we determine the areas for session topics. For NIWeek 2018, we’ll focus on two themes: industry and skills development. In particular, we’re looking for topics within these industries and skills development areas.

1. Who attends NIWeek?

Attendee Information
- Most of our attendees use NI technology.
- The average age is 40.
- 41% work for a company with more than 5,000 employees.
- About 90% of attendees have a bachelor’s degree or higher, and about 40% hold an advanced degree.
- 40% have been an NI customer for 10 or more years.
How do I categorize my submission?

Overall, we categorize sessions by industry or skill development opportunity. Then we subcategorize them by type (for example, keynote versus panel discussion) and technical level.

Industry

NIWeek Industry – The objective for the NIWeek industry sessions is for our attendees to gain new technical information focused on your industry. These sessions provide real-world customer examples, insight into new product/technical information, networking with industry experts and learning from R&D experts about future technologies. The goal is for you to gain confidence and walk away better prepared to apply the NI platform.

We invite partners and customers to submit if you have an industry focused topic that would make a valuable session. We are accepting submissions for the following industries: Aerospace and Defense, Automotive, Engineering Education, Government Labs/Research, Industrial Machinery, and Semiconductor. If your submission falls in another industry or is not industry specific, please consider submitting for the Skills Development area or the Engineering Impact Awards.

NIWeek 2018 offers sessions spanning the following industries and topics:

Aerospace and Defense—Aerospace and defense technology is increasing in complexity while having to meet strict quality and accuracy demands. Engineers require smarter solutions to address both the rapid pace of RF innovations and the need to support legacy programs. These sessions provide insight into how test groups are reducing the cost of test, improving performance, and benefiting from flexible and adaptable software and hardware platforms.

Example topics that we are looking for:
US Army I2WD - Global Measurement Standardization
From The Experts: Security Compliance of Test Systems
Avionics Test With LabVIEW for 8 Microsatellites: CYGNSS

Automotive—As vehicles and their subsystems become smarter, test engineers face drastically increasing system complexity while dealing with ever-present cost and time pressures. These sessions show you how to significantly reduce deployment time and cost while increasing test coverage with adaptable hardware and software that can integrate with the tools you already use.

Example topics that we are looking for:

- Functional Test of ECUs in the Manufacturing Phase
- Automated Test of Automotive MCU Peripheral Driver Software
- Standardized Hardware-in-the-Loop Test Automation With TestStand
- SKYIT Cloud-Based RF Infotainment Test Platform
- Setting New Standards for the Future of HIL Test Automation

Engineering Education—See how your students can increase their rate of discovery and build solutions faster from lab stations to handheld devices. These sessions provide discussion forums around the future of engineering and research and show you how to use the NI platform to accelerate discovery and find solutions fast.

Energy—Energy is a complex field with a broad array of concerns, including energy security, environmental and operational protection, system efficiency, distribution system reliability and control, and clean energy technologies. These sessions showcase how NI solutions use open, customizable measurement tools to meet the unique needs of an industry filled with utility grids affected by highly variable problems.

Industrial Machinery—Companies that invest in heavy machinery for transit, loading and unloading supplies, construction, or farming can maximize uptime and minimize costs by using predictive maintenance and remote diagnostics. These sessions show you how to quickly implement your ideas on commercially available hardware without wasting time on custom design.

Semiconductor—As the proliferation of smarter systems and advanced wireless networks advances semiconductor industry innovation, test engineers must solve the challenge of testing increasingly feature-rich and complex ICs while dealing with the unrelenting pressure to deliver under tight market windows and meet cost targets. These sessions demonstrate how NI solutions can help your organization achieve required test coverage and lower capital expenses and operational costs while improving time to market.

Examples topics that we are looking for:

- Standardizing V&V/Characterization Labs to Improve Time to Market
- System-Level Test Methods for Complex RF SiPs
- Overcoming the New Test Challenges of 802.11ax
- How to Create a Behavioral Digital Predistortion Model
- Best Practices for TestStand Semiconductor Module Development
• Parametric Test of Integrated Passive Devices
• Achieving Superior RF Performance: The Quest for -50 dB EVM

Research and Government Labs—These organizations commit resources to scientific and engineering research and the refinement of prototypes aimed at the ultimate development of commercially viable processes and products. NI understands that researchers are looking to increase their rate of discovery and build solutions faster. These sessions provide opportunities to learn how the NI platform can help you in your own research environment.

Skills Development

NIWeek Tracks – The objective for the NIWeek tracks is to help our attendees develop their skills to be more proficient using the NI platform. The sessions are categorized based on software or hardware application, including highly technical, Powered by LabVIEW Champions, broad informative, hands-on and test drive training labs and tips and tricks.

NIWeek Tracks are designed to help attendees gain new technical skills through skills development, sessions including:

• highly technical, Powered by LabVIEW Champions and NI technical experts
• broad informative new product sessions, given by NI product marketing managers,
• hands-on labs given by NI product marketing,
• test drive training/learning labs, given by NI product marketing,
• tips and tricks across software and hardware application areas.

We invite LabVIEW Champions, partners, customers, NI Product Marketing Managers and R&D to submit if you have a topic that is advanced in nature and offers new technical information, contains exercises or roundtable workshops that will help attendees become more proficient.

Application Software

Often the problem you face can be addressed with out-of-the-box, no-programming-required application software. Rather than build a complex application on your own, with the responsibility to maintain and extend the application, learn how to use tools that are designed to simplify your project. Examine how to configure and discover data acquisition devices, build and deploy test sequences, configure real-time tests, log data, manage complex switching systems, and design circuits. Sessions cover introductory topics and best practices for DIAdem, DAQExpress™, NI InsightCM™, SystemLink™, FlexLogger™, TestStand, and more.

Examples of topics we’re interested in:

• Measurements Automation
• Test Sequences
• Real-Time Testing
• Datalogging
• Systems Management

Developer Fundamentals

From the basics of error handling to an introduction to object-oriented programming, learn about the essential foundations that get your applications off to a good start. Exploring key
foundational tenets equips you to successfully create basic applications and prepares you to extend your knowledge so you can tackle increasingly complex applications.

Examples of topics we’re interested in:
- User Interfaces
- Debugging Techniques
- Third-party IP integration
- Code Optimization
- Object Oriented Programming

Electrical Measurements

This track covers electrical functional measurements in the laboratory, verification and validation, and manufacturing test. Topics include functional electronic measurements from DC to RF, instrumentation design, test system architectures, test system software and deployment, and system maintenance.

Examples of topics we’re interested in:
- Improve Measurement Accuracy in Your Application
- Switching and Mass Interconnect Considerations
- Planning for System Maintenance
- From the Designers: DC Measurement Tips & Tricks

Physical Measurements and Control

These sessions cover a wide variety of applications that use sensor-based measurements, from laboratory research to the test, monitoring, and control of electromechanical systems and industrial equipment.

Examples of topics we’re interested in:
- 10 NI-DAQmx Functions to Handle Your DAQ Applications
- Tips for Formatting Test Cell Data
- The Nuts and Bolts of Pattern Matching
- Distributed Control and Automation Framework Under the Hood
- Vision-Guided Robotics

Software Engineering Process, Design, and Architecture

From requirements to implementation, this track guides you through the software engineering process and through designing and architecting effective software in LabVIEW. Learn crucial steps and key principles in software design, test, deployment, and maintenance. This track is powered by LabVIEW Champions and other advanced users. Anyone developing LabVIEW applications beyond the simple and basic should explore the sessions in this track.

Example topics that we are looking for:
- Software Test and Validation
- Code Reviews
- Software Architectures
Session Types

- **Industry Keynote**—Explore industry trends, learn from fellow industry professionals, and hear how to leverage the latest technologies. Industry keynotes are presented by NI engineers, partners, and customers.
- **Roundtable**—Hear from industry peers how they are meeting technical challenges. The collaborative and educational roundtable sessions are presented by NI engineers, partners, and customers.
- **Panel**—Share perspectives on thought-provoking current topics with exceptional leaders who help you decide which direction to take. Panels are presented by NI engineers, partners, and customers. They include one moderator and no more than three panelists.
- **Case Study**—Learn from NI product marketers and/or customers as they describe technical application challenges and ways to efficiently and cost-effectively solve them. Case studies are presented by NI engineers, partners, and customers.
- **Product Talk**—Discuss the core features and benefits of recently released new and enhanced products. Product talks are presented by NI product marketers R&D and customers.
- **R&D Tech Talk**—Gain access to NI R&D engineers and hear their thoughts on future technologies and how they could affect a particular industry.
- **Hands-On Lab**—Walk through real-world step-by-step exercises and instruction to explore new products and solutions. Hands-on labs are presented by NI Application Engineers or Applications and System Engineers.
- **Learning Lab**—Preview or complete a module of an in-depth fee-based training course to ensure it is the best training for you before making a bigger commitment. Learning labs are presented by NI product marketing engineers.

Technical Levels

- **Introductory**—Foundational concepts with a high-level introduction of a product, technology, or solution
- **Experienced**—More technical discussions aimed to help you improve efficiency; requires familiarity with the topic and expands on the foundational concepts
- **Advanced**—Highly technical coding examples, complex applications, and programming best practices
- **Informative**—Valuable information to help you make decisions

What are the best practices for submitting my technical session?

As you submit your technical paper, you can refer to these best practices. Tips to help you submit:

- **All abstracts** must be written in English.
- Abstracts should be **submitted online** via the Call for Papers submission portal here.
- See the NIWeek 2017 session materials via the NI Community to review topics previously given.
Think of a **compelling and descriptive title** that is 65 characters or less including spaces. Stronger titles are single, concise messages that often include benefits, numbers, and actionable words.

Keep in mind that typically **15 sessions are being presented at the same time** during a given time slot, so a compelling title and abstract are key to drawing attendees to your session. **Abstracts can be up to 350 characters with spaces** (about 75 words) and should describe what you will discuss if your paper is accepted. The NI selection committee edits abstracts for NI style before asking for your final approval of the abstract. The abstract is then posted for registrants to view in the online catalog and mobile app.

- Consider **real-world examples** or a demonstration to help engage attendees more.
- Provide background information to help our reviewers better understand your topic.
- Write in a **second-person** teaching tone. You're a trusted adviser on your topic to attendees.
- Use active voice with **strong verbs**.
- **Write like you talk.** Engineers don’t have time to pick through a bunch of flowery language, so use plain language and concise text.
- **Read your abstract out loud.** If you have to take a breath while reading a sentence, consider shortening the sentence.
- When using abbreviations or **acronyms, spell out** the full term and define the abbreviation or acronym on first reference and use only the abbreviation or acronym on subsequent references.
- If your paper is selected, be prepared to **provide a biography and photo.** You will be invited to an online speaker center to access more information including the NIWeek 2018 PowerPoint template to develop your presentation. Also, you can upload additional supporting materials such as a white paper or online web event to help the audience better understand your topic. Be sure to upload your session presentation on time.

**What can I expect after I submit my technical paper for a session?**

Please note these important dates and deadlines:

- **September 5, 2017**—The Call for Papers opens.
- **November 17, 2017**—The online Speaker Center opens.
- **November 17, 2017**—The Call for Papers closes.
- **January 15, 2018**—Submitters are notified if their papers are approved or declined.
- **January 31, 2018**—Selected presenters download the NIWeek 2018 PowerPoint template. They also upload their professional photos and provide their 50-word biographies and complete contact information including company, name, and job title.
- **April 30**—Selected presenters view the online speaker tips.
- **May 16**—Selected presenters upload their session presentations and any supporting materials for NI to share with attendees during NIWeek. **This is a critical deadline.** Attendees have a far better experience when they can review presentations during NIWeek. Please help by meeting this deadline.
- **May 21–24**—Selected presenters attend NIWeek 2018 and turn in their final/updated session presentations on-site at the Speaker Center.
**Whom do I contact with questions?**
Email [*presentations@ni.com*](mailto:presentations@ni.com) if you have any questions during the submission process or need assistance on-site at NIWeek 2018. We’re here to help!