TECH DAYS
EXPO • SEMINARS • WORKSHOPS

CANBERRA
21 MARCH

ADELAIDE
24 MARCH

Dedicated Systems

Dedicated Systems Australia, in conjunction with its suppliers and technology partners, is pleased to announce Tech Days 2017 to be held in both Canberra and Adelaide.

Subject Matter Experts will be on hand to answer questions, and present seminars in the following focus areas:

- **Geospatial, Big Data and Internet of Things**
- **FPGA and Reconfigurable Computing**
- **Reliability, Safety and Security**

'Connecting and Securing Devices in the Industrial Internet'

Presenter: Dr Howard Wang (RTI)

Established by GE, Cisco, AT&T, Intel and IBM, the Industrial Internet Consortium (IIC) is the largest of the Internet of Things (IoT) consortia now representing over 50 countries by over 250 member companies (iiconsortium.org). More importantly, it's the only one focused on industrial systems, Industrial Internet of Things (IIoT). Recently, the IIC released the second iteration of the Industrial Internet Reference Architecture (IIRA), a formal overview of the integration architecture recommended for IIoT systems from a high-level perspective. It covers everything from business goals to security to system interoperability. The architecture establishes many key technical guidelines. Critically, it also eliminates many approaches; architecture is as much about what you can't do as what you can do.

We at Real-Time Innovations (RTI) are most excited by two major aspects: the IIRA connectivity architecture and the IIRA security framework. "Connectivity", or how independently designed and built systems can be integrated and interoperate, is one of the biggest challenges for the emerging IIoT industry. As importantly, how can IIoT systems be secured against the constant threat of hackers looking for financial gain, instilling terrorism or otherwise wreaking havoc on a completely networked society. The IIRA takes an innovative, distributed "databus" approach that eases interoperability while providing top performance, reliability, and security.

This seminar will review the technology and examine real-world use cases for DDS in the Industrial Internet across several industries, including medical, energy, aviation and automotive.

'Software that Matters - The Pursuit of Safety, Security and Serenity'

Presenter: Pat Bernardi (AdaCore)

The last decade has seen an explosion of cheap and powerful microcontrollers that have facilitated the development of smarter devices and new products. The safety of these embedded systems to their users and the community, however, depends on the reliability and security of their software. At the same time, businesses are under pressure to minimise costs and reduce the time-to-market of their products.

This presentation will chronicle the journey of Australian Software Engineer Pat Bernardi, who started a PhD looking for a programming language that would help develop safe and reliable software for a small autonomous helicopter (to minimise expensive crashes and injuries) and ended up working at AdaCore in New York.

Under close examination will be the engineering reasons as to why Ada today promotes the development of safe, secure and reliable software and how it enables companies to produce this software on time and budget.

'Visual Analytics of Spatio-Temporal Data'
Presenter: Sebastiaan Helsen (Luciad)

Spatio-temporal data is of increasing importance across a number of domains including aviation (ADS-B,...), maritime (AIS,...), security (GPS, mobile phone locations), and many more. This session will demonstrate Luciad's unique capability to visually analyse very large data sets, in an effort to gain insight, find trends and identify anomalies. Included will be a demonstration of both their desktop and browser applications.

'Augmented and Virtual Reality'
Presenter: Sebastiaan Helsen (Luciad)

This session will demonstrate how Luciad technology can be used in a number of augmented and virtual reality use-cases. Examples discussed will include both how to augment video feeds with information including location of interest and the integration of advanced analytics to perform line-of-sight analysis. A number of virtual reality use-cases will be covered to identify where Luciad technology can be utilised in conjunction with devices such as Oculus Rift to perform mission planning or to do mission de-briefing.

'Multi-Target Production Code Generation to Optimise Hardware Resources'
Presenter: Alex Shin (MathWorks)

Automatic code generation is increasingly used in production for a variety of applications including controls, radar, imaging, and robotics. These applications involve a wide range of embedded processors and hardware devices and may require adherence to industry standards such as DO-178, ISO 26262, and IEC 61508. This talk describes how MATLAB® and Simulink® generate hardware-optimised code in C, HDL, and Structured Text, in accordance with industry standards.

Agenda - Expo and Seminars

Canberra, National Museum of Australia, Tuesday 21st March 2017
Adelaide, Tech Park, Mawson Lakes, Friday 24th March 2017

9:00am	Registration
9:00am - 4:30pm	Exhibition
9:15am - 10:00am	Seminar: 'Visual Analytics of Spatio-Temporal Data' Presenter: Sebastiaan Helsen (Luciad)
10:15am - 11:15am	Seminar: 'Connecting and Securing Devices in the Industrial Internet' Presenter: Howard Wang (RTI)
11:30am - 12:30pm	Seminar: 'Software That Matters - The Pursuit of Safety, Security and Serenity' Presenter: Pat Bernardi (AdaCore)
12:30pm - 1:00pm	Lunch
1:00pm - 1:45pm	Seminar: 'Augmented and Virtual Reality' Presenter: Sebastiaan Helsen (Luciad)
2:00pm - 3:00pm	Seminar: 'Multi-Target Production Code Generation to Optimise Hardware Resources' Presenter: Alex Shin (Mathworks)

Exhibitors

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