

# INCOSE AI Explorer

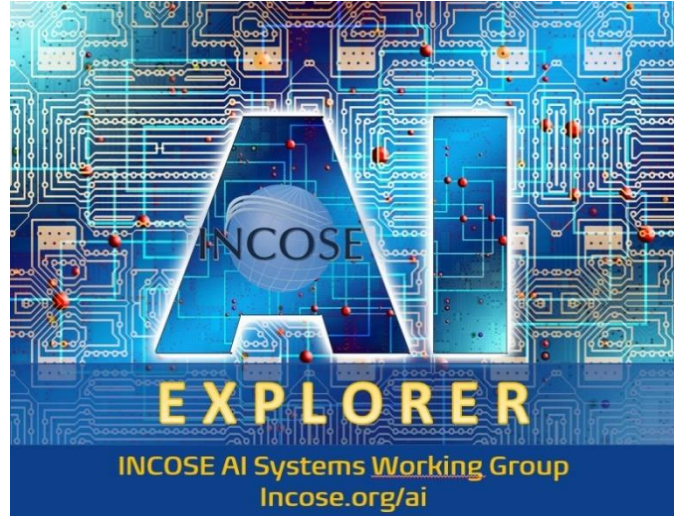
## *Next Session*

**June 15, 2022**

10:30 – 11:45 AM

US Eastern Time

*(60-minute program with 15 minutes for optional additional discussion)*



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AI Explorer events feature two brief (TED-style) talks on key Artificial Intelligence topics with Q&A and discussion time.

### **Introduction to Trustworthiness in Computing Systems: Foundations for AI**

**Abstract:** General concepts of **trust** in AI and autonomous systems can be derived from engineering concepts of dependable and secure computing systems. In computing systems, trust is formally defined as the dependence of one system on another, and the acceptance that the other system is also dependable. [Avižienis, et al, 2004]. This dependence can be either human/machine or machine/machine. Resilience is related to trustworthiness as the ability of the system to withstand instability, unexpected conditions, and gracefully return to predictable, but possibly degraded, performance. This is a system-of-systems concern, and trust must be considered as both a characteristic of an individual system or subsystem and as relationships between the system and other systems including humans. In systems engineering, trust can be categorized into a set of dependability and security attributes: the ability of a system to avoid service failures and cover the interrelated foundational attributes of availability, reliability, safety, integrity, confidentiality, and maintainability. These attributes work together to ensure the system’s successful application, and demonstration of those attributes over time engenders trust. Thus, trust is a systems engineering concept. In this talk we will explore modeling trust as a set of system attributes.



**Presenter:** Tom McDermott is the Deputy Director and Chief Technology Officer of the Systems Engineering Research Center (SERC) at Stevens Institute of Technology in Hoboken, NJ. With the SERC he develops new research strategies and is leading research on digital transformation, education, security, and artificial intelligence applications. Mr. McDermott also teaches system architecture concepts, systems thinking and decision making, and engineering leadership. He is a lecturer for Stevens as well as Georgia Tech and Agnes Scott College, both in Atlanta, GA. He provides executive level consulting as a

futurist and organizational strategy expert, applying systems approaches to enterprise planning. He currently serves on the INCOSE Board of Directors as Director of Strategic Integration.

## The Confiance.AI Programme

**Abstract:** Confiance.AI is a French national programme launched within the framework of the French National Grand Challenge “Security, dependability and certification of AI-based systems” managed by the French Innovation Council.



Confiance.AI is the largest technological research programme of the #IAforHumanity plan. The programme brings together a unique community of actors across industry, start-ups, education and research to design and industrialize trustworthy AI-based critical systems, with the final goal of ensuring the competitiveness and sovereignty of the French industry.

The main objective of the programme is to design and deliver a “trustworthy environment” for engineering industrial AI-based products and systems. The environment relies on methodological and technological bricks that complement the existing development environments of the industrial partners of the programme. It supports the design, verification, validation, qualification, and deployment of AI-based systems in an industrial context and at large scale. Industrial sectors participating to the programme include aerospace, automobile, maritime, energy, IT, defence, security, and manufacturing. In this webinar, we will present the scope, organisation and expected outcomes of the Confiance.AI programme, with a focus on the systems approach that has been defined within the programme.

**Presenters:** Guillermo CHALÉ GÓNGORA is Product Line & Systems Engineering Director at Thales Corporate Engineering. He has over 20 years of experience in Systems Engineering and Product Line Engineering in the Energy, Infrastructure, Automotive, Railway, Aerospace and Defence sectors, where he has worked on the tailoring and application of SE, MBSE and PLE to the development of complex systems and products. Over the years, he has been particularly interested in systems thinking & critical thinking, safety-critical systems, formal methods, architecture description languages, modelling & simulation, and autonomous systems. He holds a PhD on Energy & Thermal Systems, Masters on Energy Conversion and Internal Combustion Engines, and an Engineering Degree on Mechanical-Electrical Engineering. Guillermo is founder and former Chair of the PLE International WG and the Automotive WG of INCOSE, and member of the INCOSE Transportation WG and the MBSE Initiative.

Christophe Alix is Senior Systems Architect, Strategy & Innovation Manager within the Thales Technical Directorate. He joined Thales in 1991 as IVVQ Manager. After 20 years of Systems Engineering & Architecting of large military radars & weapon systems of systems, for export, NATO, or French MoD, he is now involved in Strategy & Innovation for Systems at Thales Technical Directorate, particularly as coordinator for Autonomous Systems initiatives. He is contributing to different working groups within French organizations like AFIS, the French Chapter of INCOSE, and GIFAS French Aerospace Industry Group, and actively involved in new engineering capabilities for trustworthy autonomous systems.