SEI Bulletin

Six Dimensions of Trust in Autonomous Systems

April 27, 2022 — "Establishing trust for complex systems is hard," writes SEI Director and CEO Paul Nielsen in a recent blog post. "Establishing trust for non-deterministic systems and for systems that continuously learn is even harder."

In *Six Dimensions of Trust in Autonomous Systems*, Nielsen discusses the adoption and growth of autonomous systems and provides six considerations for establishing trust: assurance, vulnerability discovery and analysis, system evolution, human-machine teaming, familiarity, and software quality.

"Autonomy, driven by AI, is present to a large degree in many areas of life today," Nielsen writes. "Widespread, successful adoption depends on solving the trust issues."

Read the blog post »

SEI News

[DevSecOps Days Pittsburgh 2022 Program Announced](#)
The conference on integrating security into DevOps practices will be held virtually April 27.

[International Conference on Software and Systems Processes 2022 Opens Registration and Announces Program](#)
The conference will feature keynote speakers Ita Richardson of the University of Limerick, Grady Booch of IBM, and Tom Longstaff of the SEI.

[2012 Technical Debt Paper Co-authored by SEI's Nord and Ozkaya Wins "Most Influential" Award](#)
The International Conference on Software Architecture praised the 2012 paper on architectural technical debt by Rod Nord and Ipek Ozkaya, who still innovate in this area.

[See more news »](#)

Latest Blogs

[Security Analytics: Tracking Proxy Bypass](#)
Tim Shimeall describes how to track the amount of network traffic that is evading security proxies for services that such proxies are expected to cover.

[Six Dimensions of Trust in Autonomous Systems](#)
Paul Nielsen chronicles the adoption and growth of autonomous systems and provides six considerations for establishing trust.

[A Case Study in Applying Digital Engineering](#)
Peter Capell and Nataliya Shevchenko present an SEI project whose digital engineering provides visibility of products, from requirements to delivery on a platform.

[See more blogs »](#)

🎙 Latest Podcasts

Model-Based Systems Engineering Meets DevSecOps

Jerome Hugues and Joe Yankel discuss ModDevOps, an extension of DevSecOps that embraces model-based systems engineering (MBSE) practices and technology.

Incorporating Supply Chain Risk and DevSecOps Into a Cybersecurity Strategy

Carol Woody talks with Suzanne Miller about supply-chain issues and the planning needed to integrate software from the supply chain into operational environments.

Software and Systems Collaboration in the Era of Smart Systems

Paul Nielsen talks with Suzanne Miller about how the advent of smart systems has led to a growing need for effective collaboration between the disciplines of systems engineering and software engineering.

See more podcasts »

📄 Latest Publications

Industry's Cry for Tools That Support Large-Scale Refactoring

This paper introduces an industry survey that assessed which tools developers use in large-scale refactoring efforts and how well those tools support refactoring.

Augur: A Step Towards Realistic Drift Detection in Production ML Systems

The toolset and experiments reported in this paper provide an initial demonstration of drift behavior analysis, metrics and thresholds, and libraries for drift detection.

Extensibility

This report summarizes how to systematically analyze a software architecture with respect to a quality attribute requirement for extensibility.

See more publications »

📽️ Latest Videos

Developing Models to Support DoD Technical Reviews
Julie Cohen, Rob Wojcik, and Linda Parker Gates discuss guidelines that contractors can use to develop models to support System Engineering Technical Reviews.

Teaming Data Science and Causal Inference
Shane McGraw interviews Bob Stoddard about how data scientists joining his group of technical professionals and researchers will make an impact on the U.S. Department of Defense through data-driven decision solutions.

Ask Us Anything: Zero Trust Edition
SEI CERT Division Director Greg Touhill and Dr. Chase Cunningham, chief strategy officer at Ericom Software, answer questions and discuss what you need to implement a zero trust strategy.

📅 Upcoming Events

Predictable Use of Multicore in the Army and Beyond, May 4
In this free webcast, SEI experts Bjorn Andersson and Dionisio de Niz join William Vance of the U.S. Army Combat Capabilities Development Command Aviation & Missile Center to discuss using real-time software on multicore processors.

INtersect: Where DoD, Academia, and Industry Meet, May 18
The SEI's Matt Butkovic and Michael Mattarock talk about the SEI's efforts to apply AI techniques to address national security mission needs while leading a national initiative to build a new discipline of AI engineering in this free webcast.

International Conference on Software and Systems Processes 2022, May 19-20
This conference gathers researchers and practitioners to share about software and system processes and global software engineering.

[AADL/ACVIP User Days 2022](#), June 2
Speakers at this free forum will present the latest on the Architecture Analysis and Design Language (AADL), the Architecture-Centric Virtual Integration Process (ACVIP), and associated tools.

Note: The SEI is evaluating all upcoming courses, conferences, and events case-by-case in light of COVID-19 developments. Check individual event pages for the latest information.

[See more events »](#)

🏅 Upcoming Training

[Cybersecurity Oversight for the Business Executive](#)
May 24-25, 2022 (SEI, Pittsburgh, PA)

[Insider Threat Vulnerability Assessor Training](#)
June 7-9, 2022 (SEI, Live Online)

[Software Architecture Design and Analysis](#)
June 14-15, 2022 (SEI, Pittsburgh, PA)

Note: The SEI is evaluating all upcoming courses, conferences, and events case-by-case in light of COVID-19 developments. Check individual training pages for the latest information. You may also contact us at courseregistration@sei.cmu.edu or +1-412-268-7388.

[See more courses, including live-online and eLearning offerings »](#)

👤 Employment Opportunities

[Technical Manager - Cybersecurity Assurance Team](#)

[Senior System Designer](#)

[DevOps Engineer](#)

[All current opportunities »](#)

Carnegie Mellon University
Software Engineering Institute