Carnegie Mellon University
Software Engineering Institute (SEI)

Systems and Software Engineering
Lunch and Learn Series

Session 8 of 12

Wed Jan 25, 2023
12:00 – 1:30 PM EST

Rick Kazman, Ph.D.
Carnegie Mellon University

Increasing Your Velocity by Fixing (Software Architecture) Design Debt

A **FREE** Virtual Event – Registration Required

1 PDU / CEU

Rick Kazman is a Professor at the University of Hawaii and a Visiting Researcher at the Software Engineering Institute of Carnegie Mellon University. His primary research interests are software architecture, design and analysis tools, software visualization, and technical debt. Kazman has been involved in the creation of several highly influential methods and tools for architecture analysis, including the ATAM (Architecture Tradeoff Analysis Method) and the Titan and DV8 tools. He is the author of over 250 publications, co-author of three patents and eight books, including *Software Architecture in Practice* (2021), *Technical Debt: How to Find It and Fix It* (2021), *Designing Software Architectures: A Practical Approach* (2016), *Ultra-Large-Scale Systems: The Software Challenge of the Future* (2006), and *Evaluating Software Architectures: Methods and Case Studies* (2001). His research methods and tools have been adopted by many Fortune 1000 companies and has been cited over 26,000 times, according to Google Scholar. He is currently an Associate Editor for IEEE Transactions on Software Engineering, a member of the IEEE Computer Society's Technical & Conference Activities Board, and member of the ICSE Steering Committee. Kazman received a B.A. (English/Music) and M.Math (Computer Science) from the University of Waterloo, an M.A. (English) from York University, and a Ph.D. (Computational Linguistics) from Carnegie Mellon University. How he ever became a software engineering researcher is anybody's guess. When not architecting or writing about architecture, Kazman may be found cycling, singing acapella music, gardening, playing the piano, practicing Tae Kwon Do, or flying back and forth between Honolulu and Pittsburgh.

Abstract. In this talk I will discuss a common and pernicious form of technical debt--called design debt, or architecture debt. I will briefly present the theoretical foundation behind this form of debt and present a broad set of evidence demonstrating its dramatic effects on project outcomes. That is the bad news. The good news is that we can automatically pinpoint the causes and scope of such debt. I will describe how we can automatically locate it, measure it, and create the business case for removing it. Finally, I will explain how we can remove--pay down--this debt via refactoring. I will also sketch some of my experiences doing all of this in real-world projects, along with the outcomes.

Session 8
Wed Jan 25, 2023
12:00 – 1:30 PM EST

REGISTER

Watch Recordings of Previous Sessions on our
INCOSE GLNC YouTube Channel

The INCOSE Three Rivers Chapter serves the Greater Pittsburgh Metro Area, and western-central Pennsylvania. The Carnegie Mellon SEI is located in Pittsburgh and is an INCOSE Corporate Advisory Board (CAB) member.

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded in 1990 to develop and disseminate trans-disciplinary principles and practices that enable the realization of successful systems. INCOSE is designed to connect systems engineering professionals with educational, networking, and career-advancement opportunities in the interest of developing the global community of systems engineers and systems approaches to problems. We are also focused on producing state-of-the-art work products that support and enhance this discipline's visibility in the world.

Flyer v1, 18Jan2023, J. Stein