

Third seL4[®] Summit Technical Program

Monday November 16, 2020	Chair & Time
Session #1 Introduction and Keynote	Dr. Renato Levy
Opening Remarks and Introduction (Dr. Renato Levy, Intelligent Automation Inc.; Dr. Jason Li, Siege Technologies)	09:00AM – 09:15AM
Keynote 1: Formally Modeling Threats to Infrastructure Architecture (Dr. Greg Shannon, CMU SEI)	09:15AM – 10:15AM
Break (15 Minutes)	10:15AM – 10:30AM
Session #2 Government Efforts	Douglas Schafer
<ul style="list-style-type: none"> • Army CCDC-GVSC Vision and Progress (Leonard Elliott, Army CCDC-GVSC) 	10:30AM – 11:00AM
<ul style="list-style-type: none"> • CPS Security and Resilience: Viewpoint from ONR (Dr. Ryan Craven, ONR) 	11:00AM – 11:30AM
<ul style="list-style-type: none"> • To ARM and Beyond: Embedding seL4 in the Air Force (Kyle Tillotson, AFRL) 	11:30AM – 12:00PM
<ul style="list-style-type: none"> • Government Support of seL4 Ecosystem (Dr. Ray Richards, DARPA) 	12:00PM – 12:30PM
Break (30 Minutes)	12:30PM – 13:00PM
Session #3 Core Technologies	Kyle Tillotson
<ul style="list-style-type: none"> • seL4 + TrustZone: Spanning both worlds (Nick Spinale, ARM Research) 	13:00PM – 13:30PM
<ul style="list-style-type: none"> • Defense in Depth: Building 21st Century Secure Systems with PIPE (Dr. Arun Thomas and Chris Casing, Draper Laboratory) 	13:30PM – 14:00PM
<ul style="list-style-type: none"> • VST+DeepSpec: connecting a program logic to a verified OS kernel (Dr. Lennart Beringer, Princeton University) 	14:00PM – 14:30PM
<ul style="list-style-type: none"> • Strengthening Binary Software Verification with Certified Code Transforms (Prof. Kevin Hamlen, University of Texas at Dallas) 	14:30PM – 15:00PM
Break (15 Minutes)	15:00PM – 15:15PM
Keynote 2: seL4 – State of the Union (Prof. Gernot Heiser, UNSW and Data61); Keynote introduction by Dr. Renato Levy	15:15PM – 16:00PM
Break (15 Minutes)	16:00PM – 16:15PM
Session #4 Panel Discussion – Techniques for Assurance (Moderator: Dr. Jason Li)	16:15PM – 17:15PM
<ul style="list-style-type: none"> • Dr. Lennart Beringer, Princeton University • Dr. Sergey Bratus, DARPA • Prof. Kevin Hamlen, University of Texas at Dallas • Prof. Gernot Heiser, UNSW and Data61 	
Closing Remarks (Dr. Lok Yan, Air Force Research Laboratory)	17:15PM – 17:30PM

Tuesday, November 17, 2020	Chair & Time
Session #5 Introduction and Keynote	Dr. Ray Richards
Introduction to Keynote Speaker (Dr. Raymond Richards, DARPA)	09:00AM – 09:15AM
Keynote 3: Formal Methods at Scale – Crossing a Threshold (Dr. Bill Scherlis, DARPA I2O)	09:15AM – 10:15AM
Break (15 Minutes)	10:15AM – 10:30AM
Session #6 Assured Systems – I	Dr. Paul Pazandak
<ul style="list-style-type: none"> • seL4 Systems Development Made Easy (Sascha Kegreiß, HENSOLDT Cyber GmbH) 	10:30AM – 11:00AM
<ul style="list-style-type: none"> • Challenges to the Industrial Adoption of seL4 (James Potts and Mark Bortz, Collins Aerospace) 	11:00AM – 11:30AM
<ul style="list-style-type: none"> • Dishwashing with SeL4, or how to get seL4 working with nuclear weapons (Randy Lober, Robert Armstrong and Noah Evans, Sandia Labs) 	11:30AM – 12:00PM
<ul style="list-style-type: none"> • The Need for Assured Execution – The Future of Code Has No Source (Matt Mickelson, MITRE) 	12:00PM – 12:30PM
Break (30 Minutes)	12:30PM – 13:00PM
Session #7 Assured Systems – II	Dr. Eric Smith
<ul style="list-style-type: none"> • Time Enough for seL4 (Todd Carpenter, Adventium Labs) 	13:00PM – 13:30PM
<ul style="list-style-type: none"> • Building a Commercial Virtualized Mobile Device with seL4 (Jason Sebranek and Yanyan Shen, Cog Systems, Inc.) 	13:30PM – 14:00PM
<ul style="list-style-type: none"> • Open Platform for Trustworthy Networked Autonomy (Dr. Stuart Card, Tim Morin, and Nathan Studer; Critical Technologies Inc; Microchip Technology Inc; DornerWorks, Ltd) 	14:00PM – 14:30PM
Break (30 Minutes)	14:30PM – 15:00PM
Special Presentation: Introduction to the seL4 Proofs (Matthew Brecknell, Data61); Speaker introduction by Dr. Renato Levy	15:00PM – 16:00PM
Break (15 Minutes)	16:00PM – 16:15PM
Session #8 Panel Discussion – Tales from the Crypt (Moderator: Todd Carpenter)	16:15PM – 17:15PM
<ul style="list-style-type: none"> • Karl Hoech, Collins Aerospace • Kent McLeod, Kry10 Limited • Douglas Schafer, Cohere Technology LLC 	
Closing Remarks (Dr. Paul Ratazzi, Air Force Research Laboratory)	17:15PM – 17:30PM

Wednesday November 18, 2020	Chair & Time
Session #9 Academia Research	Dr. Lok Yan
<ul style="list-style-type: none"> Securing Cloud Serverless Infrastructure with seL4 (Prof. Hui Lu, Binghamton University) 	09:00AM – 09:30AM
<ul style="list-style-type: none"> Building A Trusted Execution Environment for In-Storage Computing (Prof. Jian Huang, University of Illinois at Urbana-Champaign) 	09:30AM – 10:00AM
<ul style="list-style-type: none"> HAMR - High-Assurance Modeling and Rapid Engineering for seL4-based Embedded Systems Using AADL (John Hatcliff and Robby, Kansas State University) 	10:00AM – 10:30AM
Break (30 Minutes)	10:30AM – 11:00AM

Session #10 Assured Systems – III	Dr. Stuart Card
<ul style="list-style-type: none"> Formally Verified Network Stack Synthesis for seL4 (Dr. Eric Smith, Kestrel) 	11:00AM – 11:30AM
<ul style="list-style-type: none"> Virtualization and Customer Value (Carl L. Nerup, Cog Systems, Inc.) 	11:30AM – 12:00PM
<ul style="list-style-type: none"> A Secure Distributed Computing Middleware for the seL4 Ecosystem (Dr. Paul Pazandak and Fabrizio Bertocci, RTI) 	12:00PM – 12:30PM
Break (30 Minutes)	12:30PM – 13:00PM

Session #11 Thoughts, Challenges and Center of Excellence	Todd Humiston
<ul style="list-style-type: none"> Thoughts on Non-functional Challenges in seL4 (Prof. Gabe Parmer, The George Washington University) 	13:00PM – 13:30PM
<ul style="list-style-type: none"> Building of the Training: the challenge and path to success (Ammar Salman, IAI) 	13:30PM – 14:00PM
<ul style="list-style-type: none"> Center of Excellence Progress and Way Forward (Jerry Dussault, Griffiss Institute) 	14:00PM – 14:30PM
Break (30 Minutes)	14:30PM – 15:00PM

Session #12 Updates from the Home Base	Jerry Dussault
<ul style="list-style-type: none"> The seL4 Foundation: update and why you should join (Prof. June Andronick, Data61 and UNSW) 	15:00PM – 15:30PM
<ul style="list-style-type: none"> Systems beyond POSIX (Curtis Millar, Data61) 	15:30PM – 16:00PM
<ul style="list-style-type: none"> The seL4 Core Platform (Ben Leslie, Breakaway Consulting; Gernot Heiser, Data61) 	16:00PM – 16:30PM
<ul style="list-style-type: none"> seL4 Device Driver Framework (Dr. Ihor Kuz, Data61) 	16:30PM – 17:00PM
Closing Remarks (Dr. Ray Richards, DARPA)	17:00PM – 17:15PM