

SoSE 2019 14th International Conference on System of Systems Engineering
Anchorage, Alaska

(Sunday 19 May)	Day 1 (Monday 20 May)	Day 2 (Tuesday 21 May)	Day 3 (Wednesday 22 May)
(0800 - 0900)	Registration (0800 - 0900)		
(0830 - 0900)	Welcome (0830-0900)		
(0900 - 1000)	Keynote 1 Edward Tunstel - Achieving Next-Level Robotic Intelligence with SoS Implications Howard Rock BC	Keynote 4 Imre J. Rudas - Cyber-Physical System of Systems: changing the game Howard Rock BC	Keynote 6 Judith Dahmann - "Mission Engineering": Systems of Systems Engineering in Context Howard Rock BC
(1000 - 1100)	Keynote 2 Garry Roedler - Understanding and Shaping the Future of System of Systems Engineering Howard Rock BC	Keynote 5 Reggie Cole - System-of-Systems as an Overarching Paradigm Howard Rock BC	Session 5B Howard Rock A/Kuskokwim
(1100 - 1130)	Break Howard Rock Foyer A (1100-1130)		
(1130 - 1230)	Keynote 3 Paul C. Hershey - Modeling and Simulation for Internet of Things as System of Systems Howard Rock BC	Panel Howard Rock BC	Session 6 Howard Rock A/Kuskokwim
(1230 - 1330)	Lunch (1230-1330)		
(1330 - 1510)	Session 1 Howard Rock A/Kuskokwim	Session 3 Howard Rock A/Kuskokwim	Session 7 Howard Rock A/Kuskokwim
(1510 - -1540)	Break Howard Rock Foyer A (1510-1540)		
(1540 - 1740)	Session 2 Howard Rock A/Kuskokwim	Session 4 Howard Rock A/Kuskokwim	Session 8 Howard Rock A/Kuskokwim
Registration (1700-1800)			
Reception (1800-1930) The Summit - 15th FL		Banquet (1900-2100) The Summit -15th FL	

Day 1 (Mon 6/20)			
0800-0900	Registration		
0830-0900	Welcome Howard Rock BC		
0900-1000	Keynote 1: Edward Tunstel - Achieving Next-Level Robotic Intelligence with SoS Implications, United Technologies Research Center, US Chair: Mo Jamshidi Howard Rock BC		
1000 - 1100	Keynote 2: Garry Roedler - Understanding and Shaping the Future of System of Systems Engineering, INCOSE PRESIDENT, US Chair: Mo Jamshidi Howard Rock BC		
1100-1130	Break Howard Rock Foyer A		
1130 - 1230	Keynote 3: Paul C. Hershey - Modeling and Simulation for Internet of Things as System of Systems, RAYTHEON, US Chair: Ferat Sahin Howard Rock BC		
1230 - 1330	Lunch		
1330 - 1510	<p>Session Chair: Hamed Khalkhali Howard Rock A</p> <p>Session 1A: SoSE Simulation, Modeling and Analysis Methods(I) Howard Rock A</p> <p>1570527334 A Refined Terminology on System-of-Systems Substructure and Constituent System States:Axelsson, Jakob (Mälardalen University & RISE Research Institutes of Sweden, Sweden)</p> <p>1570528184 Investigating Emergent Behavior caused by Electric Vehicles in the Smart Grid using Co-Simulation:Binder, Christoph (Salzburg University of Applied Sciences, Austria)</p> <p>1570528453 A Digital Twin Method for Automated Behavior Analysis of Large-Scale Distributed IoT Systems:Sleuters, Jack (ESI (TNO), The Netherlands)</p> <p>1570528572 Analysis of Robotic Fish Using Swarming Rules with Limited Sensory Input:Connor, Jack (Deakin University, Australia)</p> <p>1570531089 Model-Based Approach to System of Systems Engineering: Reevaluating the Role of Simulation:Hallo, Leonie (The University of Adelaide, Australia)</p>	<p>Session Chair: Cihan H Dagli Kuskokwim ~ 2nd FL</p> <p>Session 1B: Cyber Security (I) Kuskokwim ~ 2nd FL</p> <p>1570525126 Privacy Preserved Authentication: A Neural Network Approach:Hashemi, Ray R (Georgia Southern University-Armstrong Campus, USA)</p> <p>1570529228 Cybersecurity as a Centralized Directed System of Systems Using SoS Explorer as a Tool:Ashiku, Lirim (Missouri University of Science and Technology, USA)</p> <p>1570529250 Development of Secure Systems of Systems Needing a Rapid Development:Chiprianov, Vanea (University of Southern Brittany, France)</p> <p>1570531100 On the Application of MIMO Space-Time Coding to Physical Layer Security in sub-6 GHz 5G:Ormond, Patrick (University of Texas at San Antonio, USA)</p> <p>1570531102 Error Rate Analysis of Physical Layer Security for Sub-6 GHz 5G Network Planning:Ormond, Patrick (University of Texas at San Antonio, USA)</p>	
	1510 - 1540 Break Howard Rock Foyer A		
	1540 - 1720	<p>Session Chair: Ben Horan Howard Rock A</p> <p>Session 2A: Health Care Howard Rock A</p> <p>1570527428 Engineering One's Quality of Life as an SoS:White, Brian E. (CAU-SES, USA)</p> <p>1570531079 Hector VR®: A Mixed Reality Driving Simulator for Older Drivers:Mortimer, Michael (Deakin University, Australia)</p> <p>1570531081 Hybrid Neuro-Fractal Analysis of ECG Signal to Predict Ischemia:Sadeghian, Alireza (Ryerson University, Canada)</p> <p>1570530734 Application of Lean-Agile Approach for Medical Wearable Device Development, Glazkova, Natalia (Skolkovo Institute of Science and Technology, Russia)</p> <p>Session 2D: Decision-making Howard Rock A</p> <p>1570531132 Development of soft computing tools and IoT for improving the performance assessment of analysers in a clinical laboratory:Packianather, Michael (Cardiff University, United Kingdom (Great Britain))</p>	<p>Session Chair: Jeremy Straub Kuskokwim ~ 2nd FL</p> <p>Session 2B: Cyber Security (II) Kuskokwim ~ 2nd FL</p> <p>1570531115 Autonomous Distributed Electronic Warfare System of Systems:Burton, Isaac (North Dakota State University, USA)</p> <p>1570532333 Automated Student Assessment for Cybersecurity Courses:Ajjimaporn, Pann (North Dakota State University, USA)</p> <p>Session 2C: Emergence Kuskokwim ~ 2nd FL</p> <p>1570532333 Capability-driven Formulation of System of Systems Core Competencies:Gasque, Thomas (University of Alabama in Huntsville & Intuitive Research and Technology Corporation, USA)</p> <p>1570531087 Toward 'SMART' System of Systems Engineering (SoSE) Management: An Evolving Toolbox Approach:Gorod, Alex (The University of Adelaide, Australia)</p> <p>Session 2E: Systems Governance and Policy Kuskokwim ~ 2nd FL</p> <p>1570528227 Multi-Dimensional Classification of System-of-Systems:Tekinerdogan, Bedir (Wageningen University, The Netherlands)</p>

0800-0900	Registration	
0900-1000	Keynote 4: Imre J. Rudas - Cyber-Physical System of Systems: changing the game, Óbuda University, Budapest Chair: Mo Jamshidi Howard Rock BC	
1000 - 1100	Keynote 5: Reggie Cole - System-of-Systems as an Overarching Paradigm, Lockheed Martin, US Chair: Mo Jamshidi Howard Rock BC	
1100 - 1130	Break Howard Rock Foyer A	
1130 - 1230	Panel: Is it really possible to engineer a system-of-systems? Panelists: Judith Dahmann, Reggie Cole, Eddie Tunstel, Paul Hershey Moderator: Garry Roedler Howard Rock BC	
1230 - 1330	Lunch	
1330 - 1510	Session Chair: Patrick J Benavidez Howard Rock A	Session Chair: Michael Borth(Tentative) Kuskokwim ~ 2nd FL
	Session 3A: Robotic Systems, UAVs, ROVs, Drones (I) Howard Rock A	Session 3B: SoSE Architecture, Design and V & V Methods (I) Kuskokwim ~ 2nd FL
	1570528752 A systems engineering approach applied to U-Space drones: concepts and challenges:Bueno, Jorge (ISDEFE, Spain)	1570527505 Digital Twin Strategies for SoS:Borth, Michael (ESI, The Netherlands)
	1570530257 Smart Walker V: Implementation of RTAB-Map Algorithm:Ramachandran, Srinath (Rochester Institute of Technology, USA)	1570527716 Architectural reasoning in the conceptual phase - a case study in the oil and gas industry:Engen, Siv (University of SouthEast Norway, Norway)
	1570530990 A Low-Cost Search-and-Rescue Drone for Near Real-Time Detection of Missing Persons:McClure, Jonathan M (Rochester Institute of Technology, USA)	1570528779 Systems of Systems Architecting and Integration; Visualizing Dynamic Behavior and Qualities:Muller, Gerrit (USN-NISE, Norway & TNO-ESI, The Netherlands)
	1570531061 Cognitive Cyber-Physical System (C-CPS) for Human-Robot Collaborative Manufacturing:Rahman, S M Mizanoor (University of West Florida, USA)	1570529360 Structured problem exploration approach for the pre-concept stage of system development:Vasenev, Alexandr (ESI (TNO), The Netherlands)
	1570531070 Predicting Fault Behaviors of Networked Control Systems Using Deep Learning for Mobile Robots:Wallace, Conor (University of Texas at San Antonio, USA)	Session 3C: Software-intensive System-of-Systems Engineering Kuskokwim ~ 2nd FL
		1570528645 A Taxonomy of Modeling Approaches for Systems-of-Systems Dynamic Architectures: Overview and Prospects:Mohtsin, Ahmad (Edith Cowan University Australia, Australia)
1510-1540	Break Howard Rock Foyer A	
1540-1720	Session Chair: Montri Wiboonrat Howard Rock A	Session Chair: Alexey Kashevnik Kuskokwim ~ 2nd FL
	Session 4A: Transportation (including civil air traffic control) Howard Rock A	Session 4B: Big Data Analytic, Cloud Computing, Service Oriented Architectures Kuskokwim ~ 2nd FL
	1570530423 Requirements Analysis for the System Level Design of Smart Work Zones:Ozan, Erol (East Carolina University, USA)	1570530675 A Pipeline Approach in Identifying Important Input Features from Neural Networks:Lai, Chih (University of St. Thomas, USA)
	Session 4C: SoSE Availability, Maintainability, Reliability, Resilience, Safety Howard Rock A	1570530894 Driver Intelligent Support System in Internet of Transportation Things: Smartphone-Based Approach:Kashevnik, Alexey (SPIIRAS & ITMO University, Russia)
	1570527839 Spatial Functions for Modeling and Analysis of Safety-Critical Systems of Systems:Lanier, Benjamin G. (University of Alabama in Huntsville, USA)	Session 4D: SoSE Simulation, Modeling and Analysis Methods (II) Kuskokwim ~ 2nd FL
	1570528084 Stored System Inherent Availability Optimization from a System of Systems Physics of Failure Perspective:Van Bossuyt, Douglas L (Naval Postgraduate School, USA)	1570530907 Experiences in Evolving System-of-Systems Engineering Methodology to Address Pain Points:Guariniello, Cesare (Purdue University, USA)
	1570530367 Safe Integration for System of Systems: The Safety Cube Theory:Rajabinejad, Mohammad (University of Twente, The Netherlands)	1570529380 ANN based Command and Control Seat Allocation Optimization with ExtendSim:Xia, Boyuan (National University of Defense Technology, P.R. China)
	1570514828 Data Center Investment vs. System Reliability in Power Distribution Systems:Wiboonrat, Montri (King Mongkut's Institute of Technology Ladkrabang & Faculty of Engineering, Thailand)	Session 4E: Enterprise and Business Architecture Kuskokwim ~ 2nd FL
	1570529271 ReMain-Concept for Requirements Management and Engineering in R&D business networks in Germany:Schlueter, Nadine (University of Wuppertal & University of Wuppertal, Germany)	
	Session 4F: Maritime Systems Engineering (I) Kuskokwim ~ 2nd FL	
	1570528634 Basic Study on Monitoring System of Coastal Radio Operator for Safe Harbor Traffic:Murai, Koji (Tokyo University of Marine Science and Technology, Japan)	
1900-2100	Banquet (1900-2100) The Summit ~ 15th FL	

Day 3 (Wed 6/22)		
0800-0900	Registration	
0900-1000	Keynote 6: Judith Dahmann - "Mission Engineering": Systems of Systems Engineering in Context, Mitre Corporation, US Chair: Ferat Sahin Howard Rock BC	
1000-1100	Session Chair: Hamed Khalkhali Howard Rock A	Session Chair: Jakob Axelsson Kuskokwim ~ 2nd FL
	Session 5A: Defense, Space, National Security Howard Rock A	Session 5B: Automotive SoS Kuskokwim ~ 2nd FL
	1570527586 Metamodeling NATO Operation Orders: a proof-of-concept to deal with digitalization of the battlefield:Belloir, Nicolas (IRISA / CREC St-Cyr, France)	1570528653 Business Models and Roles for Mediating Services in a Truck Platooning System-of-Systems:Axelsson, Jakob (Mälardalen University & RISE Research Institutes of Sweden, Sweden)
	1570530718 Cyber Mutual Assured Destruction as a System of Systems and the Implications for System Design:Straub, Jeremy (North Dakota State University, USA)	1570531040 Autonomous Driving as System of Systems: roadmap for accelerating development:Assaad, Mohamad Ali (Université de Technologie de Compiègne, France)
	1570531117 SoS Characterization and Optimization Approaches for an In-Space Hotel:Grande, Melanie L (Purdue University & NASA Langley Research Center, USA)	1570530359 Generated Voltage Control of EV PMSM for Maximizing Energy Recovery Rate using Switched Resonant L-C:Park, Keon Ho (Dankook University, Korea)
1100-1130	Break Howard Rock Foyer A	
1130-1230	Session Chair: Patrick J Benavidez Howard Rock A	Session Chair: Brook Abegaz(Tentative) Kuskokwim ~ 2nd FL
	Session 6A: Robotic Systems, UAVs, ROVs, Drones (II) Howard Rock A	Session 6B: Cyber Physical Systems and IoT: Engineering Issues Kuskokwim ~ 2nd FL
	1570531322 Improving Performance and Cybersecurity in an IoT-based System of Systems Integrating Robots and Virtual Human: Rahman, S M Mizanoor (University of West Florida, USA)	1570522989 Agent Modeling to Support Allocation Decisions in Mobile Cyber-Physical Systems:Giachetti, Ronald (Naval Postgraduate School, USA)
	1570532329 Low-Cost Heterogeneous Unmanned Ground Vehicle (UGV) Testbed for Systems of Autonomous Vehicles Research:Jaimes, Aldo (UTSA, USA)	1570529458 Smart AVR Control using K-means Clustering:Abegaz, Brook (Loyola University of Chicago, USA)
	1570532708 Implementation of Reinforcement Learning Simulated Model on Physical UGV Using Robot Operating System for Continual Learning:Perez, Edgar (UTSA, USA)	1570532321 HRC-SoS: Human Robot Collaboration Experimentation Platform as System of Systems:Savur, Celal (Rochester Institute of Technology, USA)
1230-1330	Lunch	
1330-1510	Session Chair: Gerrit Muller Howard Rock A	Session Chair: Rick Randall Kuskokwim ~ 2nd FL
	Session 7A: Energy, Smart Grid Technologies Howard Rock A	Session 7B: Case Studies Kuskokwim ~ 2nd FL
	1570528534 2017 ISO New England System Operational Analysis and Renewable Energy Integration Study - Highlights":Muhanji, Steffi O (Dartmouth College, USA)	1570509125 Shared Mobility Services Governance: A Case Study for San Diego:Ma, Brian (Stevens Institute of Technology, USA)
	1570526737 Roadmapping for Sustainability; How to Navigate a Social, Political, and Many Systems-of-Systems Playing Field? A Local Initiative:Muller, Gerrit (USN-NISE, Norway & TNO-EST, The Netherlands)	1570519096 Medicaid IT as a System of Systems:Randall, Rick (MITRE, USA)
	1570531003 Smart Control of Buck Converters using a Switching-based Clustering Algorithm:Abegaz, Brook (Loyola University of Chicago, USA)	1570531099 A Smart City Transportation System of Systems Governance Framework: A Case Study of Singapore:Ling, Lee Oon (Nanyang Polytechnic, Singapore)
	1570532320 Optimized Approach to Cogeneration of Water Desalination and Solar Energy Power Production:Shahmaleki, Pourya (University of Utah, USA)	Session 7C: Ocean Space, Maritime, Offshore, Subsea Kuskokwim ~ 2nd FL
	1570527114 Design and Implementation of Fractional-Order Sliding Mode Control for Parallel Distributed Generations Units in Islanded Microgrid:Ali, Muhammad (Bahria University, Islamabad, Pakistan)	1570527723 Application of system thinking to frame the problem in a subsea development projects with high-level business requirements:Engen, Siv (University of SouthEast Norway, Norway)
1510-1540	Break Howard Rock Foyer A	
1540-1720	Session Chair: G. Maarten Bonnema (Tentative) Howard Rock A	Session Chair: Ferat Sahin Kuskokwim ~ 2nd FL
	Session 8A: SoSE Architecture, Design and V & V Methods (II) Howard Rock A	Session 8B: Internet of Things Kuskokwim ~ 2nd FL
	1570531018 Modelling Integral Risk Assessment (MOIRA): Experiments on the Dutch Railway Departure Process:Schutemaker2, Katja (University of Twente, The Netherlands)	1570527470 IoT based Smart Vehicle Presence Sensor SPIN-V for Smart Parking System:Luque-Vega, Luis F (Universidad del Valle de México, Mexico)
	1570532175 Coping with Uncertainty in Systems-of-Systems Architecture Modeling on the IoT with SosADL:Oquendo, Flavio (IRISA (UMR CNRS) - University of South Brittany, France)	1570529143 An Open Source Lifecycle Collaboration Approach Supporting Internet of Things System Development:Jinwei, Chen (Shanghai Jiaotong University, P.R. China)
	1570522089 MBSE-Compliant Product Lifecycle Model Management:Wang, Chengen (Shanghai Jiaotong University, P.R. China)	Session 8C: Maritime Systems Engineering (II) Kuskokwim ~ 2nd FL
	1570528325 Spectrum-Based Fault Localization on a Collaboration Graph of a System-of-Systems:Shin, Yong-Jun (Korea Advanced Institute of Science and Technology (KAIST), Korea)	1570528449 Influence of System Delay of Remote Control Ships on Mariners:Okazaki, Tadatsugi (Tokyo University of Marine Science and Technology, Japan)
	1570530754 Quality aware Software Architecture for Internet of things based System of Systems:Aziz, Muhammad W (CECOS University of IT and Emerging Sciences, Pakistan)	Session 8D: Navigation Technologies, Autonomous Vehicles Kuskokwim ~ 2nd FL
	1570531074 ORBDeepOdometry - A Feature-Based Deep Learning Approach to Monocular Visual Odometry:Siwarsama Krishnan, Karthik (Rochester Institute of Technology, USA & Panimalar Engineering College, India)	