SoSE2017 app on Google Play
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>07:45</td>
<td>Registration</td>
<td>@Kona Promenade</td>
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<tr>
<td>08:40</td>
<td>Welcome @Kona IV</td>
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<tr>
<td>09:00</td>
<td>Keynote @Kona IV</td>
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<tr>
<td></td>
<td>Mr. Alan Harding†</td>
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<tr>
<td></td>
<td>Global Challenges for Systems</td>
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<td>Engineering and the vital role</td>
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<td>of SOS Engineering</td>
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<tr>
<td>10:00</td>
<td>Break @Kona Promenade</td>
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<td>10:30</td>
<td>MAX @Kona IV</td>
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<td>MAY @Kona I</td>
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<td></td>
<td>Robotic Systems, UAVs, ROVs,</td>
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<td>Drones, etc. (A)</td>
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<tr>
<td>11:30</td>
<td>Lunch</td>
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<tr>
<td>1:00p</td>
<td>Keynote @Kona IV</td>
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<tr>
<td></td>
<td>Garry Roedler†</td>
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<td></td>
<td>&amp; Judith Dahmann†</td>
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<td>The Future of Systems of</td>
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<td></td>
<td>Systems – Or is the future</td>
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<td>here today? Or are we back to</td>
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<td></td>
<td>the future?</td>
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<tr>
<td>2:00p</td>
<td>Break @Kona Promenade</td>
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<tr>
<td>2:30p</td>
<td>MPX @Kona IV</td>
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<td>MPY @Kona I</td>
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<td>Robotic Systems, UAVs, ROVs,</td>
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<td>Drones, etc. (P)</td>
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<tr>
<td>3:30p</td>
<td>MLX @Kona IV</td>
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<tr>
<td>3:30p</td>
<td>SoSE Simulation, Modeling and</td>
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<td>Analysis Methods</td>
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<tr>
<td>4:30p</td>
<td>Registration</td>
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<tr>
<td>5:00p</td>
<td>Reception</td>
<td>@Grand Staircase</td>
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<td>5:00p</td>
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</tbody>
</table>

† INCOSE Members
TUESDAY

07:45 Registration @Kona Promenade

08:00 Panel I @Kona IV
Garry Roedler (Moderator)
Reggie Cole†, Dr. Stephen Cook,
Dr. Judith Dahmann†, Alan Harding†,
Dr. Mike Yokell

09:00 Keynote @Kona IV
Dr. Mark E. Davis
Review of LPWA standards and systems

10:00 Break @Kona Promenade

10:30 Keynote @Kona IV
Prof. Ian Gibson
How 3D Printing may change the manufacturing world as we know it

11:30 Lunch

12:00 Break @Kona Promenade

10:00 Keynote @Kona IV

10:30 Prof. Micheal Henshaw†
Modeling and Simulation for Cyber-Physical Systems

11:30 Lunch

11:00 Keynote @Kona IV
Prof. Imre J. Rudas
Internet of Anything as a Pillar of Intelligent System of Systems

WEDNESDAY

07:45 Registration @Kona Promenade

08:00 Panel II @Kona IV
Mo Jamshidi (moderator)
Gary Langford†, Kristin Giammarco†,
Timothy LJ Ferris†, Paul C. Hershey

09:00 WAX @Kona IV

Session WA" Session WP"* Break
Misc. (Energy, Smart Grid Technologies, SoSE)
Availability, Maintainability, Reliability, Resilience, Safety, etc.)
for Engineering Emergence

10:00 Keynote @Kona IV

10:30 Break

11:30 Lunch

11:00 Keynote @Kona IV

11:30 Lunch

12:00 Break @Kona Promenade

12:00 Future SoSE planning
**Keynotes**

**Monday**

**Mr. Alan Harding†**
President of INCOSE

Global Challenges for Systems Engineering and the vital role of SOS Engineering  
9:00am  
Chair: Garry Roedler†

**Garry Roedler†**
INCOSE President-Elect, Lockheed Martin Senior Fellow  
**Judith Dahmann†**
Senior Principal Systems Engineer at MITRE  

The Future of Systems of Systems – Or is the future here today? Or are we back to the future?  
1:00pm  
Chair: Mo Jamshidi

**Tuesday**

**Dr. Mark E. Davis**
Vice President of Platform Engineering Group and Chief Technology Officer of CDMA Products and Development, Intel Corporation

Review of LPWA standards and systems  
9:00am  
Chair: Ted Shaneyfelt

**Dr. John Fumo**
Kona Scientific, Hawaii USA

Implementation of distributed sensing in loosely coupled fabrics  
10:30am  
Chair: Ted Shaneyfelt

† INCOSE Members

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**Kona I Room Wednesday June 21st Session WAY Chair: Jamshidi**

**The Making of a System of Systems: Ontology Reveals the True Nature of Emergence**
Gary Langford† (Portland State University, USA); Teresa Langford (Portland Community College, USA)

**Session WAY**  
Paper #1570340366  
Room Kona I

**Practical Modeling Concepts for Engineering Emergence in Systems of Systems**
Kristin Giannarco† (Naval Postgraduate School, USA)

**Session WAY**  
Paper #1570346500  
Room Kona I

**Emergence as a Subject of Research, Research Methods, and Engineering Knowledge and Practice**
Timothy LJ Ferris† (Cranfield University, United Kingdom)

**Session WAY**  
Paper #1570345407  
Room Kona I

**Multi-dimensional Information Filter for Space-Based Platforms (MIFS)**
Paul C. Hershey (Raytheon, Inc., USA)

**Session WAY**  
Paper #1570349685  
Room Kona I

**Kona I Room Wednesday June 21st Session WPY Chair: Seong**

**A System of Systems Approach to Patient Treatment with the Left Ventricular Assist Device**
Viswajith Vasudevan and Marwan A. Simaan (University of Central Florida, USA)

**Session WPY**  
Paper #1570340231  
Room Kona I

**Human Machine Interface in the Internet of Things (IoT)**
Joseph Nuamah and Younho Seong (North Carolina A&T State University, USA)

**Session WPY**  
Paper #1570347159  
Room Kona I

**Towards an Approach for Analyzing Trust in Cyber-Physical-Social Systems**
Mohamad Gharib, Paolo Lollini and Andrea Bondavalli (University of Florence, Italy)

**Session WPY**  
Paper #1570340931  
Room Kona I

*Note: Boldface indicates presenting author.*
### Keynotes

**TUESDAY (CONTINUED)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Institution</th>
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<tbody>
<tr>
<td>1:00pm</td>
<td><strong>IAN GIBSON</strong>&lt;br&gt;Professor of Industrial Design &amp; Head of School and School of Engineering Deakin University, Australia</td>
<td>How 3D Printing may change the manufacturing world as we know it</td>
</tr>
<tr>
<td>1:00pm</td>
<td><strong>PROF. MICHAEL HENSHAW</strong>&lt;br&gt;Loughborough University, UK</td>
<td>Modeling and Simulation for Cyber-Physical Systems</td>
</tr>
<tr>
<td>1:00pm</td>
<td><strong>PROF. IMRE J. RUDAS</strong>&lt;br&gt;Óbuda University, Budapest, Hungary</td>
<td>Internet of Anything as a Pillar of Intelligent System of Systems</td>
</tr>
<tr>
<td>3:00pm</td>
<td><strong>PROF. FRANCOIS COALLIER</strong>&lt;br&gt;Ecole de Technologie Superieure, Canada</td>
<td>SoSE Challenges in IoT based Systems</td>
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### Wednesday

**KONA IV ROOM WEDNESDAY JUNE 21 SESSION WAX CHAIR: GIAMMARCO**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Institution</th>
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<tbody>
<tr>
<td>9:00am</td>
<td>Systems Architecture in Failure Analysis&lt;br&gt;Stephen Rambikur (Naval Post Graduate School &amp; Naval Undersea Warfare Center, USA); Kristin Giammarco† and Bryan O’Halloran (Naval Post Graduate School, USA)</td>
<td>Paper #1570345479 Room Kona IV</td>
</tr>
<tr>
<td>9:15am</td>
<td>A Design Flow with Integrated Verification of Requirements and Faults in Safety-Critical Systems&lt;br&gt;Weï Yan, Daniel Fontaine, Laurent Michel and John A Chandy (University of Connecticut, USA)</td>
<td>Paper #1570344409 Room Kona IV</td>
</tr>
<tr>
<td>9:30am</td>
<td>Distributed Data Fusion in the Dempster-Shafer framework&lt;br&gt;Orakanya Kanjanatarakul (Chiang Mai Rajabhat University, Thailand); Thierry Denoeux† (Université de Technologie de Compiègne, France)</td>
<td>Paper #1570344197 Room Kona IV</td>
</tr>
<tr>
<td>9:45am</td>
<td>Developing the Stakeholder Requirements Definition Process - A Journey of Customization&lt;br&gt;Simon Aasheim (HENT AS, Norway); Yang Yang Zhao (University College of Southeast Norway, Norway)</td>
<td>Paper #1570335723 Room Kona IV</td>
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**KONA IV ROOM WEDNESDAY JUNE 21ST SESSION WPX CHAIR: STRAUB**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Institution</th>
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<tbody>
<tr>
<td>2:15pm</td>
<td>An Internetworked Self-Driving Car System of Systems&lt;br&gt;Jeremy Straub, Wafaa Amer, Christian Ames, Karanam Dayananda, Andrew Jones, Goutham Miryala, Nathan Olson, Noah Rockenback, Franklin Sisalay, Santipab Tipparach, Samuel Fehringer, David Jedynak, Haiming Lou, Dakota Martin, Marc Olberding, Austin Oltmans, Alec Witte, Brady Goenner, Jessie Lee and Dylan Shipman (North Dakota State University, USA)</td>
<td>Paper #1570344839 Room Kona IV</td>
</tr>
<tr>
<td>2:30pm</td>
<td>CyberSecurity Considerations for an Interconnected Self Driving Car System of Systems&lt;br&gt;Jeremy Straub, John McMillan, Brett Yaniero, Mitchell Schumacher, Abdullah Almosalami, Kelvin Boatey and Jordan Hartman (North Dakota State University, USA)</td>
<td>Paper #1570345560 Room Kona IV</td>
</tr>
<tr>
<td>2:45pm</td>
<td>A Cyber Energy System Design (CESD) for Electric Vehicle Applications&lt;br&gt;K. Tehrani (ESIGELEC-IRSEEM, France)</td>
<td>Paper #1570345528 Room Kona IV</td>
</tr>
</tbody>
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† INCOSE Members
### Kona IV Room Monday June 19th Session MAX Chair: Kumar

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Paper #</th>
<th>Room</th>
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<tbody>
<tr>
<td>10:30am</td>
<td>A Novel 3D printed leg design for a Biped Robot</td>
<td>Matthew Haywood and Ferat Sahin (Rochester Institute of Technology, USA)</td>
<td>1570346575</td>
<td>Kona IV</td>
</tr>
<tr>
<td>10:45am</td>
<td>A Novel Hexapod Robot Design with Flight Capability</td>
<td>Mark Pitonyak and Ferat Sahin (Rochester Institute of Technology, USA)</td>
<td>1570345434</td>
<td>Kona IV</td>
</tr>
<tr>
<td>10:45am</td>
<td>A Framework for an Adaptive Human-Robot Collaboration approach through Perception-based Real-Time adjustments of robot behavior in industry</td>
<td>Shitij Kumar and Ferat Sahin (Rochester Institute of Technology, USA)</td>
<td>1570345503</td>
<td>Kona IV</td>
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### Kona IV Room Monday June 19th Session MPX Chair: Erol

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Paper #</th>
<th>Room</th>
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<tbody>
<tr>
<td>11:45am</td>
<td>Multi-Pursuer Pursuit-Evasion Games Under Parameters Uncertainty: A Monte Carlo Approach</td>
<td>Shahriar Talebi and Marwan A. Simaan (University of Central Florida, USA)</td>
<td>1570340685</td>
<td>Kona IV</td>
</tr>
<tr>
<td>1:15pm</td>
<td>A Deep Vision Landmark Framework for Robot Navigation</td>
<td>Abhijith Ravikumar Puthussery, Karthik Haradi, Patrick J Benavidez, Berat A. Erol, Paul Rad and Mo Jamshidi (University of Texas at San Antonio)</td>
<td>157034562</td>
<td>Kona IV</td>
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<tr>
<td>3:30pm</td>
<td>Improved Route Optimization for Autonomous Ground Vehicle Navigation</td>
<td>Ibrahim Mohammed, Berat A. Erol, Ikram Mohammed, Patrick J Benavidez and Mo Jamshidi (University of Texas at San Antonio)</td>
<td>1570345584</td>
<td>Kona IV</td>
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<tr>
<td>3:45pm</td>
<td>Development of Robot Operating System (ROS) Compatible Open Source Quadcopter Flight Controller and Interface</td>
<td>Abhijit Majumdar, Nicholas Gamez, Patrick J Benavidez and Mo Jamshidi (University of Texas at San Antonio)</td>
<td>1570347307</td>
<td>Kona IV</td>
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### Kona I Room Tuesday June 20th Session TLY Chair: Oquendo

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<thead>
<tr>
<th>Time</th>
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<th>Speaker(s)</th>
<th>Paper #</th>
<th>Room</th>
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<tbody>
<tr>
<td>3:30pm</td>
<td>Architecturally Describing the Emergent Behavior of Software-intensive System-of-Systems with SosADL</td>
<td>Flavio Oquendo (IRISA (UMR CNRS) - University of South Brittany, France)</td>
<td>1570340809</td>
<td>Kona I</td>
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<tr>
<td>3:45pm</td>
<td>A Novel Methodology for Retrofitting CNC Machines Based on the Context of Industry 4.0</td>
<td>Romulo Lins (Faculdade SENAI Mariano Ferraz, Brazil); Robert Schmitt (Laboratory for Machine Tools and Production Engineering WZL, Germany); Bruno Guerreiro (Fraunhofer Institute for Production Technology, Germany); Marcio Corrazim (Faculdade SENAI Mariano Ferraz, Brazil); Francis Silva (Thyssenkrupp, Brazil)</td>
<td>1570340951</td>
<td>Kona I</td>
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<tr>
<td>4:00pm</td>
<td>Evaluating a computational support tool for set-based configuration of production systems</td>
<td>Johannes Unglert, Sipke Hoekstra and Juan Jauregui-Becker (University of Twente, Faculty of Engineering Technology, Enschede, The Netherlands)</td>
<td>1570340786</td>
<td>Kona I</td>
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<tr>
<td>4:15pm</td>
<td>A Conceptual Model for Analyzing Information Quality in System-of-Systems</td>
<td>Mohamad Gharib, Paolo Lollini and Andrea Bondavalli (University of Florence, Italy)</td>
<td>1570340925</td>
<td>Kona I</td>
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Banquet 7pm at Lagoon Lanai
**Kona I Room Monday June 19th Session MPY Chair: Cole**

- **Emergence as Innovation in Systems of Systems - a Three Systems Model**
  - Paper #1570345612
  - Room Kona I

- **Incentivising the Dissemination of Truth Versus Fake News in Social Networks**
  - Paper #1570347637
  - Room Kona I

- **Sustainability policy-making as a dynamic, agent-based system of systems**
  - Paper #1570348363
  - Room Kona I

- **Applying Social Network Analysis to Systems of Systems: The Case of the 2016 Puerto Rico Power Outage**
  - Paper #1570339409
  - Room Kona I

- **Identifying Decision Patterns Using Monterey Phoenix**
  - Paper #1570341093
  - Room Kona I

- **Deriving Stochastic Properties from Behavior Models Defined by Monterey Phoenix**
  - Paper #157034214
  - Room Kona I

- **Data Dependency Network Analysis in SoS**
  - Paper #1570338483
  - Room Kona I

- **Modeling Human-Technology Interaction as a Sociotechnical System of Systems**
  - Paper #1570339824
  - Room Kona I

- **System of Systems Architecture Feasibility Analysis to Support Tradespace Exploration**
  - Paper #1570340877
  - Room Kona I

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**Kona IV Room Tuesday June 20th Session TLX Chair: Rad**

- **A Deep Learning Approach for Mapping Music Genres**
  - Paper #1570345535
  - Room Kona IV

- **Autonomous Decision Making for a Driver-less Car**
  - Paper #1570341909
  - Room Kona IV

- **Enabling Design of Agile Security in the IOT with MBSE**
  - Paper #1570340698
  - Room Kona IV

- **Systems Engineering Competencies for Enterprise Transformation**
  - Paper #1570341069
  - Room Kona IV

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**Kona III Room Tuesday June 20th Session TLZ Chair: Enos**

- **Defining an Enterprise Lead Systems Integration (LSI) Framework**
  - Paper #1570340859
  - Room Kona III

- **Using Social Network Analysis to Quantify Interoperability in a Large System of Systems**
  - Paper #1570339163
  - Room Kona III

- **Trends in Large Scale Systems-of-Systems for Multi-National Missile Defense**
  - Paper #1570340897
  - Room Kona III
### Design and Development of a Low-Cost Autonomous Surface Vehicle
Benjamin Champion (Deakin University, Australia); Van Thanh Huynh (Colleague, Australia); Gokul Thirunavukkarasu, Lachlan Patrick, Lloyd Hock Chye Chua and Matthew Joordens (Deakin University, Australia)

### Big Data Analytic, Cloud Computing, Service Oriented Archi. (1 of 2)

#### Robotic Systems, UAVs, ROVs, Drones, etc. (3 of 3)

Kaliapp Ravindran, Yassine Wardei and Michael Iannelli (City University of New York, USA)

### Big Data Analytic, Cloud Computing, Service Oriented Archi. (2 of 3)

#### Pedestrian Detection System Using Deep Convolutional Neural Networks
Jonathan Lwowski, Prasanna Kolar, Patrick J Benavidez, Paul Rad, John J Prevost and Mo Jamshidi (University of Texas at San Antonio)

#### Deep Voice Identification
Andrew Boles and Paul Rad (University of Texas San Antonio, USA)

### The Internet of Simulation: Enabling Agile Model Based Systems Engineering for Cyber-Physical Systems
Stephen Clement and David Mckee and Richard Romano and Jie Xu (Leeds University, United Kingdom); Jose Lopez (Simware Solutions, Spain); David Battersby (Jaguar Land Rover, United Kingdom)

### Model-based Assessment of QoS Adaptation in Complex Networked Systems
Kaliapp Ravindran, Yassine Wardei and Michael Iannelli (City University of New York, USA)

### Session TPX (Kona IV)
2:30pm - 2:45pm
**Room Kona IV**
Paper #1570340957

### Pedestrian Detection System Using Deep Convolutional Neural Networks
Jonathan Lwowski, Prasanna Kolar, Patrick J Benavidez, Paul Rad, John J Prevost and Mo Jamshidi (University of Texas at San Antonio)

### Deep Voice Identification
Andrew Boles and Paul Rad (University of Texas San Antonio, USA)

### Implementation of Automated Vanilla Pollination Robotic Crane Prototype
Tuan Giang, John Kuroda and Ted Shaneyfelt (University of Hawaii at Hilo, USA)

### Session MLX (Kona IV)
4:30pm - 4:45pm
**Room Kona IV**
Paper #1570331183

### A Research Framework on Mission Planning of the UAV Swarm
Xin Zhou, Weiping Wang, Xiaobo Li, Tao Wang and Zhifei Li (National University of Defense Technology, P.R. China)

### Session MLX (Kona IV)
4:15pm - 4:30pm
**Room Kona IV**
Paper #1570352258

### The Internet of Simulation: Enabling Agile Model Based Systems Engineering for Cyber-Physical Systems
Stephen Clement and David Mckee and Richard Romano and Jie Xu (Leeds University, United Kingdom); Jose Lopez (Simware Solutions, Spain); David Battersby (Jaguar Land Rover, United Kingdom)

### Session TPX (Kona IV)
2:30pm - 2:45pm
**Room Kona IV**
Paper #1570344848

### Pedestrian Detection System Using Deep Convolutional Neural Networks
Jonathan Lwowski, Prasanna Kolar, Patrick J Benavidez, Paul Rad, John J Prevost and Mo Jamshidi (University of Texas at San Antonio)

### Deep Voice Identification
Andrew Boles and Paul Rad (University of Texas San Antonio, USA)

### Session TPX (Kona IV)
3:15pm - 3:30pm
**Room Kona IV**
Paper #1570345550

### Eye Sensor for Swarm Robotic Fish
Nnamdi Elege, Suhasini Solapurkar and Matthew Joordens (Deakin University, Australia)

### Session MLX (Kona IV)
3:45pm - 4:00pm
**Room Kona IV**
Paper #1570344806

### Quality metrics for descriptive models in model based systems engineering
Ronald Giachetti (Naval Postgraduate School, USA)

### Session TPY (Kona I)
2:30pm - 2:45pm
**Room Kona I**
Paper #1570345349

### Architecture Modeling Software Analytics: Model quality and maturity assessment using automated tools
Kristin Giammarco† (Naval Postgraduate School, USA)

### Comprehensive Use Case Scenario Generation: An Approach for Modeling System of Systems Behaviors
Kristin Giammarco†, Clifford Whitcomb† and Kathleen Giles (Naval Postgraduate School, USA)

### An IoT Self Organizing Network for 5G Dense Network Interference Alignment
Anil Kumar Yerrapragada and Brian T Kelley (University of Texas at San Antonio, USA)

### Software Architecture of Self-Organizing Systems-of-Systems for the Internet-of-Things with SosADL
Flavio Oquendo (IRISA (UMR CNRS) - University of South Brittany, France)

### Using a Systems of Systems modeling approach for developing Industrial Internet of Things applications
Aurelijus Morkevicius† (Kaunas University of Technology & No Magic Europe, Lithuania); Lina Biskirskaite (Kaunas University of Technology, Lithuania); Graham Bleakley† (IBM Uk Ltd, United Kingdom)