On behalf of the Organizing Committee of the IEEE – 13th System of Systems Engineering Conference, it is a great honor and pleasure to welcome you in Paris. SoSE 2018 has vast ramifications in numerous engineering fields such as system management and engineering, control, multi-scale and multi-physics system modeling, risk analysis, safety, security, resilience, decision-making, interaction with humans, cooperation and coordination in competitive multi-systems, and in applications such as transportation, critical infrastructures, manufacturing, healthcare, environment, cyber-physical systems, defense, aerospace. The 2018 conference theme is “Systems of systems Management and Control: Frontiers between cyber, physical, and social systems”.

The program includes plenary sessions, panel sessions, regular and poster sessions, and exhibitions. The fourth day focuses on ongoing projects, research priorities and innovation strategies at European level in systems of systems engineering.

Address: Sorbonne Université, Campus Pierre et Marie Curie - 4 place Jussieu - 75005 Paris.

Registration on: http://sosengineering.org/2018/registrations/

http://sosengineering.org/2018/
IEEE SoSE 2018 - TIMETABLE

DAY 1: JUNE 19, 2018

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<td>09:30-09:55</td>
<td>Welcome</td>
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<td>10:00-12:00</td>
<td>Parallel sessions 1 — Room 107</td>
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<td>11A — System of systems integration</td>
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<td>Chair: Mohammad Rajabalinejad.</td>
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<tr>
<td>12:00-13:15</td>
<td>Lunch</td>
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<tr>
<td>13:15-14:00</td>
<td>Keynote 1: Judith S. Dahmann (The MITRE Corporation, USA)</td>
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<td>14:00-15:30</td>
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<td>15:30-15:45</td>
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<td>Parallel sessions 2 — Room 107</td>
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<td>16:45-17:00</td>
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<td>17:00-17:45</td>
<td>Keynote 2: Robert Plana (Ascystem, France)</td>
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<td>18:00-20:00</td>
<td>Cocktail</td>
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</tbody>
</table>
DAY 2: JUNE 20, 2018

08:00-08:30 Registration

08:30-09:15 Keynote 3: Jean-Luc Garnier (Thales, France) - Chair: Roberto Sacile. Investigating in SoS Taxonomies to Improve Systems Engineering.

09:15-10:00 Keynote 4: Alessandro Golkar (Airbus, France) - Chair: Ulrich Lenk. Unlocking value creation through Systems of Systems thinking: can we create new opportunities through platforms and services?

10:00-10:30 Coffee break

10:30-12:30 Parallel sessions 3

3A — Risk analysis, reliability, safety, security in SoS
Chair: Eric Bonjour.

An Efficient Architecture for Trust Management in IoT Based Systems of Systems. Djamal Eddine Kouicem; Abdelmadjid Bouabdallah; Hicham Lahklef.

System of Systems Characterisation assisting Security Risk Assessment. Duncan Ki-Aries; S Fally; Huseyn Sogan; Chris Williams.

A collaboration policy model for system of systems. Zezaleh Mitre Delay; Eunkyung Jee; Young-Min Baek; Bae Doo-Hwan.

A Language for Analysing Security of IoT Systems. Delphine Beaulaton; Jean Quilbeuf; Najlah Ben Said; Ioana Dominca Cristescu; Axel Logay; Salah Sadou; Régis Fleurquin.

Irrational System Behavior in a System of Systems. Douglas Van Bossuyt; Bryan O’Halloran; Ryan Arlitt.

Train scheduling and rescheduling model based on customer satisfaction. Application to Genoa railway network. Fabio Donzella; Maria del Cacho Estil-les; Chiara Bersani; Roberto Sacile; Luca Zeno.

A Fusion Model for Road Detection based on Deep Learning and Fully Connected ORF. Fei Yang; Zhong Jin; Jian Yang.

What can (Systems of) Systems Engineering contribute to Oil and Gas? An illustration with case studies from subsea. Gerrit Muller; Kristie Falk.

12:30-13:45 Lunch

13:45-14:30 Keynote 5: Philippe Bonnifait (Heudiasyc, UTC, CNRS, France) - Chair: Alessandro Golkar. Autonomous cars navigation: from standalone to cooperative systems.

14:30-16:00 INCOSE Panel 2 [Roundtable Format]: Garry Roedler (moderator)

The Role of Systems of Systems Engineering in Systems Engineering of the Future. Judith Dahmann, Jakob Aaselsan, Chris French, Vincent Arnold, Tom McDermott; Mo Jamshidi; Alan Harding; Mike Yokell; Gerrit Muller; Paul Hershey, Ramakrishnan Raman, Don York, Mo Mansouri, Cihan Dagli, Thomas A McDermott, Jr.

16:00-16:15 Break

16:15-17:35 Parallel sessions 4

4A — Robotics
Chair: Philippe Bonnifait.

On The Development of Robot Fish Swarms in Virtual Reality with Digital Twins. Matthew Joordens; Mo Jamshidi.

Analysis of the Effect Waveform Parameters have on Stingray Surface Velocity. Jordan Nowell; Jack Connor; Matthew Joordens; Benjamin Champion.


A System-of-Systems Approach to Improving Intelligent Predictions and Decisions in a Time-series Environment. William Beaver; David M Cury; Chanh H Dagli.

A System-of-Systems Approach to Improving Intelligent Predictions and Decisions in a Time-series Environment. William Beaver; David M Cury; Chanh H Dagli.

Integrating scenarios of formation tracking and collision avoidance of multi-vehicles. Hoang Anh Pham; Thierry Soriano; Ngo Van Hien.


17:40-18:00 PTC sponsor Title TBA Speaker TBA

19:00-22:00 Dinner Cruise
Keynote 6: James M. Tien (University of Miami, USA) - Internet of Things, Real-Time Decision Making and Artificial Intelligence.

Chair: Mo Jamshidi.

Keynote 7: Philippe Convain (Plastic Omnium Auto Inergy, France) - Industrial Process Monitoring: from fault analysis to prediction.

Chair: Eric Bonjour.

Coffee break

10:30-12:30

Lecture hall 44  Parallel sessions 5  Room 107  Room 108

5A — Cyberphysical systems and IoT: engineering issues

Chair: Enrico Natalizio


Jinxiu Lu; Sorin Dobra; Xiaobin Jin

Towards Data-Centric Genetic Cryptography for Telemonitoring and Ambient-Assisted Living Systems.

Zoubir Hamici

5B — SoS approach for Ambient Assisted Living and vital telemonitoring

Chair: Carla Taramasco, Dan Istrate.

Cognitive and functional rehabilitation using serious games and a system of systems approach.

Haim Tannous; Cyrille Grébounval; Mircea Dan Istrate; Anasik Perschon; Tian Tuan Dn.

5C — System management and engineering

Chair: Marie-Hélène Abel.

Regional Sensitivity Analysis Applied To Train Traffic Rescheduling in Case of Power Shortage.

Sotha Saad; Florence Ossart; Jean Bigeon; Etienne Sourdille; Harold Gance.

Parallel sessions 6

Lecture hall 44  Room 107  Room 108

6A — Systems Policy and Governance

Chair: Mo Mansouri.

System Integration: Challenges and Opportunities for Rail Transport.

Mohammad Rajabalinejad

A first Cyber-Physical Systems of Systems Modeling.

Olivier Maurice

6B — Tensorial analysis of networks

Chair: Isabelle Borne.


Avi Shaked, Yoram Reich.

ADAPT: A EU transdisciplinary research project for assistive robotics rehabilitation.

Nicolas Ragot; Bastien Fraudet; Emile Leblong

6C — System architecture II

Chair: Mikhail Belov.

MBSE Driven IoT for Smarter Cities.

Matthew Hause; James Hummell; Matthew de Castro Andrade; Paulo A C Duarte; Felipe Barreto; Paulo A C Tang.

An Algorithm for Fall Detection using Data from SmartWatch.

Boudy; Maria de Castro Andrade; Jérôme Guiffaut.

Blockchain Design for Trusted Decentralized IoT Networks.

Juah Song; Menlut A Demir; John J Prevost; Paul Rad.

A system of systems framework: Cooperative Maneuvers Manager for Autonomous Vehicles.

Mohamad Ali Assaad; Reine Talj; Ali Charara.

12:30-13:45

Lunch

13:45-14:30

Keynote 8: Atta Badii (University of Reading, UK) - Framework Architecture for Multi-Modal Sensing and Situation Assessment of Human Gait Dynamics to Support Mobile Gait Rehabilitation.

Chair: Alan D. Ravitz.

14:30-15:15

Keynote 9: Kerry Lunney (Thales, Australia) - Is Systems Engineering Ready for the Future?

Chair: Garry Roedder.

Break

15:15-16:50

Lecture hall 44  Parallel sessions 6  Room 107  Room 108

6A — Systems Policy and Governance

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Mohamad Ali Assaad; Reine Talj; Ali Charara.

16:50-17:00

Closing


Learning Framework For Maturing Architecture Design Decisions For Evolving Complex SoS. Ramakrishnan Raman; Meenalchi Dsouza.

Designing Cyber-Physical Systems with aDSL: a Domain-Specific Language and Tool Support. Freek G.B. Van Den Berg; Boudewijn R. Haverkort; Bedir Tekinerdogan; Vahid Garousi.

Towards Attack Models in Autonomous Systems of Systems. Amer Surkovic; Diana Hanic; Elena Lisova; Aida Cauzvevic; David Wenslandt; Carl Falk.

Identification of the mechanical properties of microcapsules using diffuse approximation. Carlos Quesada; Pierre Villon; Anne-Virginie Salsac.

Hexagonal digital actuator array for micro conveyance application. Ajinkya Deshmukh; Laurent Petit; Muneeb-ullah Khan; Frédéric Lamarque; Christine Prellie.

Risk analysis for hazardous material transport by road: case study on Tangier-Tetouan region, Morocco. Abdellatif Soussi; Ahmed El Amarti; Chiara Bersani; Dounia Bouchta; Massimo D'Incà; Roberto Sacle; Hamid Seghiouer; Ania Trotta; Enrico Zero.

A New Spatial Learning Control for Autonomous Vehicles: Experimental Results. Ciro D’Ambrosio; Gianmarco Sbarra; Marco Tiberti; Cristiano Maria Verrelli; Luca Consoli.

Multi-scale approach to reconstruct a bioartificial system of system: the example of the bone-tendon-muscle continuum. Alejandro Garcia Garcia; Megane Beldjilali Labro; Firas Farhat; Jean-Baptiste Perret; Quentin Dermigny; Murielle Dufresne; Jean-Francois Grosset; Fahmi Bedoui; Cecile Legallais.

The Utilization of Virtual Reality as a System of Systems Research Tool. Jonathan Lwowski; Matthew Joordens; Abhijit Majumdar; Patrick J Benavidez; John J Prevost; Mo Jamshidi.

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SoSE 2018 conference rooms:
- Lecture hall 44, on the ground floor under the tower 44: Keynotes, Panels and parallel sessions.
- On the 1st floor between towers 44-54: room 107.

## IEEE – 13th System of Systems Engineering Conference. SoSE 2018

**JUNE 22, 2018**

Special day on Systems of Systems and Cyber-Physical Systems: Ongoing projects in France, EU research priorities and innovation strategies.

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<th>Time</th>
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<th>Speaker(s)</th>
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<td>Registration</td>
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<tr>
<td>09:35-09:45</td>
<td>Welcome</td>
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<tr>
<td>09:45-10:00</td>
<td>Yves Lecointe (French National Research Agency – ANR) - Chair: Dominique Luzeaux.</td>
<td>Investments for the Future in France: Laboratories of Excellence (Labex) program.</td>
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<tr>
<td>10:00-10:30</td>
<td>Thierry Deneux (Laboratory of Excellence – Labex MS2T) - Chair: Dominique Luzeaux.</td>
<td>Control of Technological Systems-of-Systems.</td>
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<tr>
<td>10:30-11:00</td>
<td>Raja Chatila (Laboratory of Excellence – Labex SMART) - Chair: Dominique Luzeaux.</td>
<td>Smart human/machine/human interactions in the digital society.</td>
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<tr>
<td>11:00-11:30</td>
<td>Coffee break</td>
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<tr>
<td>11:30-12:00</td>
<td>Yann Chazaal (Renault) - Chair: Michael Henshaw.</td>
<td>Overview of French organisations (academics, industrial, administrations) active in SoS: an AFIS point of view.</td>
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<tr>
<td>12:00-12:30</td>
<td>Lunch</td>
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<tr>
<td>12:30-14:00</td>
<td>Sandro D’Elia (Programme Officer at European Commission – DG Connect) - Chair: Thierry Deneux.</td>
<td>A European vision for Cyber-Physical Systems in 2030.</td>
</tr>
<tr>
<td>14:00-14:30</td>
<td>Michael Paulweber (Vice president ARTEMIS-IA) - Chair: Thierry Deneux.</td>
<td>Pan-European research and innovation strategies in the field of CPS and Embedded Intelligent Systems.</td>
</tr>
<tr>
<td>14:30-15:00</td>
<td>Charles Robinson (Thales, EU Platforms4CPS coordinator) - Chair: Thierry Deneux.</td>
<td>Platforms4CPS, a coordination and support action in the area of Smart Cyber-Physical Systems.</td>
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<tr>
<td>15:00-15:30</td>
<td>Coffee break</td>
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<tr>
<td>15:30-16:00</td>
<td>Panel (Moderator: Dominique Luzeaux, Ministry of Defense, France)</td>
<td>Research priorities and agenda in SoSE (including large-scale complex systems, CPS...) at European level.</td>
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<tr>
<td>16:00-17:00</td>
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<td>Jakob Axelsson (RISE, SICS), Sweden</td>
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<td>Michael Henshaw (Systems Division, Loughborough University), UK</td>
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<td>Robert Plana (Asystem), France</td>
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<td>Garry Roedler (Lockheed Martin / INCOSE), USA</td>
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<tr>
<td>17:00-17:10</td>
<td>Closing</td>
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SoSE 2018 conference rooms:
- On the ground floor of tower 44: Lecture hall 44.
- On the 1st floor between towers 44-45: Catering zone (Coffee breaks and Lunch).
