

SUMMERSIM

Summer Simulation Conference 2020

JULY 20-22, 2020

Virtual Conference



SummerSim 2020

Registration

Registration is still open visit <https://scs.org/summersim/> . If you would like to sample our conference for a day and you are new to our events, please contact us at 858-277-3888 or scs@scs.org for a daily rate.

Sponsors

We would like to thank those who registered for the SummerSim 2020 Virtual Conference, Chalmers University of Technology, which contributed the Zoom Licensing and Rooms.

Conference Summary

The 2020 Summer Simulation Conference (SummerSim'20) Virtual Conference will take place over the course of three days from Monday, June 20, 2020 through Wednesday, July 22, 2020. It will be co-located with the 2020 International Symposium on Performance Evaluation of Computer and Telecommunication Systems Conference (SPECTS'20).

SummerSim'20 will present one keynote speaker, one tutorial session, one educational panel, one strategic Engineering workshop, and nine track sessions. SPECTS'20 will present two keynote speakers and two track sessions. Tutorials, keynote speaker, and the HSA track will take place on Monday, July 20, 2020. Tracks ATOMS, AEROSIM, Educational Panel, and Strategic Engineering Workshop will take place on Tuesday, July 21, 2020. Tracks SDF, GC, CPS, and ATOMS will take place on Wednesday, July 22, 2020. SPECTS'20 sessions and keynote speakers will take place on Monday July 20, 2002 and on Wednesday, July 22, 2020.

Topics covered range from Discrete Event Simulation in the Design of a Jackets Nodes Robotized Welding Workshop, Safety Critical Simulation Engineering, and Co-Simulation of Bio-Inspired Multi-Agent Algorithms. The SummerSim 2020 Virtual Conference is open to all paid attendees from July 20, 2020 to July 22, 2020 and will be available to the public beginning July 23, 2020. Session times are CEST (Central European Summer Time).

Thank You!

Thank you all for coming together and participating in the SummerSim 2020 Virtual Conference. It could not have been possible without all of you who came together. Organizers and attendees such as you are the reason we were able accomplish our goal of this virtual event. **We look forward to seeing you next year!**

SummerSim 2020 Virtual Conference Agenda

July 20, 2020

Parallel Meeting One

Location: Zoom Room: Sunflower

Tutorial Session

Chair: Joachim Denil

- 2:00PM-3:30PM CEST Title: Modeling and Co-Simulation of Heterogeneous Systems With the Into-CPS Application and the FMI Standard by Claudio Gomes, Hugo Macedo and Peter Gorm Larsen

Opening Session

- 3:45PM-3:46PM CEST

Keynote

- 3:47PM-4:40PM CEST **Keynote: How Activity-Based Modeling and Simulation Can Move Artificial Learning Algorithms Closer to Real Neurocognitive Mechanisms** by Alexandre Muzy

Break: 4:40PM-5:00PM CEST

HSA Session 1.1 5:00PM – 5:40PM CEST

Chair: Nathalie Pinede

- *Spatial Multicomponent Agent-Based Simulation of a Fishery* by Corinne Idda, Eric Innocenti, Dominique Prunetti and Pierre-Regis Gonsolin
- *Evaluating Regulatory Policies for the US Corporate Bond Market with Agent-Based Models* by Don Berndt, David Boogers and Saurav Chakraborty

Break: 5:40PM-6:00PM CEST

HAS Session 1.2 6:00PM – 7:00PM CEST **West-Coast Session** Chair: Alberto Del Barrio

- *Aircraft Survivability Modeling for Multi-UAV Operational Scenarios and Emerging Threats* by Ian Lunsford and Thomas Bradley
- *Activity Diagrams between DEVS-based Modeling & Simulation and fUML-based Model Execution* by Abdurrahman Alshareef, Doohwan Kim, Chungman Seo and Bernard Zeigler
- *Supporting the Reuse of Algorithmic Simulation Models* by Bernard Zeigler, Nicholas Keller, Doohwan Kim and Chase Anderson

SummerSim 2020 Virtual Conference

July 20, 2020

Parallel Meeting Two

Location: Zoom Room: Lily

Tutorial Session

2:00PM-3:30PM CEST

Topic: On the M&S of Data-Intensive IoT Applications Using Mercury, A Tool for Exploring Federated Edge Computing Infrastructures by Roman Cardenas

Chair: Josue Pagan Ortiz

SummerSim 2020 Virtual Conference

July 21, 2020

Parallel Meeting One

Location: Zoom Room: Sunflower

ATOMS 1- Session 2.1 2:00PM – 3:50PM CEST **Chair: Eva Besada Portas**

- *Spatiotemporal Algal Bloom Prediction of Geum River, Korea Using the Deep Learning Models in Company With the EFDC Model* by Miyoung Jang, Jaeyoung Kim, Dongil Seo and Jiyong Kim
- *Towards Effective Design and Adaptation of CSP Using Multi-Modelling Based Simulation-Driven Digital Twin Approach* by Souvik Barat, Vinay Kulkarni, Prashant Kumar, Kaustav Bhattacharya, Senthilvelan Natarajan and Sankaranarayanan Viswanathan
- *A General Variable Neighborhood Search for Simulation-Based Energy-Aware Flow Shop Scheduling* by Bernhard Heinzl and Wolfgang Kastner
- *Discrete Event Simulation in the Design of a Jacket Nodes Robotized Welding Workshop* by Javier Pernas, Adolfo Lamas and Inés Taracido
- *Using Hills as a Common Concrete Syntax for SES and DEVS: Application to Microscopic Simulation of Traffic* by Youssouf Kone, Oumar Maïga and Mamadou Traoré
- *Multi-Faceted Modeling in the Analysis and Optimization of IoT Complex Systems* by Román Cárdenas Rodríguez, Patricia Arroba, José M. Moya and José L. Risco-Martín

Break: 3:50PM-4:00PM CEST

ATOMS 2- Session 2.2 4:00PM – 5:50PM CEST **Chair: José L. Risco-Martín**

- *Base-Port Capacity Optimization for the Installation of Offshore Wind Farms* by Daniel Rippel, Nicolas Jathe, Michael Lütjen and Michael Freitag
- *Simulation-Based Scheduling for Offshore Wind Farm Installation Using Timed Petri Nets Approach* by Hengrui Peng, Daniel Rippel, Michael Lütjen, Matthias Becker and Helena Szczerbicka
- *Towards an Improvement of the Forecast of Wind Resources in Europe: Application of Unsupervised Machine Learning on Future Projections of Polar Vortex* by Maria Rodriguez Montes, Blanca Ayarzagüena and María Guijarro
- *Numerical Study on Evaluation of Market Dynamics in Supplier Development* by Haniyeh Dastyar, Jürgen Pannek and Klaus- Dieter Thoben

SummerSim 2020 Virtual Conference

July 21, 2020

Parallel Meeting One

Location: Zoom Room: Sunflower

- *Using Multi-Perspective Modeling and Holistic Simulation to Explore the Short and Long Term Impact of a Pandemic on Economic Growth* by Cheick A. T. Camara, Mamadou K. Traoré and Oumar Maïga
- *Assessing Potential COVID-19 Outcomes for a University Campus With and Without Physical Distancing* by Robert Smith?

Break: 5:50PM-6:00PM CEST

Aerosim- Session 2.3 6:00PM – 7:00PM CEST **Chairs: Umut Durak and Alessandro Golkar**

- *A Framework for Constructing Agent-Based Aerospace Simulations Using Model to Text Transformation* by Burak Eren Dere, Bilge Kaan Gorur and Halit Oguztuzun
- *Safety Critical Simulation Engineering* by Umut Durak, Andrea D'Ambrogio and Paolo Bocciarelli
- *Model-Based Systems Engineering Approach to Technology Roadmapping* by Alessandro Golkar and Nicola Garzaniti

SummerSim 2020 Virtual Conference

July 21, 2020

Parallel Meeting Two

Location: Zoom Room: Lily

Educational Panel

2:00PM – 4:00PM CEST

Chair: Umut Durak

Strategic Engineering Workshop

4:00PM – 6:00PM CEST

Chair: Agostino Bruzzone

SummerSim 2020 Virtual Conference

July 22, 2020

Parallel Meeting One

Location: Zoom Room: Sunflower

SDF and ATOMS 3- Session 3.1 2:00PM – 3:50PM CEST **Chairs: Guillermo Botello and José L. Risco-Martín**

- *Comparison of Container-Based Platforms for Quantum Computing Simulation* by Gines Carrascal, Guillermo Botella and Alberto Antonio Del Barrio Garcia
- *Automatic Detection of Vehicles in Outdoor Parking Lots From Zenith Perspective Using Neural Networks* by Juan Manuel Carrera García, Joaquín Recas Piorno and María Guijarro Mata-Garcia
- *Emotion Detection in Infants Using an Ensemble Classifier With a Novel Member Selection Technique* by Hesham Fahmy, Sherif Fahmy, Alberto Del Barrio and Guillermo Botella
- *Simulating and Deploying Analog Arithmetic Circuits on FPAAS* by Daniel García Moreno, Alberto Antonio Del Barrio García and Guillermo Botella Juan
- *Unit Testing Platform to Validate DEVS Models* by Kevin Henares, José L. Risco-Martín, Jose L. Ayala and Hermida Roman
- *Modeling Tree-Structured I2C Communication to Study the Behavior of a Dielectric Coolant in a Two-Phase Immersion Cooling System* by Pedro Malagon, Patricia Arroba, Samira Briongos Herrero, Alex Mauricio Santana and Jose M. Moya

Break: 3:50PM-4:00PM CEST

CPS- Session 3.2 4:00PM – 5:50PM CEST

Chair: Cláudio Gomes and Christian Møldrup Legaard

- *Model-Based Development and Simulative Verification of Logical Vehicle Functions Using Executable UN/ECE Regulations* by Kevin Neubauer, Harald Bucher, Benedikt Haas and Juergen Becker
- *Co-Simulation of Bio-Inspired Multi-Agent Algorithms* by Cinzia Bernardeschi, Andrea Domenici and Maurizio Palmieri
- *Rapid Prototyping of Self-Adaptive Systems Using Python Functional Mockup Units* by Christian Møldrup Legaard, Cláudio Gomes, Peter Gorm Larsen and Frederik Forchhammer Foldager
- *A Co-Simulation Approach for the Evaluation of Multi-Core Embedded Platforms in Cyber-Physical Systems* by Yon Vanommeslaeghe, Bert Van Acker, Ken Vanherpen and Paul De Meulenaere

SummerSim 2020 Virtual Conference

July 22, 2020

Parallel Meeting One

Location: Zoom Room: Sunflower

- *QEMTrace: A Multi-Platform Memory Tracer Based on System Emulation* by Alexy Torres Aurora Dugo, Jean-Baptiste Lefoul, Felipe Magalhaes, Dahman Assal and Gabriela Nicolescu
- *Formally Verified FMI Enabled External Data Broker: RABBITMQ FMU* by Casper Thule, Cláudio Gomes and Kenneth G. Lausdahl

Break: 5:50PM-6:00PM CEST

ATOMS 3-Session 3.3

6:00PM – 7:00PM CEST

**Chairs: Gregory Zacharewicz and
Alberto Del Barrio**

- *Towards a Combination of Discrete-Event Simulation With Machine Learning for SMART Parking* by Antoine Dominici, Laurent Capocchi, Emmanuelle de Gentili and Jean-Francois Santucci
- *Implementing Reinforcement Learning in SIMIO Discrete-Event Simulation Software* by Andrew Greasley
- *Model & Data Hybrid Driven SMART Modeling for Combat Systems* by Zhi Zhu and Yonglin Lei

SummerSim 2020 Virtual Conference

SPECTS

July 20, 2020 – July 22, 2020

Parallel Meeting Three

Location: Zoom Room: Rose

Monday – July 20, 2020

3:45PM-3:50PM CEST **Opening Session**

3:50PM-4:50PM CEST **Keynote: Cloud and Fog Computing for Real-Time Applications: Resource Allocation and Scheduling Issues** by Helen Karatza

Break: 4:50PM-5:00PM CEST

Session I 5:00PM – 7:00PM CEST

Chair: Joaquin Entrialgo

Computer Systems and Cloud Computing

5:00PM-5:30PM CEST

- *The Hyplet - Joining a Program and a Nanovisor for Real-Time and Performance* by Raz Ben Yehuda and Nezer Zaidenberg

5:30PM-6:00PM CEST

- *A Trace-Based Study of SMB Network File System Workloads in an Academic Enterprise* by Paul Wortman and John Chandy

6:00PM-6:30PM CEST

- *Joint Optimization of the Cost of Computation and Virtual Machine Image Storage in Cloud Infrastructure* by Jose Luis Díaz, Javier García, Joaquín Entrialgo, Manuel García and Daniel F. García

6:30PM-7:00PM CEST

- *Scheduling a Time-Varying Workload of Multiple Types of Jobs on Distributed Resources* by Georgios L. Stavrinos and Helen Karatza

SummerSim 2020 Virtual Conference

SPECTS

July 20, 2020 – July 22, 2020

Parallel Meeting Three

Location: Zoom Room: Rose

Wednesday – July 22, 2020

Session II 3:00PM – 5:00PM CEST

Chair: George T. Karetsos

Networking Technologies and Telecommunications

3:00PM-3:30PM CEST

- *RSSI-Based Indoor Localization with LTE-A Ultra-Dense Networks* by Ala'a Al-Habashna and Gabriel Wainer

3:30PM-4:00PM CEST

- *A MIMO Antenna with Slotted Ground Plane for 5G Millimeter Waves Communication Systems* by Ahmad Massud Tota Khel and Xiao-Hong Peng

4:00PM-4:30PM CEST

- *Game Theoretic Conflict Resolution Mechanism for Cognitive Autonomous Networks* by Anubhab Banerjee, Stephen S. Mwanje and Georg Carle

4:30PM-5:00PM CEST

- *Analysis of Network's QoS in Service Chains* by Khalil Mebarkia and Zoltan Zsoka

Break: 5:00PM-5:15PM CEST

5:15PM – 6:15PM CEST **Keynote: Modeling and Simulation of Cellular Networks: Formalizing the Models** by Gabriel Wainer

6:15PM-6:20PM CEST **Closing**