



Call for Participation

NUSS Guild House, Kent Ridge, Singapore

<http://www.asiasim2019.org>

AsiaSim (Asia Simulation Conference), 19th in the series, is an annual international conference organized by the Federation of Asia Simulation Societies (ASIASIM) whose current member societies are China Simulation Federation (CSF), Japanese Society for Simulation Technology (JSST), Korea Society for Simulation (KSS), Society for Simulation and Gaming of Singapore (SSAGsg) and Malaysian Simulation Society (MSS). The Federation of Asia Simulation Societies (ASIASIM) was set up to promote the advancement of modelling and simulation in industry, research and development in Asia and beyond. The AsiaSim conference is an international forum for disseminating recent advances in modeling, simulation and gaming. AsiaSim provides a meeting place for simulation researchers and practitioners in all disciplines in academic, industry, government, military sectors among others to share leading developments and advances in systems simulation.

We welcome you to tropical Singapore, a dynamic city rich in contrast and colour where you will find a harmonious blend of culture, cuisine, arts and architecture. Located in the heart of fascinating South East Asia, Singapore continues to embrace tradition and modernity today. We are proud to be the host of AsiaSim 2019 and welcome you to our city.

The technical program will comprise keynote speeches, technical sessions, vendor exhibits (to be confirmed), and industry visits. The venue of the conference will be at the [*NUSS Guild House, Kent Ridge*](#), which is situated within the NUS campus.

Keynote Speakers



[David M. Nicol](#)

Franklin W. Woeltge Professor of ECE
University of Illinois, Urbana-Champaign

Director, Information Trust Institute
Director, Advanced Digital Sciences Center
Director, Critical Infrastructure Resilience Institute

Keynote Title: The Challenges of Repeatability and Fidelity of Cyber-Physical Digital Twins

Abstract

A digital twin of a cyber-physical system is a simulation whose execution mimics the behavior of both the physical and cyber components of the system. While the idea of co-joining or federating simulations has been considered for quite a long time, the rise in interest of cyber-physical systems, coupled with increased computational power has brought the idea to the forefront under the labeling of 'digital twin'. Uses include exploration of how cyber malfeasance might negatively impact the physical system, how the physical system may react to unusual inputs or boundary conditions, whether a particular control applied to the system will push it into a region of unsafe behavior.

Fidelity of digital twins is clearly a desirable attribute, as is repeatability. In the former case we want confidence that the digital twin faithfully (enough) captures the behavior of interest, in the latter case we need to be able to understand, by replaying the simulation, how a particular behavior observed in the simulation came to occur. This talk focuses on the challenges of repeatability and fidelity in a cyber-physical digital twin, when that twin combines classical simulation with emulation of executing software.



Jun Furuse

Chief Executive Officer (CEO)
DaiLambda, Inc.

Scientific Director,
Tezos Japan

Keynote Title: Blockchain Safety and Smart Contract Simulation

Abstract

Blockchain is a distributed database in an open network, where anyone can join by running a node without permission. As far as we know, such a system can be maintained only by incentivizing the participants to behave honestly at its resolution of the conflicts. Consequently, blockchain must handle a huge amount of rewards as cryptocurrencies and any bugs may become attack vectors for theft. Therefore, safety is the first concern for blockchain developers.

Smart contracts are programs associated with blockchain accounts and executed at transactions. Since the execution happens on all the nodes, the caller must pay a fee to the network. To estimate the cost, the caller must simulate each transaction before sending it to the network. This simulation is also important to secure the smart contracts along with formally verifying their safety properties, since any bug or misspecification may turn them to automatic stealing machines. Several existing works of this smart contract simulation in Tezos blockchain and its future directions will be discussed.

Conference Dinner @ [S.E.A. Aquarium, Resorts World Sentosa](#)



Conference Chairs

- Gary TAN, National University of Singapore (gtan@comp.nus.edu.sg)
- Axel LEHMANN, Bundeswehr University Munich (axel.lehmann@unibw.de)

Program Chairs

- Yong Meng TEO, National University of Singapore (teoym@comp.nus.edu.sg)
- Wentong CAI, Nanyang Technological University, Singapore (aswtcai@ntu.edu.sg)

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- National University of Singapore, Singapore
- Nanyang Technological University, Singapore
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For any enquiries, please send email to: asiasim2019@ssagsg.org

