Call for Papers

1st International Workshop on Next-Generation Operating Systems for Cyber-Physical Systems (NGOSCPS): "On Beyond POSIX"

at CPS-IoT Week 2019 in Montreal, Canada
April 15, 2019

www.cse.wustl.edu/~cdgill/ngoscps2019



Workshop Chair

Chris Gill
(Washington University in St. Louis, MO, USA)

Program committee

Björn Brandenburg, MPI-SWS
Scott Brandt, UCSC
Liliana Cucu-Grosjean, INRIA
Rasit Eskicioglu, U Manitoba
Joël Goossens, ULB
Tei-Wei Kuo, NTU
Jing Li, NJIT
Gabriel Parmer, GWU
Silvia Zhang, WUSTL

IMPORTANT DATES

Submission deadline for position papers:

February 18, 2019

Author notification:

February 25, 2019

Camera-ready deadline:

March 11, 2019

Workshop:

April 15, 2019

The theme of this first edition of the International Workshop on Next-Generation Operating Systems for Cyber-Physical Systems (NGOSCPS) is "On Beyond POSIX." This theme is intended to start a cohesive new conversation across a wide swath of the cyber-physical systems research community about (1) the key limitations of current operating system architectures, abstractions, semantics, models, designs, implementations, and verification and validation methods; and (2) what innovative new research problems, agendas, and overall directions should be pursued towards overcoming those limitations.

The vision for this inaugural edition of the workshop is to begin defining a new generation of operating systems that can provide higher-fidelity support for fundamental cyber-physical systems semantics (e.g., timing, concurrency, power, stability, safety, security, and other properties of cyber-physical systems' behaviors). Success of this year's workshop will motivate development of an increasingly technical and influential series of follow-on workshops in subsequent years, to generate and direct research topics and results towards new tracks in conferences such as RTAS and ICCPS, and in doing so to promote further growth and development of cyber-physical systems research.

This first NGOSCPS workshop solicits position papers from researchers, and from other stakeholders in academic, industry and government organizations, with a focus on real-time and embedded systems, operating systems, formal methods, cyber-physical systems, and other disciplines, towards framing and moderating a conversation among the workshop participants to identify, document, and discuss important open problems, potential approaches, and promising research agendas towards a new generation of operating systems for cyber-physical systems.

Interested participants are encouraged to submit 2-3 page position papers (including references) in ACM two-column conference format by February 18, 2019 (anywhere on earth), at the workshop submission site (https://ngoscps2019.hotcrp.com/paper/new). Authors of position papers that are selected to appear at the workshop will be invited to give a brief presentation on the topic of their position paper, and to participate in a moderated panel with audience interaction that will follow the set of individual presentations in each topic area.

Topics of interest for this year's workshop papers and presentations include, but are not limited to:

- What assumptions that are embodied by the current state of the art need to be re-examined to realize a new generation of more effective operating systems for cyber-physical systems?
- How must current operating system approaches evolve, and what new abstractions, semantics, architectures, designs, implementations, etc. will be needed to achieve such a vision fully?
- How could existing operating systems, particularly those developed through research to refine real-time, embedded, and cyber-physical systems semantics, be leveraged towards those goals?
- What opportunities may exist for colleagues in different cyber-physical systems research areas to collaborate towards developing new approaches that cross-cut two or more disciplines?