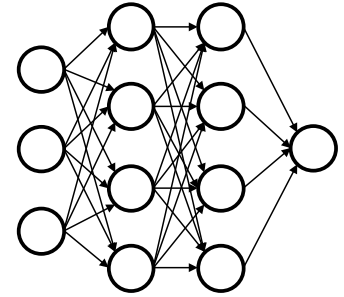


# SCONA 2020

## Workshop on Stochastic COmputing for Neuromorphic Architectures

13 March 2020, ALPEXPO, Grenoble, France  
(co-located with DATE 2020)  
<https://www.scona2020.uni-stuttgart.de/>



## Call for Papers

Artificial Intelligence applications are a major driver in the hardware development of smart systems. An unprecedented number of proposals for better neuromorphic and neuro-inspired hardware architectures have been suggested, ranging from extremely large and high-performance “wafer-scale” circuits to emerging nano-electronic device-based circuits for storing and manipulating information. The proposed workshop looks at neuromorphic hardware from a different perspective: How to provide sufficient AI and ML performance in applications with extremely limited resources like area, power and energy. Among such approaches, stochastic computing promises outstanding area- and power-efficiency because it offers very compact and reliable realizations of the basic arithmetic operations found in a broad range of neuromorphic applications. The workshop SCONA will bring together researchers working on stochastic computing and resource-limited neuromorphic architectures.

### Confirmed keynote:

“Stochastic Computing for Signal Processing and Machine Learning”  
Warren J. Gross, McGill University, Canada

The workshop invites submissions on, but not limited to, the following topics:

- Stochastic primitives for neural networks and other neuromorphic architectures
- Neuromorphic hardware architectures based on stochastic computing
- Methods for design, synthesis, analysis, and verification of stochastic circuits
- Stochastic circuits and architectures based on emerging technologies
- Applications of neuromorphic stochastic architectures and case studies

The workshop will be co-located with the DATE 2020 conference. At least one author of each accepted paper is expected to register using DATE’s regular registration system. DATE workshops have no formal proceedings but SCONA will prepare an informal electronic proceedings distributed to the workshop participants.

**Key dates:**

Submission deadline:	<b>January 20, 2020</b>
Acceptance notification:	January 30, 2020
Final version for workshop proceedings:	February 15, 2020

**Author instructions:** Submissions in form of full 6-page papers or 1-2 page extended abstracts (in IEEE double-column format) should be sent to Ilia Polian by email: [ilia.polian@informatik.uni-stuttgart.de](mailto:ilia.polian@informatik.uni-stuttgart.de)

**Special Issue of IEEE Design & Test Magazine:** A special issue of IEEE Design & Test Magazine on the topic of the workshop is planned (approval pending). Preliminary deadline will be May 1.

### Workshop organizers:

John P. Hayes (University of Michigan, Ann Arbor, USA)  
Ilia Polian (University of Stuttgart, Germany)  
Weikang Qian (Shanghai Jiao Tong University, China)

Further information can be found on the workshop website: <https://www.scona2020.uni-stuttgart.de/>