

**DAC MALEND A (DAC Workshop on Machine Learning in Design Automation),
June 24th 2018 (Sunday), Moscone Center West, San Francisco, CA**

Machine learning is going full steam across several industries. Due to massive processing power and architectures that are honed to train large datasets, applications once thought to be infeasible are targeted now by machine learning algorithms. EDA has started to look into this area and utilize some of these ideas, at least on paper.

There is a nice contrast though. EDA is a domain that is shaped with heuristics and tens of other algorithms and mathematical methodologies. Can Machine Learning claim its own territory for certain EDA applications? Can existing algorithms be sped up by using machine learning specific architectures instead?

We think that bringing in both proponents of Machine Learning and traditional incumbents together, we can discuss what could be some best research and development directions for EDA in this area. We also plan to bring in people from external machine learning communities to get their view on the applicability to problems in our domains. We plan to build on these dynamics and educate the attendees on machine learning in general as well. The workshop will consist of invited talks, panels, tutorials, and posters.

8:45 – 9:00am Opening Remarks: Rasit O. Topaloglu (IBM)

Morning Session

9:00 – 9:45am **Keynote:** Manish Pandey (Synopsys)
“Transforming EDA with Machine Learning”

9:45 – 10:30am **Tutorial:** Jinjun Xiong (IBM)
“Key Concepts that You Need to Know about Machine Learning”

10:30 – 10:45am **Break**

- 10:45 – 11:15am Lei He (University of California Los Angeles)
“Machine Learning for Stochastic Modeling”
- 11:15 – 11:45am Soha Hassoun (Tufts University)
“Using Probabilistic Models to Analyze Metabolic Activity”
- 11:45 – 1:00pm **Lunch**
- Afternoon Session**
- 1:00 – 1:30pm Duane Boning (MIT)
“Machine Learning and VLSI CAD: A Simplified Mapping”
- 1:30 – 2:00pm Valeria Bertacco (University of Michigan Ann Arbor)
“Supporting Hardware Bug Diagnosis with Machine Learning”
- 2:00 – 2:30pm Norman Chang (ANSYS)
“Data-driven Modeling and Simulation using ML/DL”
- 2:30 – 2:45pm **Break**
- 2:45 – 3:15pm Andrew B. Kahng (University of California San Diego)
“A Near-term Roadmap for Machine Learning in IC Implementation”
- 3:15 – 3:45pm David Pan (University of Texas at Austin)
“Machine Learning for Lithography Modeling and Mask Synthesis”
- 3:45 – 4:30pm **Panel**
Rajeev Jain (Qualcomm)
Paul Franzon (North Carolina State University)
Bruceek Khailany (NVIDIA)
Chair: Andrew B. Kahng (University of California San Diego)
- Topics:** 1. *What does ML in EDA *require* in future open-source Tools + Benchmarks + Data?*
2. *What EDA flows offer the best / worst "bang for the buck" for ML?*

Organizers

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