Session (3) AI/ML for Chip Design and EDA – Current Status and Future Perspectives from Diverse Views

Time	24 January, 2023 (Wednesday)
Location	Room 107/108
Organizer	Changho Han (Kumoh National Institute of Technology)
Chair	Kyumyung Choi (Seoul National University)

1. AI for Chip Design & EDA: Everything, Everywhere, All at Once

Speaker: David Z. Pan (Professor, Univ. of Texas at Austin, USA)

Abstract:

AI for chip design and EDA has received tremendous interests from both academia and industry in recent years. It touches everything that chip designers care about, from power/performance/area (PPA) to cost/yield, turn-around-time, security, among others. It is everywhere, in all levels of design abstractions, testing, verification, DFM, mask synthesis, for digital as well as some aspects of analog/mixed-signal/RF designs as well. It has also been used to tweak the overall design flow and hyper-parameter tuning, etc., but not yet all at once, e.g., generative AI from design specification all the way to layouts, in a correct-by-construction manner. In this talk, I will cover some recent advancement/breakthroughs in AI for chip design/EDA and share my perspectives.

2.How Engineers can Leverage AI Solutions in Chip Design

Speaker: Erick Chao (Senior Software Architect, Cadence Design Systems, Taiwan)

Abstract:

Integrating AI solutions into chip design can indeed offer significant benefits in terms of optimizing performance, power, area and productivity. This integration can be approached from multiple angles, including those of EDA (Electronic Design Automation) research and development and the end user's perspective. An overview of how engineers can leverage AI solutions in chip design will be introduced.

3. AI/ML Empowered Semiconductor Memory Design: An Industry Vision

Speaker: Jung Yun Choi (VP, Samsung Electronics, Korea)

Abstract:

In this talk, we delved into the transformative realm of AI/ML empowered semiconductor memory design and manufacturing, with a keen focus on memory products within the semiconductor industry. We navigate through the synergistic integration of artificial intelligence and machine learning in streamlining the design and manufacturing processes of semiconductor memory. Our vision embraces a future where AI/ML technologies seamlessly harmonize, efficiency, and product quality. Join us as we present a visionary perspective on how AI/ML technologies are reshaping semiconductor memory design and manufacturing, propelling the industry towards an era of unparalleled advancements and sustainable growth.

4. ML for Computational Lithography: What Will Work and What Will Not?

Speaker: Youngsoo Shin (Professor, Korea Advanced Institute of Science and Technology, Korea)

Abstract:

ML has extensively been studied for computational lithography processes including OPC, assist features, lithography modeling, hotspot, and test patterns. This talk will review some of these while focusing on the best practice for industrial applications, e.g. hybrid ML and standard algorithmic approach, synthesis of test data for higher coverage, etc.