

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING

Website: <https://cde.nus.edu.sg/ece>

Area: Integrated Circuits & Embedded Systems

Host: Associate Professor Jerald Yoo

TOPIC	:	CMOS Ising Machines for Large-scale Combinatorial Optimization Problems
SPEAKER	:	Ms Huang Yingna Graduate Student, ECE Dept, NUS
DATE	:	Tuesday, 26 September 2023
TIME	:	10.30AM to 11.30AM
VENUE	:	Join Zoom Meeting: https://nus-sg.zoom.us/j/84788173556?pwd=K3U0M1B2UFpIRU41WmlzK0lzcmdkZz09 Meeting ID: 847 8817 3556 Passcode: 960262

ABSTRACT

In the IoT applications, rapidly growing amount of data is collected and can be used to solve Combinatorial Optimization Problems, such as Travel Salesman Problem. Some of the Combinatorial Optimization Problems are NP-hard problems which cannot be solved with conventional processors within polynomial time. While solving large-scale optimization problems, conventional processors suffer from heavy computation, latency, and power consumption. To address this problem, quantum-inspired CMOS Ising machines based on Ising model have captured lots of attention recently. By mapping the Combinatorial Optimization Problems to the Ising model and mimicking the ground-state searching process in Ising model, approximate feasible solution of Combinatorial Optimization Problems can be derived with acceptable latency and power consumption. Two types of CMOS Ising machines (Complete and Sparse Ising machines) will be introduced and compared.

BIOGRAPHY

Huang Yingna is currently pursuing Ph.D. degree in Electrical and Computer Engineering, National University of Singapore, Singapore. Her research interests include CMOS processors for solving optimization problems and ultra-low-power circuit design.

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