

Lawrence Roman A. Quizon

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Education

Master of Science in Electrical Engineering

Electrical and Electronics Engineering Institute
University of the Philippines, Diliman

August 2021 - Present

Bachelor of Science in Computer Engineering

Magna Cum Laude

Electrical and Electronics Engineering Institute
University of the Philippines, Diliman

June 2015 - June 2021

Technical Skills

Integrated Circuit Design Tools (Schematic/Layout)

Cadence Virtuoso, Synopsys, Vivado, MAGIC, ngspice

Programming Languages

C/C++, Python, Verilog, Verilog-A, BASH Scripting, MATLAB

Specialized Knowledge in Topics

Neuromorphic Engineering
Analog Computing with Memristors
Magnetic Devices and Simulations (UBERMAG)
Resistive Memory Devices and Models
MIPS/ARM Processor Architecture
Hyperdimensional Computing

Spoken Languages

English, Filipino - Native Level
Korean - Conversational Level, TOPIK II equivalent.
Japanese - Conversational Level, JLPT N4 equivalent.

Research Interests

Neuromorphic Engineering and Neuroscience

Interested in computational paradigms and hardware inspired by neural mechanisms in humans or other animals and in the co-development of models and explanations for neural mechanisms from effective engineering models.

Magnetic Devices and Computing

Interested in the use of magnetic devices for memory (domain wall devices, tunnel junctions) and computing (coupled oscillators, crossbar computation)

Work Experience

University of the Philippines

August 2021 - Present

Teaching Associate at the U.P. Microprocessors Lab (Microlab)

Courses Taught:

EEE 51 Transistor amplifiers. Feedback amplifiers. Operational amplifiers. Linear regulators.

EEE 131 Device fundamentals of diodes, bipolar junction transistors, and field effect transistors essential in understanding current-voltage relationships; modeling and analysis of diode and single-transistor circuits.

EEE 141 Analysis and design of transistor amplifiers and switching circuits; Role of feedback in improving circuit characteristics; Design considerations for electronics systems.

EEE 196/199 Assist in the advising of undergraduate thesis students. Topics include hyperdimensional computing, magnetic memory devices, RISC-V processors.

Maxim Integrated

June 2019 - July 2019

Test Systems Development Intern

Developer for test and demonstration boards for the MAX32630FTHR microcontroller

Publications

ICECS 2022 - International Conference on Electronic Circuits and Systems

L. R. A. Quizon, M. D. Rosales, A. B. Alvarez, "Small-Dictionary LCA Sparse Coding for Low-Power Pattern Recognition in Edge Devices", Submitted Paper for Review

ISOC2021 - International SoC Design Conference

L. R. A. Quizon, A. B. Alvarez, C. G. Santos, M. D. Rosales, J. R. E. Hizon, and M. P. R. G. Sabino, "A Voltage-Controlled Magnetic Anisotropy based True Random Number Generator," IEEE Xplore, Oct. 01, 2021.

<https://ieeexplore.ieee.org/abstract/document/9613854/>

Specialized Seminars/Conferences Attended

IEEE CASS Domain Specific Accelerator Architectures

IEEE Circuits and Systems Society's summer school course on machine learning architectures, mostly discussing the effectiveness of spiking neural network accelerators, memristor models and CNN acceleration.

Brain Inspired Computing: Physics, Architectures, Materials and Applications

Joint seminar hosted by NTU in Singapore and JSTS in Japan discussing brain-inspired computing approaches and applications, from memristor fabrication and development, neuromorphic architectures, and brainlike system-level arrangement of IoT devices.