Junyoung Sim

js2992@cornell.edu | +1 (607) 279-2001 | Ithaca, NY (14850)
junyoung-sim.github.io

Education

Cornell University (B.S. Electrical and Computer Engineering) 2024 – 2028 (GPA: 3.85/4.00)

- Calculus I/II*, Physics I/II, Engineering General Chemistry*, Computing in the Arts, Introduction to Computing, Digital Logic and Computer Organization*

Ithaca Senior High School 2022 – 2024 (GPA: 4.33/4.00)

Korea International School, Jeju 2020 – 2022 (GPA: 3.97/4.00)

Work Experience

Cornell SonicMEMS Lab (Undergraduate Researcher) 05/14/2024 – 06/23/2024 (20 hrs/wk)

- Specialized in PCB circuit designing to assist a solar microbot thesis project.
- Reduced a 65 mm x 65 mm BQ25570-EVM nano power boost and buck converter to 8 mm x 13.5 mm.
- Designed a MM101 high-voltage breakout board for performance diagnosis.
- Designed an 8 mm x 11.5 mm HM01B0 camera payload.
- Managed bill of materials to satisfy system requirements.

Paris Baguette @ Ithaca Commons (Part-Time Retailer) 12/2022 – 08/2024 (6 hrs/wk)

Projects

DeepCPP: Implemented a simple deep learning framework in C++ from scratch for various statistical applications that may require deep neural networks, convolutional neural networks, deep q-networks, etc.

Programmable Breadboard Computer: Built a von Neumann 8-bit breadboard computer that can perform simple programs (e.g., arithmetic, counting, Fibonacci) using 16-bytes of RAM, 1 memory address register, 1 instruction register, 1 program counter, 2 general-purpose registers, 1 arithmetic logic unit, 1 flags register with 2 flags (carry and zero), 1 output register with 7-segment displays, 16 control signals managed by 2 EEPROMs, and 11 machine language instructions (including conditional and unconditional jumps).

Deep Deterministic Policy Gradient and Geometric Brownian Motion for Simulated Portfolio Optimization: Implemented a deep deterministic policy gradient from scratch for portfolio optimization in a trading environment simulated via geometric Brownian motion.

Publications

Sim, J. & Kirk, B. (2023). Generalized Deep Reinforcement Learning for Trading. *Journal of Student Research, 12*(1). doi.org/10.47611/jsrhs.v12i1.4316

Skills

Programming: C/C++, Python, Java
Electronics: PCB Design, Breadboard Circuits, Arduino, Raspberry Pi
Computer-Aided Design: F360 Eagle, LTSpice
Languages: Korean & English (native bilingual)
Avocations: Tennis, Soccer, Piano, Oboe, Guitar