Gordon Kim

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EDUCATION

Duke University   **May 2025**

B.S.E in Electrical & Computer Engineering and Computer Science   *Durham, North Carolina*

- **GPA: 3.9/4.0**
- Relevant Coursework: Digital Systems, Computer Architecture, Microelectronic Devices and Circuits, Electric Circuits, Control Systems, Digital Signal Processing, Computer Network Architecture, Computer Graphics

WORK EXPERIENCE

Undergraduate Research Assistant   **Jan. 2024 - Present**

Duke University - FuNCtions Lab   *Durham, NC*

- Contributed to the development and testing embedded systems focused on hardware-software interfaces, ensuring reliable communication between microcontrollers and sensors.
- Conducted real-time data collection from sensor networks, analyzing signal strength and performance.

Hardware Engineering Intern   **May. 2024 – Aug. 2024**

Korea Construction Equipment Technology Institute - Intelligent Control Lab   *Seoul, South Korea*

- Optimized and tested load measurement system with linear regression models for 2-ton hydraulic excavators.
- Prototyped neural network system on Arduino focused on power efficiency in low-spec hardware conditions.
- Authored and presented a research paper detailing findings and methodologies to a peer-reviewed conference.

Systems Operations Lead   **Jun. 2022 – Dec. 2023**

Republic of Korea Army - Network Operations Center   *Seoul, South Korea*

- Developed and automated test suites in Python to diagnose/troubleshoot Linux-based communication servers.
- Facilitated transition from UDP to TLS/TCP protocol to enhance data transmission reliability and security.

Undergraduate Teaching Assistant   **Aug. 2024 – Present**

Duke University Electrical and Computer Engineering   *Durham, NC*

- Conducted office hours and graded assignments for ECE 382 (Control of Dynamic Systems).

PROJECTS

Model Elevator (Verilog, Assembly)

- Built a pipelined processor in Verilog supporting basic MIPs instructions with fast branching, bypassing, data hazard handling, and custom built-in queue data structure for project optimization.
- Implemented the 100MHz processor on an FPGA with Vivado with custom PCB to wire inputs and outputs.

2D Graphics Engine (C++)

- Implemented geometric primitives, scan conversion, clipping, transformations, alpha blending, sampling, gradients, parametric curves, and triangle meshes optimized for user image generation and processing.

Duke Gym Data Visualization (Python)

- Collected live data of monthly Duke weight room occupancy and generated scatter plot using matplotlib.
- Applied locally estimated smoothing regression model to propose optimal times for *optimal gains*.

Army PTO Manager (Svelte)

- Developed web application for army soldiers to visualize total/remaining service days and manage PTOs.

Simplified CPU Simulation (Logisim):

- Built a single-cycle processor supporting basic MIPs instructions using logic circuit components.
- Simulated cache with multi-level, write-no-allocate/write-through in C.

SKILLS

- **Electronics Skills:** Verilog, FPGA, Vivado, LabVIEW
- **Programming Languages:** C/C++, Golang, Python, MIPs, Svelte, Java, Javascript