Hoang Nguyen

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US Citizen | English and Vietnamese
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Education

Kennesaw State University - Honors Student Marietta, GA
Bachelor of Science in Computer Engineering - Minor in Mathematics (4.0 GPA) *Expected graduation: May 2027*

Projects

- **Wireless IoT Sensor Node (ESP32 & STM32) (Embedded C, FreeRTOS)**:
  - Designed a dual-microcontroller system to capture environmental data and stream it wirelessly to the cloud, mirroring real-world IoT architectures.
  - Utilized the ESP32 as a Wi-Fi co-processor to handle network stacks, transmitting telemetry data parsed from a primary STM32 microcontroller.
  - Implemented a robust UART communication bridge between the two chips and utilized I2C for sensor data acquisition.
- **Digital Logic Design & Simulation**: Designed and validated a complex, multi-state traffic light control system incorporating timer-based logic for vehicle flow, pedestrian crossings, and train detection. Utilized the Hneemann Digital Logic Simulator to create schematics, perform functional simulations, and verify the correctness of the custom logic circuits.

Experience

Undergraduate Research Assistant 01/2026 - Present
Kennesaw State University *Kennesaw, GA*

- Conducting computational fluid dynamics (CFD) simulations using COMSOL Multiphysics to design microfluidic biomedical devices.
- Modeling non-Newtonian hemodynamic behaviors to analyze cell deformation in Sickle Cell Disease monitoring applications.
- Optimizing magnetic particle tracing and electromagnetic induction models to enhance sensitivity for viral infection biosensors.

Supplemental Instruction leader 05/2025 - Present
Kennesaw State University *Kennesaw, GA*

- Facilitating bi-weekly study sessions for 100+ calculus students, raising average exam scores by 15% through peer-led instruction
- Collaborating with faculty to align lesson plans with course objectives and track student performance metrics.

Low Voltage Designer Internship 08/2025 - 12/2025
Jordan & Skala Engineers *Norcross, GA*

- Analyzed electrical low-voltage schematics and telecommunication riser diagrams to ensure compliance with NEC standards and signal integrity requirements.
- Performed load calculations and validated technical submittals for commercial building systems, reducing design errors in power distribution layouts.
- Collaborated with cross-functional teams to integrate hardware requirements into building designs, utilizing AutoCAD and Revit.

Skills

Wireless & IoT: ESP32, UART, I2C, SPI, Wi-Fi Protocols, Telecommunication Cabling.
Simulation & Physics: COMSOL Multiphysics (Electromagnetics), MATLAB, Python (Data Analysis), LTSPICE.
Hardware: STM32 (ARM Cortex-M), FPGA (Verilog), Logic Analyzer.
Lab Equipment: Digital Oscilloscope, Logic Analyzer, Function Generator.
Others: C, C++, Assembly, Python, CAD software, Soldering and wiring.

COURSEWORK

Physics II (Electromagnetism), Differential Equations, Circuit Analysis, Hardware Programming, Embedded Systems, Digital Logic Design.