Hien Vu

hienvu@purdue.edu · 608-515-2815 · hienvuvg.github.io · linkedin.com/in/hienvuvg

Embedded research engineer and sensing system architect seeking R&D roles in ML-enabled sensing and wireless systems.

EDUCATION

Purdue University, West Lafayette, Indiana — (expected) August 2026
PhD in Electrical and Computer Engineering (candidate) — GPA: 3.65/4.0

University of Wisconsin–Madison, Madison, Wisconsin — May 2023
MSc in Electrical and Computer Engineering — GPA: 3.82/4.0

Hanoi University of Science and Technology, Hanoi, Vietnam — May 2018
BSc in Electronics and Telecommunications Engineering — GPA: 3.51/4.0

KEY SKILLS

- **Hardware & Embedded**: Verilog, MIPS, RISC-V, PCB Design (Altium), mmWave, UART/I2C/SPI, RF and high-speed design.
- **Software & Algorithms**: Python, C/C++, MATLAB, assembly, bash; sensor fusion, computer vision, signal processing.

PROFESSIONAL EXPERIENCE

NEIS Lab, Purdue University – ***Research Assistant*** – West Lafayette, IN — Aug 2024 – Present

- Engineered an advanced mmWave radar and Edge AI system to track respiration of multiple moving subjects, achieving high accuracy in harsh environments for health monitoring applications.
- Architected an end-to-end multimodal sensor fusion pipeline for behavior classification, providing strategic insights into design trade-offs to optimize system cost and complexity.
- Recruited and trained a team of 20+ people to curate a large-scale multimodal dataset (20k RGB images, 300k seconds of data) for accelerating research in temporal-behavior classification.

WISEST Lab, UW-Madison – ***Research Assistant*** – Madison, WI — Aug 2021 – Jul 2024

- Designed a wearable sensor tag with a shared-coil architecture for simultaneous RFID and wireless charging, solving mutual coupling problem to realize a compact wearable design.
- Developed an optimized embedded firmware that reduced RFID energy costs by 15x, and engineered a closed-loop wireless power transfer protocol to enable perpetual device operation.
- Collaborated with cross-discipline teams to design and deploy a multi-node IoT network, analyzing over 2,000 hours of field data to validate system reliability in complex operational settings.

EC Lab, Soongsil University – ***Research Assistant*** – Seoul, South Korea — Mar 2019 – Jul 2021

- Designed a flexible, portable supercapacitor power device delivering 840W in 5-second pulses, optimizing energy density and form factor for rapid and critical military applications.
- Developed a bidirectional buck-boost control algorithm that enables uninterrupted power delivery and continuous system operation under dynamic load conditions.
- Implemented a high-speed FPGA-based design for 512GB SLC-NAND flash storage, ensuring signal integrity and minimizing propagation delay across 1,000+ components.
- Implemented an Extended Kalman Filter on a RISC-V MCU to process 9-DOF IMU data, integrating with Parallel Tracking and Mapping (PTAM) for real-time 3D pose estimation in AR applications.

Interland Inc. – ***System Engineer*** – Hanoi, Vietnam — Jun 2018 – Feb 2019

- Investigated sensing solutions for measuring dissolved oxygen in water, and integrated with IBM-based cloud service for large-scale automated shrimp farming.

SELECTED PROJECTS

MmCows: Multimodal Deep Learning Benchmark (NeurIPS) — 2024

- Created a large-scale multimodal dataset accepted as a Spotlight paper (top 5% of ratings) at NeurIPS 2024. Benchmarked state-of-the-art action recognition models to advance edge computing capabilities.

eTag: Energy-Neutral Wireless Sensing System (ACM MobiCom) — 2023

- Developed an end-to-end energy-neutral sensing system published at ACM MobiCom (24% acceptance rate), leveraging backscattering for communication and inductive coupling for power delivery, enabling maintenance-free health monitoring.

5-Stage Pipelined CPU Design — 2022

- Designed and verified a fully functional 32-bit MIPS processor in Verilog with 5-stage pipeline and L1-level cache. Engineered hazard detection units and data forwarding paths to resolve data and control hazards.