Hien Vu

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A highly motivated researcher with a track record of developing effective solutions in ML-driven system design, low-power wireless sensing, and optimization for electronic systems. Seeking a challenging role where I can leverage my expertise in scientific discovery, problem-solving, and cross-disciplinary collaboration to drive impactful projects and contribute to a dynamic research team.

Education

Purdue University, West Lafayette, Indiana, USA (expected) 2026
- Ph.D. in Electrical and Computer Engineering

University of Wisconsin–Madison, Madison, Wisconsin, USA 2023
- M.Sc. in Electrical and Computer Engineering

Hanoi University of Science and Technology, Hanoi, Vietnam 2018
- B.Sc. in Electronics and Telecommunications Engineering

Professional Experience

Research Assistant, Purdue University, WL, IN, USA 2023–Present
- Developed a comprehensive multimodal sensing system incorporating high-precision localization, physiological monitoring, and ML-based computer vision for identifying and tracking dairy cattle, leading to the MmCows dataset published at NeurIPS 2024.

Research Assistant, University of Wisconsin–Madison, Madison, WI, USA 2021–2023
- Engineered an energy-neutral, non-invasive wearable ear tag for real-time heat stress detection in dairy cattle, designing a wireless power system that enables five days of operation from a single 10-minute charge during milking, resulting in a publication at ACM MobiCom 2023.
- Successfully fabricated and deployed seven prototype tags in a three-week field trial at an operational dairy barn, validating real-world performance and ensuring seamless data collection through cross-disciplinary collaboration.

Research Assistant, Soongsil University, Seoul, South Korea 2019–2021
- Formulated and verified novel control strategies for internal heating of Li-ion batteries, significantly improving performance and battery lifespan in cold conditions.
- Designed a portable supercapacitor power device for military use, delivering 840W in 5-second cycles using a bi-directional buck-boost controller and a high-speed custom storage device using an FPGA.

Key Skills

- **Machine Learning & AI:** ML-based computer vision, sensor data fusion, and real-time ML deployment.
- **Programming:** Advanced Python, C/C++, MATLAB, Assembly (MIPS), and Verilog.
- **Embedded Systems:** Microprocessor design, real-time systems, and sensor integration.
- **Hardware Design:** High-speed/high-power/low-power systems design, wireless sensing systems.
- **Data Analysis & Simulation:** Physical system modeling, multimodal signal processing, MATLAB simulations.
- **Cross-Disciplinary Work:** Proven ability to work with diverse teams to develop and deploy complex systems.

Selected Publications

- **MmCows**: A Multimodal Dataset for Dairy Cattle Monitoring. *NeurIPS 2024 (Spotlight paper, top 5% ratings)*.
- **eTag**: An Energy-Neutral Ear Tag for Real-Time Body Temperature Monitoring of Dairy Cattle. *ACM MobiCom 2023 (acceptance rate 24%)*.
- Simultaneous Internal Heating for Balanced Temperature and State-Of-Charge Distribution in Lithium-ion Battery Packs. *Journal of Energy Storage 2023*.