

Hien Vu

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A researcher with expertise in developing solutions for ML systems, low-power sensing, and electronics optimization. Seeking a challenging role to leverage problem-solving and cross-disciplinary skills to drive impactful research.

EDUCATION

- Ph.D. in Electrical and Computer Engineering** (expected) 2026
Purdue University, West Lafayette, Indiana, USA
- M.Sc. in Electrical and Computer Engineering** 2023
University of Wisconsin–Madison, Madison, Wisconsin, USA
- B.Sc. in Electronics and Telecommunications Engineering** 2018
Hanoi University of Science and Technology, Hanoi, Vietnam

PROFESSIONAL EXPERIENCE

- Research Assistant, Purdue University, WL, IN, USA** 2023–Present
- Working on radar-based wireless sensing mechanisms for dairy cattle health monitoring.
 - Developed a multimodal sensing system including high-precision indoor localization, physiological monitoring, and ML-based computer vision for identification and tracking of dairy cattle.
- Research Assistant, University of Wisconsin–Madison, Madison, WI, USA** 2021–2023
- Developed a lightweight, non-invasive wearable ear tag to monitor dairy cattle body temperature in real-time for heat stress detection.
 - Engineered a wireless power system that autonomously charges the tag during 10-minute milking sessions, enabling up to five days of continuous operation on a single charge.
 - Fabricated and deployed seven prototype tags in a three-week field trial at UW-Madison's operational dairy barn, assessing real-world performance in cattle management.
 - Collaborated with cross-disciplinary teams to ensure seamless integration of hardware, firmware, and data collection systems for accurate and continuous monitoring.
- Research Assistant, Soongsil University, Seoul, South Korea** 2019–2021
- Designed a flexible, high-energy supercapacitor-based power device for military applications, capable of delivering 840 W in multiple 5-second discharge cycles. Developed a bi-directional buck-boost control algorithm to ensure continuous system operation without interruptions.
 - Developed pre-heating techniques for lithium battery in cold environments using a novel energy exchange process to balance temperature and state of charge without requiring cell characterization.
 - Developed a high-speed, custom storage device using an FPGA controller and 512GB of SLC-NAND flash (with more than 1000 components), optimizing signal integrity and minimizing delay.
 - Implemented an Extended Kalman Filter on a RISC-V MCU for pose tracking in augmented reality, processing data from a 9-DOF IMU integrated with Parallel Tracking and Mapping (PTAM).
- Research Assistant, Hanoi University of Science and Technology, Hanoi, Vietnam** 2015–2018
- Developed a gyroscope-based balancing system for two-wheel personal vehicles.
 - Designed air pollution monitoring devices and deployed on a large scale.

KEY SKILLS

- Software & AI:** Python, C/C++, MATLAB; Machine Learning Models, Signal Processing, System Modeling.
- System Design:** Embedded/Real-Time Systems, Low-Power/Wireless Systems, Full-Stack System Development.

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*.