MICHAEL TUNG

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EDUCATION

Ph.D. in Electrical and Computer Engineering **May 2029 (Expected)**
Purdue University, West Lafayette, IN

Bachelor of Science in Electrical Engineering, *Summa Cum Laude* **May 2025**
University of Florida, Gainesville, FL GPA: 4.00/4.00

RESEARCH INTEREST

To pursue a PhD in Electrical and Computer Engineering exploring information theory and its intersection in communication systems and machine learning, with an additional focus on stochastic processes, control systems, and optimization. My research will bridge theoretical foundations with practical implementations through digital design and embedded systems, addressing challenges in scalable and secure real-time technologies.

RESEARCH EXPERIENCE

Undergraduate Research Assistant **May 2024 – Present**
Wireless Information Networking Group (WING), University of Florida, Gainesville, FL

- Developing a real-time RF spectrum monitoring application using RFSoC and SDR, specifically designed for the detection and identification of unauthorized drone activities.
- Collected and analyzed RF data across various scenarios, developing a mathematical model and simulation code to better understand and explain real-world behaviors.
- Engaged actively in weekly lab meetings with Dr. John Shea, Dr. Tan Wong, and PhD. Students contribute insights, receive feedback, and foster project advancements.

REU Fellowship (Paid research assistant) **May 2023 – Sep 2024**
Smart Systems Lab (SSL), University of Florida, Gainesville, FL

- Developed and implemented a 3D object tracking camera system using Python and OpenCV within the lab's testing space.
- Enhanced FFmpeg-based video streaming performance by 30% through CUDA hardware acceleration.
- Tested FPGA and microprocessor integration on drones for improved system control and data processing.

WORK & PROJECT EXPERIENCE

Capstone/Co-op Project Member IPPD **Aug 2024 – May 2025**
Northrop Grumman, Melbourne, FL

- Recognized as "**Best Team**" among all senior design projects in IPPD
- Developed an automatic asset management system using RFID, microcontrollers, sensors, and data management frameworks for a designated lab space within the Northrop Grumman facilities.

Teaching Assistant, Foundation of DSP & Fund. of EM Fields **Aug 2024 – May 2025**

- Led discussion sections, tutored students, and assisted Dr. Tan Wong with grading homework and exams and applying complex DSP concepts via MATLAB/Python.
- Collaborated with Dr. Vladimir Rakov to manage course materials on Canvas, grade assignments and exams, and assist students with problem-solving in electromagnetics (Maxwell's equations, wave propagation, field analysis).

1-D Time Domain Convolution on FPGA **Nov 2024 - Dec 2024**

- Designed and implemented a high-performance 1-D convolution circuit on the Zedboard FPGA, leveraging parallelism to achieve ~15x speed-up compared to an ARM at 667MHz.
- Optimized throughput with pipelined and unrolled convolution loops and dual-clock DRAM DMA interface with FIFO and handshake for reliable data transfer and mitigate metastability.
- Implemented smart buffer (sliding window) design for efficient data reuse, reducing memory bandwidth requirements.

Pong Game on FPGA **Apr 2024 – May 2024**

- Developed a Pong game using VHDL with custom logic for game mechanics and VGA output.
- Implemented FSM for game state control and optimized real-time performance.

Circuit Analysis Tool **Apr 2023 – May 2023**

- Developed a C++ tool to calculate currents, voltages, and drops from netlist data.
- Improved efficiency by 20% with dynamic programming for complex circuits.

SKILLS

Programming Languages: C/C++, Java, Python, MATLAB, Assembly
Hardware Design: VHDL, SystemVerilog, UVM, Vitis HLS
Tools & Software: Git, LTspice, Altium, GNU Radio, TensorFlow, Scikit-learn, Microsoft Office
Certificate: Lean Six Sigma White Belt, NVIDIA Fundamentals of Deep Learning

HONORS & AWARDS

Ross Fellowship **Purdue University, 2025**

- *A competitive, fully funded award for the recruitment of outstanding PhD candidates.*

Electric E Award **University of Florida, 2025**

- *The ECE department's most prestigious award.*

Ralph Sias Scholarship **University of Florida, 2024**

- *A merit-based scholarship awarded for outstanding academic achievement in ECE.*

James E. Dykes Scholarship **University of Florida, 2023**

- *A merit-based scholarship awarded for outstanding academic achievement in ECE.*

GRU Brighter Tomorrow Scholarship **Gainesville Regional Utilities, 2021**

- *A competitive, community-based scholarship awarded to promising engineering students for academic merit and leadership potential.*

Honor Roll and Dean's List **University of Florida, 2023 – 2025**