

Logan Burns

Gainesville, FL | (407) 773-9448 | lburns1@ufl.edu | github.com/LBurnsUF

Education

University of Florida, B.S. Electrical Engineering

Herbert Wertheim College of Engineering, GPA 3.91

Expected May 2028

Gainesville, FL

- University Honors Program; University Research Scholars Program; FOCUS Lab REU award recipient. Graduate coursework: Analog IC Design I (EEE 5320).

Research Experience

Florida Optics and Computational Sensor (FOCUS) Lab, UF ECE

Sep 2025 – Present

Undergraduate Research Assistant (PI: Dr. Sanjeev Koppal)

Gainesville, FL

- Co-authored *EdgeTrain*, a thermal-adaptive continual-learning controller for robot-mounted edge GPUs, submitted to CoRL 2026; built the thermal instrumentation and evidence base behind its central claims.
- Developed the calibrated FLIR A6751sc thermal-imaging pipeline and a 150 W radiant-heat stress rig to characterize continual-learning workloads on a Jetson Orin NX, isolating a 20 °C thermal-signature difference between learning algorithms; controller validation showed 16.3 °C lower peak temperature at equal accuracy with zero throttle events.
- Sole author of a virtual thermal sensing system predicting temperatures of off-die board components (VRMs, MOSFETs) from on-die telemetry: watershed segmentation of thermal response maps, lumped-capacitance model fitting (L-BFGS-B), and a real-time prediction daemon needing no camera after a one-time calibration.

Human Systems Engineering Lab, UF

Jan 2025 – May 2025

Undergraduate Research Assistant

Gainesville, FL

- Conducted experimental trials and built a reproducible R/tidyverse analysis pipeline for a pre/post study on how driver-education method affects human interaction with vehicle automation.

Manuscripts Under Review

M. Keivanimehr, **L. Burns**, S. J. Koppal, “EdgeTrain: Thermal-Adaptive Continual Learning for Energy-Constrained Mobile Robots,” submitted to *Conference on Robot Learning (CoRL)*, 2026.

Teaching

Head Peer Instructor, EEL 3701C Digital Logic & EEL 4744C μ P Applications

Spr 2026 – Present

Leads the peer-instructor team for both courses, UF ECE

Gainesville, FL

- Lead help sessions on external-bus memory mapping, address decoding, and digital logic design; author lab specifications, solutions, and course documentation.
- Manage exam-grading assignments across the PI team, course hardware inventory, and hardware-repair coordination; point of contact for fellow peer instructors.
- Brought 150 course documents into ADA/WCAG compliance with a custom Python toolchain; resolved a Quartus–Questa incompatibility with a C++ shim distributed to students to restore local HDL simulation.

Design Teams & Fabrication

Machine Intelligence Laboratory (MIL), UF: SubjuGator 9 AUV

Jan 2026 – May 2026

- Sole designer of the vehicle’s leak-detection subsystem: LTspice comparator front-end simulation through Altium schematic capture and layout to a fabrication-released board (v2) with full manufacturing outputs.

Semiconductor Readiness Organization, UF Nanoscale Research Facility

Sep 2024 – Present

- Fabricated MOS capacitors in the NRF cleanroom: dry oxidation, spin-coating, photolithography, HF wet etch, sputter deposition.

Selected Projects

Polyphonic Wavetable Synthesizer, bare-metal AVR

- Real-time 3-voice synthesizer on an XMEGA (20 kHz, 12-bit DAC): gapless audio via ping-pong DMA, inline-assembly fixed-point mixing, voice-stealing allocation, per-voice ADSR/filtering, and a live serial oscilloscope display.

Discrete LDO Voltage Regulator, LTspice (individual design)

- Designed and stabilized a discrete LDO: 34 dB worst-case PSRR, phase margin recovered from 2° to 60° via output-capacitor ESR zero placement, and foldback current limiting cutting worst-case pass-FET dissipation from 9.3 W to 2 W.

Skills

Languages: C, C++, Python, MATLAB, R, VHDL, SystemVerilog, AVR assembly

EDA & Simulation: Altium Designer, LTspice, Cadence Virtuoso, Quartus, QuestaSim (SVA, constrained-random verif.)

Embedded & Lab: NVIDIA Jetson, PyTorch, FLIR/GigE Vision, DMA- and interrupt-driven firmware, Linux, Git; thermal imaging, I–V characterization, oscilloscope/AWG/network analysis; cleanroom microfabrication