Amber Handal

(561) 235-4999   amberhandal@outlook.com

github.com/amberhandal   linkedin.com/in/amberhandal   amberhandal.com

EDUCATION

Northwestern University — Evanston, IL   Sep 2025 – Dec 2026
M.S. in Robotics

University of Florida — Gainesville, FL   May 2019 – May 2024
B.S. in Computer and Information Science Engineering

Relevant Coursework   Robotic Manipulation, Embedded Systems in Robotics, Advanced Mechatronics, Microcontroller Design, Real-Time Digital Systems Design and Verification with FPGAs, Theory of Machine Dynamics

SKILLS

Programming Languages	Python, C, C++, C#, TypeScript, SQL, Swift, OCaml, SystemVerilog
Software	ROS/ROS 2, OpenCV, Git, Linux, Docker, AWS, Terraform, Unreal Engine, Unity, Unit Testing
Robotics	Computer Vision, Motion Planning, Object Detection, SLAM, Kinematics, Control Systems, Sensor Integration, State Estimation
Embedded Systems	Microcontrollers, Embedded C, FPGA, Real-Time Systems, PCB Design, Arduino

WORK EXPERIENCE

Software Engineer Infotech — Gainesville, FL   Sep 2022 – Aug 2025

- Built automated PDF pipelines using Python, TypeScript, and AWS Lambda to retrieve and classify plan data.
- Mentored three engineers to extend the system for DOT clients using token-based authentication and S3 APIs.
- Conducted code reviews and optimized Lambda concurrency and database queries for improved scalability.

SMMARTS Research Assistant CSSALT, UF Health — Gainesville, FL   Jan 2022 – May 2022

- Contributed to a C# Unity app which measure arterial perforation accuracy in ultrasound-guided simulations.
- Implemented motion tracking, algorithmic scoring, and haptic feedback modules for real-time precision feedback.
- Collaborated with faculty and students to validate simulation accuracy and improve algorithm responsiveness.

PROJECTS

Aggro-Bots — Biometric-Responsive Swarm Robotics Game   Oct 2025 – Present

- Prototyped a swarm-based game using C for embedded control, sensor fusion, and multi-agent coordination.
- Programmed Micro:bits in C with custom drivers for time-of-flight sensors, Cutebot chassis, and RF modules.
- Implemented distributed "aggro" pursuit logic across robots, enabling synchronized behavioral responses.
- Built a Micro:bit wearable with pulse sensing and wireless telemetry to modulate swarm aggression dynamically.
- Led a four-person team, facilitating collaboration and integrating teammate ideas into the final design concept.

Vision-Guided Pen Recognition and Robotic Grasping   Sep 2025

- Developed Python and OpenCV RGB-D detection pipeline using Intel RealSense D435i and HSV segmentation.
- Applied Kabsch algorithm for hand–eye calibration between camera and PincherX 100 in ROS 2 environment.
- Implemented grasp planning and closed-loop control with Interbotix SDK and ROS 2 MoveIt interface.

Critter Collector — Educational Mobile Game   Aug 2023 – May 2024

- Deployed backend in Node.js and MongoDB for an educational location-based game inspired by Pokémon Go.
- Migrated code from Unity to Unreal Engine 5 using JavaScript and C++ to enhance performance and scalability.
- Collaborated with designers to align backend features with educational research and data analysis goals.
- Partnered with a 5-member cross-functional team, ensuring consistent communication and sprint alignment.