Amber Handal

+1 (561) 235-4999 amberhandal@outlook.com
github.com/amberhandal linkedin.com/in/amberhandal amberhandal.com

EDUCATION

Northwestern University Sep 2025 – Dec 2026
Master of Science in Robotics

University of Florida May 2019 – May 2024
Bachelor of Science in Computer and Information Science Engineering GPA: 3.3

Relevant Coursework Real-Time Digital Systems Design and Verification with FPGAs (Winter 2026), Advanced Mechatronics (Winter 2026), VLSI Algorithms (Winter 2026), Embedded Systems in Robotics, Robotic Manipulation, Microcontroller Design, Theory of Machine Dynamics, Performant Programming, Computer Network Fundamentals, Operating Systems

SKILLS

Languages	ROS/ROS2, Python, C/C++/C#, SystemVerilog (Winter 2026), OCaml (Winter 2026), TypeScript, SQL, Swift
Frameworks/Libraries/Tools	Git, Linux, OpenCV, Docker, KiCad, Solidworks (CAD), AWS, Terraform
Hardware/Robotics	Raspberry Pi, Arduino, Soldering, Oscilloscope, Multimeter, 3D Printing

RESEARCH/PROJECTS

Vision-Guided Pen Recognition and Robotic Grasping Sep 2025

- Integrated Intel RealSense D435i with PincherX 100 to detect and localize a pen in 3D via RGB–D alignment, HSV thresholding, and contour extraction in OpenCV.
- Implemented hand–eye calibration (Kabsch algorithm) to transform camera coordinates into robot coordinates, enabling accurate grasp planning.
- Developed and tested control algorithms (ROS2 + Interbotix SDK) with closed-loop grasping behaviors, collaborating with peers to iteratively debug and analyze performance trade-offs.

Backend Engineer Critter Collector Aug 2023 – May 2024

- Collaborated with a team of 4 engineers to design backend services (Node.js, MongoDB) for a PokémonGo-like educational mobile game, coordinating with designers and researchers to align features with learning outcomes.
- Partnered with cross-functional teammates to migrate from Unity to Unreal Engine 5, optimizing performance and scalability for mobile platforms, and enabling handoff to a 25-person educational research team.
- Built RESTful APIs with validation, authentication, and CRUD operations, while engaging with stakeholders to ensure backend/frontend integration supported research objectives.

SMMARTS Programming Volunteering CSSALT, UF Health Jan 2022 – May 2022

- Developed a C# Unity application to measure arterial perforation accuracy in ultrasound-guided simulations, applying algorithmic approaches to compute performance metrics.
- Conducted analysis of simulation data with peers, presenting findings to medical faculty and iterating on algorithm design to improve precision.
- Optimized simulation performance to deliver realistic haptic feedback and visual cues, supporting faculty training objectives.

WORK EXPERIENCE

Software Engineer Infotech Sep 2022 – Aug 2025

- Spearheaded the end-to-end architecture and deployment of an automated PDF data pipeline (Python, Typescript, AWS Lambda) to retrieve and process construction plan PDFs from state DOTs, reducing manual workload for internal teams.
- Directed and mentored a team of 3 engineers to customize the pipeline for multiple DOT clients, while serving as advisor and primary client liaison to ensure evolving requirements were met.