NOAH HATHOUT

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EDUCATION

B.S. in Computer Engineering, **Boston University** (GPA: 3.7 / 4.0) — Expected May 2025
Concentration: Machine Learning — Dean's List

SKILLS

Languages & Frameworks: Python, C, C++, C#, TensorFlow, PyTorch, MATLAB, JavaScript, HTML/CSS, Java
Hardware & Embedded Systems: Arduino boards, Raspberry Pi, ESP32 microcontrollers, NVIDIA Jetson AGX Orin, UR5e & UR10e robotic arms
Robotics & Simulation: Robot Operating System 2 (ROS2), NVIDIA Isaac Sim, nvblox, Visual SLAM
Sensors & SDKs: Intel RealSense D435i, Orbbec Gemini 2L/335L, Intel RealSense SDK, Orbbec SDK
Development Tools: Git, GitHub, Docker, Arduino IDE, OnShape, UltiMaker Cura, ESP-IDF
Operating Systems: Ubuntu Linux, Windows 10/11, macOS

RELEVANT COURSES

Software Engineering Principles | Intro to Machine Learning | Deep Learning | Control Systems | Reinforcement Learning
Smart (Embedded) Systems | Computer Organization | Software Design | Intro to Logic Design | Applied Algorithms

EXPERIENCE

Research and Development Intern — Odense, Denmark
Universal Robots — May 2024 - Sep 2024

- Led a high-impact computer vision project in the Innovation Lab integrating depth-sensing cameras.
- Developed real-time robotics software using ROS2, C++, Python, NVIDIA libraries, and Docker.
- Collaborated daily with fellow developers, merging code via Bitbucket, documenting tasks in JIRA, and resolving debugging challenges.
- Delivered a final demo showcasing future product capabilities and advanced vision-based robotic applications.

Teaching Assistant (EK131) — Boston, MA
Boston University, College of Engineering — Jan 2023 - May 2023

- Coordinated class supplies and administered two weekly office hours for student support.
- Built and maintained numerous Ender-3 V2 3D printers, facilitating 3D-printed parts for student projects.
- Managed on-demand print requests, ensuring timely and accurate 3D modeling support.

PROJECTS

***Pollux* - Senior Design Project (EC463/464)** — Sep 2024 - Present

- Built an autonomous countertop-cleaning robot using reinforcement learning for obstacle/cliff detection.
- Integrated numerous sensors (e.g. ultrasonic) for real-time collision avoidance and cliff detection.
- Developed a custom reinforcement learning reward function and training pipeline for a robotic agent, optimizing high-coverage cleaning while preventing edge falls, and deployed everything using a ROS2-based control system.
- Collaborated with a cross-functional team to iteratively refine hardware design, motion control, and policy training for robust performance.

***SuperTuxSmart* - Reinforcement Learning Final Project (EC418)** — Sep 2024 - December 2024

- Created multiple reward-shaping strategies in a MarioKart-like simulator (PySuperTuxKart).
- Achieved up to 99% completion rate with a distance-based reward function.
- Documented training outcomes and performance trade-offs in a final report.

***AreYouTrieuly…NET* - Deep Learning Final Project (EC523)** — Feb 2024 - May 2024

- Revitalize Meta's state-of-the-art model Detectron2 into a facial recognition and attention-seeking model.
- Integrated COCO instance segmentation with a retrained Detectron2 model to analyze attention patterns in real-time video streams.

***PIRA (Personal Indoor Robot Assistant)* - Smart Systems (EC444)** — Sep 2024 - December 2024

- Developed a headless firmware in C on an ESP32 (RTOS-based) for real-time control of sensors and actuators.
- Implemented an OptiTrack-based positioning system for autonomous navigation and manual WASD control.
- Deployed a Node.js server to coordinate data across multiple robots, with a Streamlit 2D visualization and TingoDB for real-time logging.
- Applied distributed systems principles (client-server communication, fault tolerance, security) via I2C, UART, and Wi-Fi integration

***MATLAB Gentrification Analyzer* - Intro to Engineering Final Project (EK125)** Sep 2021 - Dec 2021

- Analyzed 180,000+ building permits in San Francisco to evaluate gentrification trends.
- Authored technical reports detailing findings and supporting data.

***SitDown* - Intro to Software Engineering Final Project (EC327)** Jan 2022 - May 2022

- Led and managed team of 4 engineers to develop a web application allowing users to reserve restaurant tables using MongoDB, HTML, and JavaScript
- Presented the final application to the course instructor and peers.

Additional Projects

- *Digital Thermometer Prototype* (EK131), *Truss Stress Analyzer* (EK301), *Smart Bike Light*, *RedLight.link*

AFFILIATIONS

Member of IEEE | BU Intramural Tennis | BU Intramural Indoor & Outdoor Soccer