NOAH HATHOUT

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EDUCATION

M.S. in Robotics & Autonomous Systems (R&AS), Boston University — *Expected May 2026*

B.S. in Computer Engineering, Boston University | (GPA: 3.73 / 4.0) — May 2025
Concentration: Machine Learning — Cum laude

RELEVANT COURSES

Intro to R&AS | Robot Motion Planning | Robot Learning | Smart (Embedded) Systems | Applied Machine Learning
Deep Learning | Reinforcement Learning | Software Engineering Principles | Control Systems | Applied Algorithms

SKILLS

Programming Languages: Python, C, C++, C#, Java, JavaScript, MATLAB/Simulink, SQL, HTML/CSS
Frameworks & Libraries: FastAPI, TensorFlow, PyTorch, OpenAI API, ROS, ROS 2
Databases & Data: SQLite, SQLAlchemy, JSON
Robotics & Embedded: Arduino, ESP32, Raspberry Pi, NVIDIA Jetson AGX Orin, UR5e/UR10e robotic arms
Simulation & Perception: NVIDIA Isaac Sim, nvblox, Visual SLAM, Intel RealSense & Orbbec SDKs
DevOps & Testing: Git, GitHub, Docker, GitHub Actions CI/CD, pytest
Networking & Concurrency: TCP/IP sockets, IoT protocols, Multithreaded Design
CAD & Tooling: OnShape, Bambu Lab, Ultimaker Cura, ESP-IDF
Operating Systems: Ubuntu Linux, Windows 10/11, macOS

EXPERIENCE

Head of Software Engineering — Danvers, MA · Hybrid
UMG Technologies, Inc. — June 2025 - Present

- Modernizing a legacy C# industrial-automation stack to a maintainable, 64-bit codebase with cleaner architecture.
- Revamping operator UX for production machines to reduce mistakes and speed up common workflows.
- Centralizing the codebase on GitHub with structured versioning and releases, protected branches, code reviews, and leading rapid debugging of production machines under tight deadlines using focused task tracking.
- Built the next-gen corporate website (full-stack).

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 - May 2025

- Designed and built a ROS 2-based mobile robot that disinfects surfaces with UV-C LEDs while avoiding obstacles and cliffs.
- Crafted a custom PPO reinforcement learning reward structure achieving 60%+ coverage without edge violations.
- Integrated ultrasonic and IMU sensors into a real-time perception stack; deployed fully on a Raspberry Pi 4B.
- Collaborated with a cross-functional team to iteratively refine hardware design, motion control, and policy training for robust performance.

***Smart Home API Core* - Software Engineering Principles (EC530)** — Jan 2025 - Apr 2025

- Architected a FastAPI-based RESTful API for managing users, houses, rooms, and IoT devices with JSON persistence; 100% server-side validation and typed data models.
- Implemented 100+ unit & integration tests with pytest, reaching 95% code coverage (completely automated).
- Designed a custom exception hierarchy to provide consistent error responses for conflicts and validation fails.

***ChatSheetsAI*- Natural-Language Spreadsheet Analytics (EC530)** Feb 2025 - May 2025

- Built a CLI tool that loads any CSV into SQLite, infers schema, and converts conversational questions into SQL via OpenAI, returning tabular results.
- Added an interactive conflict-resolution workflow that renames or merges columns when incoming CSVs differ from existing tables; demonstrated system on finance datasets.

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

- Implemented distance-based reward shaping strategies in a MarioKart emulator (PySuperTuxKart), upgrading lap completion to 99%.
- Produced a comparative study of reward strategies, training curves, and generalizations across tracks.

***PyP2PChat* - Peer-to-Peer Encrypted Messenger** Feb 2025 - Mar 2025

- Engineered a pure-Python chat application where each node acts as both a client and a server, enabling fully private and encrypted messaging without a broker.
- Utilized threading to handle simultaneous send/receive and logged all messages to local SQLite with timestamps for history logging and replication.

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

- Adapted Meta's Detectron2 for facial attention detection; combined COCO instance segmentation and custom supervision to measure engagement in live frame or 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

Additional Projects: *MATLAB Gentrification Analyzer* (EK125), *SitDown Reservation App* (EC327), *Digital Thermometer Prototype* (EK131), *Truss Stress Analyzer* (EK301), *Smart Bike Light* (EK201), *RedLight.link*

AFFILIATIONS

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