David Nathanson

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EDUCATION

University of Richmond — Richmond, VA
Bachelor of Science in Computer Science and Mathematics — *Expected 2028*
- **GPA:** 3.96
- **Awards & Honors:** Dean's List, All A's List: Fall 2024, Spring 2025
- **Relevant Coursework:** Data Structures & Algorithms, Discrete Mathematics, Calculus II, Computer Security, Robotics Research, Linear Algebra, Software Systems (Ongoing)

EXPERIENCE

Incoming Data Structures Teaching Assistant — August 2025 – Present
University of Richmond — *Richmond, VA*

Research Engineer — May 2025 – Present
Cobotiq — *Richmond, VA*
- Troubleshooted critical collision issues in commercial cleaning robots due to environmental obstacles.
- Generated a multi-sensor dataset of 15+ collision scenarios by recording ROS bag files during impact tests.
- Developed Python-based ROS2 systems for HIVEBot mobile robots using real-time positioning and LiDAR data.
- Researched and evaluated privacy-preserving object-detection methods using LiDAR and inertial sensors as alternatives to cameras, tailored for navigation in proprietary or sensitive office environments.

PROJECTS

Mensa – Smart College Dining Assistant (Ongoing) | *Nutrislice API, scikit-learn* — June 2025 – Present
- Spearheaded the concept and technical direction of Mensa, a nutrition assistant powered by Machine Learning.
- Engineered an ML pipeline to recommend meal plans using university data and user calories and macro goals.
- Achieved 93% accuracy with Linear SVC and TF-IDF features across six dietary categories.

Blink – University Course to Calendar | *Next.js, MongoDB, Google Calendar API* — April 2025 – Present
- Launched a web app currently in open beta with 20+ users generating conflict-free class schedules.
- Scraped and indexed 1,800+ courses with Puppeteer; integrated Google Calendar API and export functionality.

SpiderBot – University Campus Chatbot | *Google API, RAG* — June 2024 – August 2024
- Co-led the creation of a RAG-enabled Discord bot used by 120+ students for LLM-powered real-time campus info.
- Constructed a living knowledge base of the University of Richmond web data scraped using Selenium.
- Enabled 24/7 student access to campus info, reducing student FAQs in Discord channels by an estimated 60%.

COVID-19 Detection from Chest X-Rays | *TensorFlow, Keras, OpenCV* — February 2024 – April 2024
- Built a Convolutional Neural Network to classify over 1,500 lung X-rays with 92% validation accuracy.
- Boosted COVID case recall by 18% via data augmentation techniques, increased training set diversity by 25%.

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, C, Swift, SQL, HTML/CSS, Bash
Frameworks: React.js, Next.js, Express.js, Django, Bootstrap, Node.js, Tailwind CSS
Libraries: NumPy, scikit-learn, pandas, Keras, TensorFlow, OpenCV, BeautifulSoup
Tools: Unix/Linux, Git, ROS2, VS Code, XCode, Google APIs, MongoDB, Selenium, LaTeX
Certifications: Meta's React (Coursera), DeepLearning.AI ML Specialization (Andrew Ng)

ACHIEVEMENTS

1st Place Student Team – UR Capture The Flag (Fall 2024, sponsored by Assura Inc.) — 2024
Silver Medal – Indonesia Youth Int'l Science Fair (AI/NLP Chatbot, 23 countries represented) — 2023
Apple Swift Student Challenge – WWDC Scholarship Winner (Top 10% of 3000+ global applicants) — 2022