Rohan Sharma

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AI/ML research engineer focused on interpretable and trustworthy AI systems. My work spans computer vision, deep-learning representation analysis, feature-space visualization, and model interpretability, with interest in LLM tuning, privacy, safety, and responsible AI. I bring an interdisciplinary background in computer science, neuroscience, and psychology to research problems involving how intelligent systems learn, represent information, and generalize.

EDUCATION

University of Pennsylvania 2026 - Present
Candidate for Master of Science in **Engineering in Artificial Intelligence** Philadelphia, PA

Boston University 2022 - 2026
Bachelor's Degree in **Computer Science** Boston, MA
Bachelor's Degree in **Neuroscience**
Bachelor's Degree in **Psychology**

RESEARCH & PUBLICATIONS

Faris B. Rustom, Rohan Sharma, Haluk Öğmen, Arash Yazdanbakhsh; Object Detection, Recognition, Deep Learning, and the Universal Law of Generalization. Neural Computation, MIT Press 2026; doi: 10.1162/NECO.a.1483

Rohan Sharma, Diane Mello-Goldner; Large language model dependence and academic burnout: Cognitive and behavioral effects in undergraduate learning. Poster accepted for presentation at the Fall 2026 Annual Meeting of the New England Psychological Association (NEPA), Salem State University

ACHIEVEMENTS & PROFESSIONAL EXPERIENCE

Collins Aerospace || RTX (Formerly Raytheon Technologies) 2025
Systems Engineer Cedar Rapids, IA

- **Completed Full-Time Summer Internship**
- Reproduced, isolated, and closed cross-component issues in system integration for the KC-46 RVS 2.0 program; coordinated fixes across hardware/software teams.
- Successfully delivered verification criteria in collaboration with the technical team across:
  - Decomposition of customer specifications and system level requirements into sub-system piece part requirements
  - Planning for implementation of finalized requirements
  - System integration upon completion of requirements
- Precisely completed the verification and validation of an avionics system at a subsystem level in collaboration with a cross-discipline team of engineers
- Delivered comprehensive requirements for FPGA components of an advanced safety critical avionics system.

Collins Aerospace || RTX (Formerly Raytheon Technologies) 2023 - 2025
Platform Software Engineer Cedar Rapids, IA

- **Completed 2 Full-Time Summer Internships**
- Assisted design, development, testing, and debugging of control systems through logical and mathematical solutions.
- Successfully designed and implemented build procedures used to support hardware and software product development and use throughout all Software Development Life Cycle (SDLC) stages.
- Successfully developed and deployed automated tests to ensure hardware and software requirements are met and functional according to customer needs.
- Continuously contributed part-time during school semesters.

Boston University Computational Neuroscience & Vision Lab 2024 - Present
AI/ML Researcher Boston, MA

- Designed and implemented a convolutional neural network (CNN) pipeline using MATLAB's Statistics and Machine Learning Toolbox to investigate how learned feature representations encode category structure and generalization in computer-vision tasks.
- Analyzed internal network representations using dimensionality reduction and designed novel search algorithms to identify and characterize patterns within learned feature spaces.
- Applied and integrated visualization techniques to validate relationships between attention patterns and feature space organization.
- Optimized model performance through systematic hyperparameter tuning, improving classification accuracy and stabilizing learned feature representations for downstream analysis.

Robotics 2014 - 2021

- FIRST Tech Challenge - Qualified for States Natick, MA
- FIRST Robotics Competition - Qualified for States
- Programmed FTC robot in Java with the official SDK (Android Studio), building both TeleOp and autonomous LinearOpMode routines with hardwareMap and telemetry.
- Integrated motors/servos/sensors through REV Control/Expansion Hubs; maintained reliable device configs and naming for repeatable deployments.
- Implemented closed-loop drivetrain and mechanism control (PIDF + feedforward) using encoder and IMU feedback for stable actuation.

Esports 2019 - 2026

- Division II Boston University Collegiate Overwatch Captain Natick, MA + Boston, MA
  - **Top < 00.1% of players in North America**
  - First Place – Northeast Collegiate LAN Champion
  - Second Place – Spring 2024 Collegiate Runner-up
- Natick High School League of Legends Captain
  - State Champion – MSAA Grand Finals Fall 2020
  - Second Place – MSAA Grand Finals Spring 2020 Runner-up
  - Top 16 – National Championship

Technology Skills

Languages

MATLAB (Statistics and Machine Learning, Image Processing Toolboxes), Python, Java, JavaScript, C, C#, Assembly, C++, TypeScript, React, Next.js, Bash, Tailwind, shadcn/ui, SQL

Applications / Operating Systems

Atlassian Software (Jira, Confluence), Jama, Windows 10, Windows 11, MacOS, PyTorch, TensorFlow, Microsoft Office Suite / 365 (Word, Excel, Visio), GitHub, Visual Studio Code, Eclipse, Peer-Review Eclipse Plugin (PREP), Vercel, Wireshark, Linux, gdb, MySQL, MongoDB

AI/ML Research Interests

Deep Learning, Explainable AI (XAI), Computer Vision, Convolutional Neural Networks (CNNs), Category Representation, Mechanistic Interpretability, Computational Neuroscience, LLM Fine-Tuning, Language Model Safety and Privacy