INIMAI ANA SUBRAMANIAN

https://inimai-s.github.io | US Citizen

Email: inimai@mit.edu | **Ph:** +1 (408) 663-3319 | https://www.linkedin.com/in/inimai-subramanian-508794224

OBJECTIVE: An internship in a software engineering or machine learning team that solves challenging problems.

EDUCATION

Massachusetts Institute of Technology (GPA: 5.0/5.0) 2022-2026

Major: Electrical Engineering/Computer Science; Minor: Earth and Planetary Science

Courses: ML (Grad), DL (Grad), NLP, CV (Grad), Controls, Algorithms I/II, Computer Systems, Embedded Systems, Robotics, Inference, Electric Circuits, Comp Structures, Autonomous Machines, C/Assembly, Satellite Eng (Grad)

Mission San Jose High School, Fremont, CA (GPA: 4.0/4.0, Valedictorian) 2018-2022

Ohlone College: Multivariable Calculus, Linear Algebra, Discrete Math, C++, Python, Java (GPA: 4.0)

KEY SKILLS

- Strong coding skills: Python, Java, C/C++, Assembly, Machine Learning, PyTorch, TensorFlow, SQL, HTML, CSS, React, JavaScript, Git, AstroImageJ, Swift, ROS 2, Arduino/microcontrollers, PCB design
- Strong Math/Physics background, demonstrated by top honors in national and international competitions
- Thorough, self-disciplined, with clear documentation skills
- Languages: English, French, Romanian, Tamil

TECHNICAL POSITIONS

RESEARCH:

MIT SuperUROP EECS Landsman Undergraduate Research & Innovation Scholar Aug 2024 – present

- Worked in the Shavit Lab at MIT CSAIL to develop a novel model expansion technique that disentangles a network by adding neurons without increasing total non-zero parameters
- Designed and analyzed a combinatorial Boolean framework to explain how reducing polysemantic neuron superposition improves feature disentanglement
- Paper submitted and currently under review at ICLR 2026: https://arxiv.org/abs/2510.04500

MIT CSAIL/BCS Fiete Lab Undergraduate Researcher June – Sept 2025

- Developed a multi-modal ML pipeline to model relationships between naturalistic movie stimuli and neural activity on the BraintreeBank Dataset, integrating SOTA models for vision and audio feature extraction
- Designed and executed model analyses across time–frequency spectrograms of neural data
- Conducted population- and subject-level analyses to identify feature neural encodings and lobe activation patterns

MIT Self-led Eloranta Fellowship Research: Cross-lingual Misinformation Detection June - Sept 2025

- Designed and implemented a Multi-View Canonical Correlation Analysis framework to align semantic representations across five languages for cross-lingual fake news detection
- Developed adaptive correlation-based weighting and ensemble classification pipelines, achieving up to 7.4% accuracy and 7.7% F1-score improvements over single-language baselines on the TALLIP-FakeNews dataset.
- Paper published in the MIT Undergraduate Research Journal (MURJ)

SpaceX Starlink On-Orbit Reliability Software Intern June – Aug 2024

- Developed detection algorithms of solar array debris impacts for risk assessment and anomaly attribution; put an upper bound on MMOD incidence rate
- Characterized fast reheats in satellite burns to justify shortening reheat duration to increase thruster efficiency
- Enabled customized workflows for telemetry data pipelines
- Developed alert bounds for deploy actuator currents to address hardware damage concerns
- Established pipeline and criteria for magnet uniformity study which ruled out magnets as the source of undesired mode-shifting occurrences, a major issue in the propulsion system

MIT CSAIL Learning & Intelligent Systems Group Undergraduate Researcher Feb – May 2024

- Research focused on improving robotic imitation learning pipelines for completion of long-horizon tasks.
- Developed object-centric priors to allow for generalizability to unseen tasks, objects, and camera views

NASA-JPL Machine Learning Research Intern June – Oct 2023

- Built ML recommendation system over LLM-encoded technical anomaly reports from past NASA missions
- Utilized combined knowledge graph (KG) and graph neural net (GNN) architecture and trained over 10,000 reports with link prediction (contrastive, random, MCNS negative edge sampling) and ensemble training
- Presented paper at 2024 SPIE Defense and Commercial Sensing Conference

Summer Science Program (SSP) Student Researcher June – July 2021

- Astrophysics team research with CU Boulder faculty involved observing a near-Earth asteroid and writing Python software to calculate its orbit using Gauss' Method. Results were reported to Minor Planet Center.
- Performed Monte-Carlo simulations to calculate asteroid-Earth collision probability

ACADEMIC POSITIONS:

MIT Teaching Assistant – Machine Learning Course 6.3900 Jan 2024 - present

- Write course materials and assist students with designing and implementing machine learning models
- Lead recitation instruction and office hours to support students with labs, homework, and troubleshooting code
- Responsible for giving weekly "checkoffs", in which I verify concept understanding and coding correctness
- Test-solve, proctor, and grade all class exams

PROJECTS:

Bike Detector Device for the City of Cambridge Feb – May 2025

- Designed and built a radar-based bike detector self-contained embedded system for the City of Cambridge
- Developed the PCBs, 3D-printed the enclosure, wrote the firmware, constructed and deployed 5 devices
- Built a website to receive and aggregate data from all devices for monitoring: http://efpi-24.mit.edu/

The Polyglot Persuader: Unpacking the Influence of Multi-Lingual Conversations on LLMs Sept - Dec 2024

- Examined influence of multi-turn attacks on LLMs for low vs high-resource languages
- Tested the application of Continuous Adversarial Training (CAT) methods to better defend against misinformation. Proposed further techniques for improving model robustness. Paper Link

Computer Aided Diagnosis for Alzheimer's Disease via Generative Adversarial Networks March - May 2024

- Improved performance of a standard CNN to classify brain MRI scans by degrees of dementia. Paper Link
- Performed experiments with four different GAN-augmented CNN models to optimize classification accuracy

Bikes4Newplace: A System for Bike-Sharing and Data Collection March - May 2024

- Designed a hypothetical bike-sharing system considering efficiency of transactions and data privacy
- Managed communications between the bike, docking stations, and central computing facility
- Securely stored data using redundancy algorithms - designed bike reservations system and user ride tracking.

MIT Web Lab – Airport Rideshare App Jan 2023

- Web Development: built a rideshare web app using HTML, CSS, React, Javascript, and Git. Used MongoDB to store and access app data. Coded frontend and backend, built API, called get and post requests to API.
- Deployed app online for use of MIT student body: https://mit-rideshare.herokuapp.com/

AWARDS

- MIT Peter J. Eloranta Summer Undergraduate Research Fellowship Recipient 2025
- MIT Web App Competition: Prize for Most Responsive UI 2023
- International Earth Science Olympiad (IESO): US National Team, 4 gold medals 2021
- Merit Scholarships: Lam Research, Dotcom Monitor's Women in Computing, CA Teachers Association, American Meteorological Society, Society of Exploration Geophysicists 2022-2026

EXTRACURRICULARS

- Memberships: HKN EECS Honor Society, IEEE, SPIE, SWE 2023-present
- US Earth Science Olympiad (USESO) Selection Exam Writer 2021-present
- Summer Science Program Mentor 2022-present
- MIT Science Olympiad Exam Writer & Event Supervisor 2022-present
- MIT Bhangra Choreographer & Competition Team 2022-present
- HKN EECS Honor Society Non-Profits Initiative Director 2025-present

PUBLICATIONS

- Kong, L.*, **Subramanian, I.***, Shavit, Y., Adler, M., Alistarh, D., & Shavit, N. (2025). "Expand Neurons, Not Parameters" (arXiv:2510.04500) [Preprint]. arXiv. [https://doi.org/10.48550/arXiv.2510.04500]
- **Inimai Subramanian**, "Multi-View Canonical Correlation Analysis for Cross-Lingual Fake News Detection," MIT Undergraduate Research Journal (MURJ), vol. 50, Fall 2025.
- Kevin Payumo, **Inimai Subramanian** (Presenter), Thomas Lu, Edward Chow, "Intelligent Knowledge Base Search Tool using Large Language Model and Graph Neural Network," Proc. SPIE 13040, Pattern Recognition and Tracking XXXV, 1304007 (7 June 2024); https://doi.org/10.1117/12.3014075 (Invited)