

# Shreyas Sundara Raman

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| [Website](#) | [Linked In](#) | [Twitter](#) | [Google Scholar](#) | [GitHub](#) |

## Computer Science (Artificial Intelligence & Robotics)

*Goal: building intelligent autonomous agents that can extract task-relevant information from unstructured observations for long-horizon compositional reasoning*

### EDUCATION

**Brown University, MSc. Computer Science**, Rhode Island, U.S.A Sep 2024 - May 2025

GPA: 4.0 / 4.0 | Advisors: Prof. Stefanie Tellex, Prof. George Konidaris

Selected Courses: Research Topics in Self-Supervised Learning

**Brown University, ScB. Computer Science (Honors)**, Rhode Island, U.S. Sep 2019 - Dec 2023

Magna Cum Laude, Senior Prize, GPA: 4.0/4.0 | Advisors: Prof. Stefanie Tellex

Selected Courses: Advanced Topics in Deep Learning, Learning & Sequential Decision Making, Machine Learning

**Dubai International Academy**, Dubai, U.A.E. Sep 2009 - May 2019

International Baccalaureate Diploma Program, IB Exam: 44/45

HL: Mathematics, Physics, Chemistry; SL: English, Spanish B, Geography; Extended Essay in Physics

#### Academic Accomplishments

Valedictorian, Class of 2019: IB DP Examinations (44/45 across 6 subjects)

Academic Achiever of the Year, 11<sup>th</sup> Grade

Valedictorian, Class of 2017: IB MYP Examinations (56/56 across 8 subjects)

#### Additional Academic Background

ACT with writing (34/36)

Subject SATs: Math II SAT (800/800) | Physics SAT (800/800)

July 2018

Aug 2018

### SELECTED PUBLICATIONS

**Skill Wrapper: Skill Abstraction Using Foundation Models.** S. S. Raman\*, Z. Yang\*, B. Hedegaard, S. Tellex, D. Paulius, N. Shah

LEAP @ CoRL 2024; prepared for RSS 2025 | *GPT-4, Claude, AI2Thor, Robotics, ROS*

**LaNMP Benchmark: A Multifaceted Mobile Manipulation Benchmark for Robots.** A. Jaafar, S. S. Raman, Y. Wei, S. Juliani, A. Wernerfelt, I. Idrees, J. X. Liu, S. Tellex

Robot Task Specification @ RSS 2024; LangRob @ CoRL 2024 | *PyTorch, RT1, Spot Robot, AI2Thor*

**CAPE: Corrective Actions from Precondition Errors using Large Language Models.** S. S. Raman, V. Cohen, I. Idrees, E. Rosen, R. Mooney, S. Tellex, D. Paulius,

LangRob @ CoRL 2023; ICRA 2024 | *PyTorch, GPT-3, VirtualHome, Spot Robot*

**Plugging in The Safety Chip: Enforcing Constraints for LLM-driven Robot Agents.** Z. Yang, S. S. Raman, A. Shah, S. Tellex

LangRob @ CoRL 2023; ICRA 2024 | *Python: PyTorch, OpenAI GPT-3, Virtual Home, Spot Robot*

**Tiered Reward Functions: Specifying and Fast Learning of Desired Behavior.** Z. Zhou, S. S. Raman, H. Sowerby, M. L. Littman

RLC 2024 | *OpenAI Gym, PPO, Gym-MiniGrid*

**Categorizing the Visual Environment and Analyzing the Visual Attention of Dogs.** M. H. Pelgrim, S. S. Raman, D. Buchsbaum, T. Serre  
Karen T. Romer Award | CV4Small @ WACV 2024; in-review CogSci Journal | *Tensorflow, CV2, matterport*

## PUBLICATIONS IN PREPARATION

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**Learning Factored & Disentangled Representations for RL using Self-Supervised Learning.** S. S. Raman, Y. Wei, V. Sharma, J. Lin. C. Hsu  
prepared for ICML 2025 | *PyTorch, MiniGrid, stable-baselines, stable-ssl, DreamerV2*

**Visual-language embeddings with improved latent semantics for image editing.** D. Mayo, S. S. Raman, B. Chen, A. Babu, B. Katz  
with Prof. Boris Katz & PhD David Mayo | *PyTorch, Stable Diffusion v1.5, CLIP*

[\* indicates equal contribution]

## WORK, RESEARCH & TEACHING EXPERIENCE

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**Robotics & AI Researcher – Humans 2 Robots Lab** Providence, RI, USA | *June 2024 - Aug 2024*

- Worked on a novel multimodal robotics benchmark and a self-supervised approach to predicate learning

**Business Analyst Intern – McKinsey & Co.** Dubai, UAE | *Jan 2024 - Mar 2024*

- Developed an AI vision, rollout strategy and operating model for the largest B2B Telco in MENA. Forecasted value proposition for different AI whitespaces. Mentors: Gautam Shah, Zaid Gazalleh

**ML Engineer Intern – Wisdomise ([www.wisdomise.io](http://www.wisdomise.io))** Dubai, UAE | *Summer 2022*

*Python: GraphQL, scikitlearn, web3.py, TheGraph Protocol, Uniswap V3*

- Developed models to predict tick-range in BTC/WETH pools and optimize active time / fees earned for liquidity providers. Achieved > 95% accuracy, 98% utility and MSE  $\sim 10^{-4}$ . Mentors: Erfan Varedi, Fardad Zand

**Blockchain Developer – Rario ([www.rario.com](http://www.rario.com)) | \$120M series A)** Gurgaon, India | *Summer 2022*

*Solidity: Smart Contracts, HTML/CSS, Javascript, Hardhat*

- Worked with the CTO to develop a decentralized messaging platform to support P2P NFT exchanges. Progressed from foundations to deploying a full system on Polygon (Mumbai). Mentors: Sunny Bhanot

**Research Intern – Serre Labs: Paleobotany AI Project** Providence, RI, USA | *Fall 2020*

*Python: Selenium, sqlite3, Pandas, Tensorflow, Cycle-GAN*

- Expanded a dataset of mounted leaf species by  $8\times$  (300,000+ images) alongside automated taxonomic filtering. Worked with PhD student on domain transfer between leaf-fossils for synthetic data generation. Data improved classification accuracy to >80%. Mentor: Thomas Serre

**Research Intern – Yahsat Space Lab** Dubai, UAE | *June 2017 - Mar 2019*

- Only highschool student hired. Learned satellite design, energy-budget calculations and orbit efficiencies of CubeSats whilst developing learning resources for future incoming students

**Head Teaching Assistant – Artificial Intelligence, CS1410** Providence, RI, USA | *Fall 2022*

- Led development of a new final project (adversarial zero-sum game) and built automated email systems. Managed 120+ students, 20+ TA staff and mentored 10+ students with projects. Mentor: Prof. Konidaris

**Teaching Assistant – Graduate Data Science Course, DATA1030** Providence, RI, USA | *Fall 2021*

- Mentored 14 grad students with final projects. Held TA hours for 50+ students. Mentor: Prof. Andras Zsom

**Reviewer – LEAP @ CoRL 2024**

*Fall 2024*

**Reviewer – ICRA 2024**

*Fall 2023*

## PROFICIENCY & PROJECTS

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**Python:** *Highly Proficient* | sqlite3, Pandas, matplotlib, sklearn, Kivy, pytorch, tensorflow, functional programming

- Faster-RCNN for traffic sign detection; Pose-Estimation models for American Sign Language; LSTM/GRU for (french-english) translation; semantic parsing natural language to SQL; DQN on CartPole
- Regression and hypothesis testing correlating AirBnB and local housing prices in NYC

**Java:** *Proficient* | multi-threading, JavaFX (applets and AWT)

- Implementing classic games e.g. Tetris, Doodle Jump, Fruit Ninja; Genetic algorithm to learn Flappy Bird
- Visualizing graph and decision-tree algorithms [Dijijkstra, Prim-Jarnik, PageRank] and SeamCarve

**C:** *Moderately Proficient* | multithreading, signals, signal safety, I/O registers [stdin, stdout], read-write locks

- Bash Unix shell that parses/executes commands [pwd, ls, chdir etc.] with appropriate error-handling
- Database operated using Malloc: allowing concurrent clients to safely add, query, sort, remove and print (using server socket model); done with signal handling and read-write locks

**HTML, CSS & Python-Django:** *Highly Proficient* | CSS stylesheet; slider, gallery, image effects

- Back-end web server and storage: SQL database connection (with Django) and standard queries (editing, conditionals, join-operation) for SQL data display in HTML, loading and saving files with Django

**Javascript:** *Moderately Proficient* | d3 + SVG elements: transformation, tool tips; importing csv data

- Building a stylistic data dashboard (using summary tooltips) behind an HTML page with interactive text/button inputs to filter pie-charts and perform scatter point regression in real-time [with animation]

**Hardware & Robotics:** *Moderately Proficient* | python, C++, spot-sdk, ROS, ClipSeg

- Drone using RaspberryPi and ROS with: PID controller for autonomous altitude stabilization, optical flow, visual SLAM localization using Unscented Kalman-Filters
- Numeric “key-pad lock” with an Arduino UNO supporting passcode resets, 3 max passcode tries, watchdog timer for idle auto-locking, variable passcode lengths and visual audio feedback signals
- Integrated ClipSeg with a Spot robot for grasping arbitrary objects in an observed scene specified in natural language with modifiers e.g. “the large green cup”, “something healthy to eat”

**MATLAB & SolidWorks:** *Proficient* | systems of equations, graphical outputs, image imports, 3D printing

- Kinematically accurate predator-prey simulation; COVID-19 SIR model simulation
- Designed 3D printed components for bridge/truss structures and a bottle-opener

**Solidity & Smart Contracts:** *Proficient* | contract creation and deployment, keccak256, integration with hardhat

## AWARDS & INTERESTS

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<b>Meiklejohn Mentor</b>	Selected as peer counselor to advise incoming freshmen (Class of 2024)
<b>Brown Space Engineering</b>	Avionics and manufacturing divisions. Learned to use circuitry softwares (EAGLE) and develop logic gate design for satellite payloads
<b>Chess</b>	Founder of high school chess club; Coached 25+ members to win 3 consecutive inter-schools; 2nd place in Ivy League Fall 2022
<b>STEMS Tutoring Program</b>	Tutored physics and SAT preparation at Hope High School (Providence) weekly
<b>Math Acceleration Group</b>	Initiated a program to mentor 20+ juniors to meet their HL Math aspirations
<b>Poetry</b>	Published 25 poem anthology influenced by events impacting my childhood
<b>Duke of Edinburgh Award</b>	DoE Silver Award
<b>Founder, Inspire Science</b>	Founded a highschool STEM club with publications/events promoting scientific thinking
<b>Languages</b>	English (native), Spanish (professional working), Hindi (limited working), Tamil (native), Arabic (limited working), French (basic), Japanese (basic)
<b>Breakthrough Junior Challenge</b>	Submitted an educational video to Khan Academy’s 2016 challenge that achieved top 10% among 3000+ entries in 131 countries