Shreyas Sundara Raman

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Education

2019-2025 **Brown University**, *Sc.B. (Honors) & 5th-Year MS.c. in CS*
Magna Cum Laude | GPA: 4.0/4.0.

- Advisors: Prof. Stefanie Tellex, Prof. George Konidaris
- Relevant Coursework: Research Topics in Self-Supervised Learning, Advanced Topics in Deep Learning, Learning & Sequential Decision Making, Machine Learning

Selected Publications

Skill Wrapper: Skill Abstraction Using Foundation Models,
LEAP @ The Conference on Robot Learning (CoRL), 2024,
S. S. Raman*, Z. Yang*, B. Hedegaard, S. Tellex, D. Paulius, N. Shah.

LaNMP Benchmark: A Multifaceted Mobile Manipulation Benchmark for Robots,
DGR @ Robotics: Science and Systems (RSS), 2024,
A. Jaafar, **S. S. Raman**, Y. Wei, S. Juliani, A. Wernerfelt, I. Idrees, J. X. Liu, S. Tellex.

CAPE: Corrective Actions from Precondition Errors using LLMs,
International Conference on Robotics and Automation (ICRA), 2024
FMDM @ The Conference on Neural Information Processing Systems (NeurIPS), 2022,
S. S. Raman, V. Cohen, I. Idrees, E. Rosen, R. Mooney, S. Tellex, D. Paulius.

Plugging in The Safety Chip: Enforcing Constraints for LLM-driven Robot Agents,
International Conference on Robotics and Automation (ICRA), 2024
LangRob @ The Conference on Robot Learning (CoRL), 2023,
Z. Yang, **S. S. Raman**, A. Shah, S. Tellex.

Tiered Reward Functions: Specifying and Fast Learning of Desired Behavior,
The Reinforcement Learning Conference (RLC), 2024,
Z. Zhou, **S. S. Raman**, H. Sowerby, M. L. Littman.

Categorizing the Visual Environment and Analyzing the Visual Attention of Dogs,
CV4Smalls @ Winter Conference on Applications of Computer Vision (WACV), 2024 (Acceptance),
M. H. Pelgrim, **S. S. Raman**, D. Buchsbaum, T. Serre redKaren T. Romer Award.

Pre-Prints

Learning Factored & Disentangled Representations for RL using SSL,
for The International Conference on Machine Learning, 2025,
S. S. Raman, Y. Wei, V. Sharma, J. Lin. C. Hsu .

Visual-language embeddings with improved latent semantics for image editing,
for The International Conference on Machine Learning, 2025,
D. Mayo, **S. S. Raman**, B. Chen, A. Babu, B. Katz.

Research Experience

2022-2024 **Student Researcher with Prof. Stefanie Tellex**,
Humans 2 Robots Lab (H2R), Brown University.

- Research was on grounding and composing formal language for high-level planning and symbolic reasoning, leading to 4 publications (1 first-author and 1 co-first author)
- Mentored 2 undergrads on their theses using LLMs for hierarchical planning
- Contributed to a set of open source skill-libraries on the SPOT robot for future students to build upon
- Hosted open houses, outreached to research advocacy groups, and introduced PhD TA hours to make the lab more accessible
- Tools & Models Used: SPOT-SDK, SPOT-GraphNav, ROS, CLIPSeg, GPT-3.5, VirtualHome, Prolific, RT1, ALFRED

2022-2024 **Student Researcher with Prof. George Konidaris**,
Intelligent Robots Lab (IRL), Brown University.

- Research was on building task-relevant state and skill abstractions from 'swampy' observations to eliminate reliance on predefined abstractions by human-experts, leading to 2 publications (both first-author)
- Collaborated with Prof. Randall Balestriero on leveraging self-supervised learning for disentangled state representations
- Tools & Models Used: AI2Thor, Habitat 3.0, MiniGrid, StableBaselines3

2023-2024 **Student Researcher with Prof. Michael L. Littman**,
Brown Integrative General Artificial Intelligence (BigAI), Brown University.
- Research was on creating an environment-independent reward structure that assigns states into non-overlapping reward 'tiers' that guarantees pareto-optimality between goal visitation and obstacle collisions
- Tools & Models Used: PyTorch, MiniGrid, StableBaselines3

2020-2021 **Student Researcher with Prof. Thomas Serre**,
Serre Labs, Brown University.
- Research analyzed the visual fixation of dogs in natural settings using egocentric images, finding that dogs' visual attention was better modeled by object semantics than pixel-level saliency
- Expanded and taxonomically filtered a dataset of mounted leaf species by $8\times$ (300k images). Supported PhD students style transfer between leaf-to-fossils for synthetic data generation, improving model accuracy to $> 80\%$
- Supported a Masters student thesis on predicting generalized periodic discharge (GPD) signals for early stroke detection
- Tools & Models Used: Selenium, sqlite3, StyleGAN, MaskRCNN, MS-COCO, Head-Mounted Camera

Teaching and Mentorship

2022 **Head Teaching Assistant**, *Brown University*.
- Artificial Intelligence CS1410 | Prof. George Konidaris
- Coordinated course operations for 120 students and supervised a team of 20 teaching assistants
- Provided project mentorship to 10 students, with all mentees achieving A in final grades

2022 **Teaching Assistant**, *Brown University*.
- Hands-on Data Science DATA1030 | Prof. Andras Zsom
- Mentored 14 grad students with final projects and held TA hours for 50 students

2020 **Meiklejohn Mentor**, *Brown University*.
- Selected as peer counselor to advise incoming freshmen

2019 **STEMS Tutor**, *Hope High School, Providence USA*.
- Tutored 10 local high school students weekly from challenging backgrounds for the physics and math SAT

2019 **IB Maths Tutor**, *Dubai International Academy, Dubai UAE*.
- Initiated a program to mentor 20 high school students to meet their IB Higher Level Math aspirations

Academic Service

2024 **Reviewer**, *Learning Effective Abstractions for Planning @ The Conference on Robot Learning (CoRL)*.

2024 **Reviewer**, *International Conference on Robotics and Automation (ICRA)*.

Industry Experience

Winter 2023 **AI Strategy Intern @ McKinsey & Co.**, *Dubai UAE*,
Mentored by Gautam Shah, Zaid Ghazaleh.
- Developed a USD 2 Billion AI rollout strategy and operating model for the largest B2B Telco in MENA
- Forecasted a value proposition for novel AI whitespaces yet to be explored
- Developed 20 strategic programs and 100 KPIs that leverage AI to achieve overall financial goals

Summer 2022 **ML Engineer Intern @ Wisdomise**, *Dubai UAE*,
Mentored by Erfan Varedi, Dr. Fardad Zand.
- Evaluated regression models to predict tick-range in UniswapV3 BTC/WETH pools and optimize active time/fees earned for liquidity providers
- Best model achieved $>$ 95% accuracy, 98% utility and MSE 10^{-4}
- Tools & Models: GraphQL, web3.py, TheGraph Protocol, UniswapV3

Summer 2022 **Blockchain Developer @ Rario**, *Gurgaon India*,
Mentored by Ankit Wadhwa.
- Worked with the CTO to develop an experimental decentralized messaging platform for P2P NFT exchanges
- Progressed from foundations to deploying a full system on Polygon (Mumbai)
- Tools & Models: Solidity, Hardhat, Smart Contracts, HTML/CSS, Javascript, React, Polygon

Awards

2024 **Brown CS Senior Prize**, Brown University Dept. of Computer Science.

2024 **Sigma Xi**, *Inducted Member*, Scientific Research Honors Society.

2022 **2nd Place in Inter-Ivy Chess Championships**, Collegiate Chess League.

2021 **Karen T. Romer Award (Research)**, Brown University.

2019 **Valedictorian**, Diploma Program, Dubai International Academy.