

SRIKAR BABU GADIPUDI

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

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EDUCATION

• Indian Institute of Technology Madras

Jul 2021 - May 2025

Bachelor of Technology in Electrical Engineering; Minor in Artificial Intelligence and Machine Learning

◦ CGPA: **9.63/10.00**

◦ Department Rank: **3 out of 154** students

PUBLICATIONS

- [1] **Srikar Babu Gadipudi**, Rachel Kalpana Kalaimani. “Reinforcement Learning for Dynamic Pricing under Competition for Perishable Products.” In 2024 28th International Conference on System Theory, Control and Computing (ICSTCC). IEEE, 2024. (**Best Student Paper Award**). [↗](#)
- [2] **Srikar Babu Gadipudi**, Srujan Deolasee, Siva Kailas, Wenhao Luo, Katia Sycara, Woojun Kim. “OFFRIPP: Offline RL-based Informative Path Planning.” Submitted to 2025 IEEE International Conference on Robotics and Automation (ICRA). IEEE, 2025. [↗](#)
- [3] Richa Verma, **Srikar Babu Gadipudi**, Srinarayana Nagarathinam, Harshad Khadilkar. “ORCHID: Offline RL for Control of HVAC in Buildings using Historical and Low-Fidelity Simulation Data.” In 2024 4th International Conference on AI ML Systems (In press).

RESEARCH EXPERIENCE

• Robotics Institute Summer Scholar Program (RISS)

Jun 2024 - Sep 2024

Mentor: *Prof. Katia Sycara, AART Lab, Carnegie Mellon University*

Pittsburgh, USA

- Developed OFFRIPP, an offline RL-based IPP solver, optimizing information gain without environment interactions.
- Validated in simulations and real-world experiments, demonstrating adaptability and improved decision-making.
- Submitted work to ICRA 2025 and presented at the RISS 2024 poster presentation - [[Paper](#), [Poster](#), [Video](#)].

• Research Scholar at AFAR Laboratory

Dec 2023 - May 2024

Mentor: *Prof. Hatice Gunes and Dr. Micol Spitale, AFAR Laboratory, University of Cambridge*

Remote

- Analyzed causal links between robot actions and human mental well-being using structural equation modeling.
- Enhanced therapeutic effectiveness by identifying specific pathways of robot actions impacting human emotions.
- Conducted macro and micro analysis to capture therapy variations between sessions and robot interactions.

• Optimal Dynamic Pricing using Reinforcement Learning

Jul 2023 - Jun 2024

Mentor: *Prof. Rachel Kalpana Kalaimani, IIT Madras*

Chennai, India

- Developed a dynamic pricing model using RL to optimize revenue in competitive duopoly with perishable products.
- Modeled customer behavior by incorporating factors such as product quality and perishability in addition to price.
- Presented our work at the 28th International Conference on System Theory, Control and Computing - [[Paper](#)].

• Policy Newton Algorithm for Reinforcement Learning

Dec 2023 - May 2024

Mentor: *Prof. Prashanth L.A., IIT Madras*

Chennai, India

- Integrated Newton step into policy gradient algorithms to enhance convergence by avoiding saddle points.
- Leveraged approximate Hessian of the reward function to establish convergence to second-order stationary points.
- Achieved faster convergence to optimal policy compared to naive policy gradient algorithms - [[Report](#)].

• Summer Internship at Tata Consultancy Services Research

May 2023 - Jul 2023

Mentor: *Dr. Harshad Khadilkar, TCS Research*

Chennai, India

- Designed ORCHID, an offline RL-based control pipeline in HVAC systems for improved energy efficiency.
- Inspired by Implicit Q-learning algorithm, trained offline policy with historical and low-fidelity simulation data.
- Conference paper submitted and accepted at the 2024 4th International Conference on AI-ML Systems.

• Multi-agent Reinforcement Learning from Game-Theoretic Perspective

Nov 2024 - Present

Mentor: *Prof. Katia Sycara, AART Lab, Carnegie Mellon University*

Remote

- Developing game-theoretic MARL framework to model agent interactions in dynamic, non-stationary environments.
- Exploring multiple equilibria in general-sum games leveraging Policy Space Response Oracles (PSRO).

• Chitti: Reinforcement Learning for Virtual Home Tasks

May 2022 - Mar 2023

Club: *Analytics Club, Centre for Innovation, IIT Madras*

Chennai, India

- Developed RL agent capable of performing household tasks in 3D simulated environment ([AI2THOR](#)).
- Implemented various RL and deep RL algorithms in various environments, including OpenAI Gym and MuJoCo.

TECHNICAL PROJECTS

- **CS6700: Reinforcement Learning Course Project** Jan 2024 - May 2024
Instructor: Prof. Balaraman Ravindran, IIT Madras | [GitHub](#) Chennai, India
 - Implemented conventional RL and deep RL algorithms including SARSA, DQN, DDQN, DDPG, SAC, and PPO.
 - Programmed Hierarchical RL algorithms—SMDP and Intra-option learning; Model-based-RL algorithms—Dyna-Q.
- **CS6910: Fundamentals of Deep Learning Course Project** Jan 2024 - May 2024
Instructor: Prof. Chandra Sekhar C, IIT Madras | [GitHub](#) Chennai, India
 - Developed and compared optimization techniques for image classification, analyzing convergence and accuracy.
 - Built image captioning pipelines using CNN-based encoders and RNN-based decoders with BLEU score evaluation.
- **CS6046: Multi-armed Bandits Course Project** Jul 2024 - Nov 2024
Instructor: Prof. Srinivas Reddy Kota, IIT Madras | [GitHub](#) Chennai, India
 - Explored collaborative best-arm identification in multi-agent bandit systems using UCB and FYL policies.
 - Analyzed theoretical bounds and simulations on star and general networks, demonstrating exponential error decay.

TEACHING EXPERIENCE

- **Teaching Assistant for Control Engineering** Jul 2024 - Nov 2024
Department of Electrical Engineering, IIT Madras
 - Undergraduate course EE3004: Control Engineering; evaluated examination scripts and conducted tutorial sessions.
- **Avanti Mentor** Apr 2021 - Nov 2022
Avanti Fellows
 - Provided mentorship and guidance to underprivileged students during their IIT entrance examination preparation.

LEADERSHIP AND EXTRACURRICULAR

- **Head of AI Club** Apr 2023 - May 2024
AI Club, Centre for Innovation, IIT Madras
 - Led a diverse team of 60 AI enthusiasts and competitors in the development of innovative AI solutions.
 - Organized seminars and workshops with industry experts to educate students about the advancements in AI.
- **Coordinator for the Analytics Club** May 2022 - Mar 2023
Analytics Club, Centre for Innovation, IIT Madras
 - Conducted summer school sessions and workshops on AI and Machine Learning for over 800 students nationwide.
 - Hosted inaugural edition of Convolve, an Inter IIT AI/ML Hackathon powered by Cisco, promoting collaboration.
- **Core Member of the EE Research Club** Jun 2024 - Present
EE Research Club, IIT Madras
 - Leading 40-member EE Research Club focused on cultivating a research mindset and building a scientific community.
 - Ideated, organized, and hosted events to foster research engagement like socials, professor interviews, tech talks, etc.
- **RoboLaunch: Come Explore Robotics!** Jun 2024 - Aug 2024
RoboLaunch, Carnegie Mellon University
 - Managed technical and logistical support for the RoboLaunch 2024 series, ensuring seamless presentations.

RELEVANT COURSEWORK

- **Artificial Intelligence and Machine Learning:** Reinforcement Learning; Multi-armed Bandits; Pattern Recognition and Machine Learning; Fundamentals of Deep Learning
- **Controls and Robotics:** Linear Dynamical Systems; Control Engineering
- **Mathematics:** Probability, Statistics, and Stochastic Processes; Multivariable Calculus; Series and Matrices

SKILLS

Programming Languages: Python, C, C++, MATLAB

Frameworks and Tools: PyTorch, Tensorflow, Ray, Git, Wandb, Gymnasium, MuJoCo, IBM SPSS Amos, Qiskit

ACHIEVEMENTS

- Received the **Best Student Paper Award** for the paper “Reinforcement Learning for Dynamic Pricing under Competition for Perishable Products” at the ICSTCC 2024 conference, among 120 participants.
- Selected as one of 40 scholars worldwide for the **Robotics Institute Summer Scholars (RISS)** Program at the Robotics Institute, Carnegie Mellon University.
- Ranked **3 out of 154** students in Electrical Engineering, IIT Madras.
- Secured **All India Rank 960** among 200,000 plus candidates in JEE Advanced 2021.
- Secured **All India Rank 1433** among 1,000,000 plus candidates in JEE Main 2021.
- Secured **179th rank** out of 300,000 plus candidates in TS EAMCET 2021.
- Secured **bronze medal** in the Men’s Schroeter Basketball Tournament.