

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: **9.58/10.00** | 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 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 Internship 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 across sessions and robot interactions.

• Summer Internship at Tata Consultancy Services Research

May 2023 - Nov 2023

Mentor: [Dr. Harshad Khadilkar](#), [TCS Research](#)

Chennai, India

- Designed ORCHID, offline RL-based control architecture for HVAC systems, resulting in improved energy efficiency.
- Implemented Implicit Q-learning algorithm, training with low and high-fidelity data, optimizing HVAC control.
- Conference paper submitted and accepted at the 2024 4th International Conference on AI-ML Systems.

PROJECTS

• Policy Newton Algorithm for Reinforcement Learning

Dec 2024 - May 2024

Mentor: [Prof. Prashanth L.A.](#), IIT Madras

Chennai, India

- Integrated Newton steps into policy gradient algorithms to enhance convergence by avoiding saddle points.
- Leveraged the Hessian of the reward function to establish convergence to second-order stationary points.
- Achieved superior performance over naive policy gradient algorithms by incorporating Newton techniques - [[Report](#)].

• 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.
- Outperformed existing approaches by implementing the deep reinforcement learning algorithm, Soft Actor-Critic.
- Published at the 28th International Conference on System Theory, Control and Computing - [[Paper](#)].

• 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](#)).
- Employed CLIP techniques to process and transform user inputs into agent-readable format, enhancing interaction.
- Implemented various RL and deep RL algorithms across diverse environments, including OpenAI Gym and MuJoCo.

• Research on Quantum Computing and Quantum Information

Oct 2022 - Jan 2023

Mentor: [Prof. Krishna Jagannathan](#), IIT Madras

Chennai, India

- Gained proficiency in concepts such as qubit, superposition, and entanglement, essential for coding quantum circuits.
- Explored quantum algorithms, including Deutsch-Josza, Bernstein-Vazirani, Grover's, and Shor's algorithm.
- Developed 2×2 Sudoku solver and Triangle Finding solver using Grover's algorithm implemented in Qiskit - [GitHub](#).

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
- **Programming:** Data Structures and Algorithms; Numerical Methods; Applied Programming Lab

SKILLS

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

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

Microcontrollers: Arduino, Raspberry Pi, ARM, AVR

TEACHING EXPERIENCE

- **Teaching Assistant for Control Engineering** *Jul 2024 - Present*
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 JEE examination preparation.
 - Conducted doubt-clearing sessions and designed sample JEE Main and Advanced papers to enhance their practice.

LEADERSHIP AND EXTRACURRICULAR

- **Team Lead 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.
 - Supervised six projects across various domains, including autonomous driving, airfoil design, and image generation.
 - Organized seminars and workshops with industry experts to enhance knowledge in AI and machine learning.
- **Coordinator for the Analytics Club** *May 2022 - Mar 2023*
Analytics Club, Centre for Innovation, IIT Madras
 - Conducted summer school sessions on AI and Machine Learning for over 800 students nationwide.
 - Curated workshop on Quantum Machine Learning, covering topics from basic concepts to advanced algorithms.
 - 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!** *Jul 2024 - Aug 2024*
RoboLaunch, Carnegie Mellon University
 - Provided technical and logistical support for all presentations in the RoboLaunch 2024 series.
 - Coordinated with professors both in-person and online to ensure smooth execution of presentations.
- **Saathi Mentor** *Nov 2022 - May 2023*
Student Mentorship Cell, IIT Madras
 - Appointed as one of the 40 Department Mentors under Student Mentorship Cell, IIT Madras.
 - Guided freshmen in navigating academic and non-academic challenges during their first year of college.

ACHIEVEMENTS

- Received the **Best 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.