

# Rohan Patil

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## EDUCATION

University of California San Diego	California, USA
Ph.D. Student, Computer Science (Advisor: Henrik Christensen)	Sept. 2023 – Mar. 2027 (Expected)
M.S. Computer Science and Engineering, CGPA 4.0	Sept. 2021 – June. 2023
Indian Institute of Technology Gandhinagar	Gandhinagar, India
B. Tech, Computer Science and Engineering, CPI 9.55/10 - INSTITUTE SILVER MEDAL	2017 – 2021

## PROFESSIONAL EXPERIENCE

Cruise LLC	San Francisco, CA (Remote)
PHD INTERN, AI ROBOTICS	July – Sept. 2024
<ul style="list-style-type: none"><li>Built an unsupervised pipeline to surface edge-case road events from AV logs, supporting edge-case discovery</li><li>Developed a VAE variant using Cruise's frozen internal perception model embeddings to cluster similar events</li><li>Evaluated the model's ability to zero-shot label road events in an unsupervised manner</li><li>Created PoC for end-to-end data extraction and training pipeline using Google BigQuery for scalable training and inference</li><li>Introduced LSH for efficient event indexing in standard databases, eliminating the need for specialized vector databases</li></ul>	
The Trade Desk Inc.	Irvine, CA
SOFTWARE ENGINEER INTERN	June – Sept. 2022
<ul style="list-style-type: none"><li>Built a scalable end-to-end ML pipeline (Scala + Spark) to estimate per-customer bid prices for real-time ad bidding</li><li>Designed per-advertiser regression models to predict conversion probability and user monetary value</li><li>Developed a distributed implementation to handle highly skewed advertiser data, for ingestion, training and evaluation.</li><li>Defined performance metrics and built data pipelines to generate actionable insights for optimized bidding strategies</li></ul>	
Gryt India Pvt Ltd	Remote
SOFTWARE ENGINEERING INTERN	May – Oct. 2020
<ul style="list-style-type: none"><li>Designed and implemented backend API modules for an exercise management system using Django</li><li>Developed a video-based exercise step detection algorithm using pose estimation techniques</li><li>Deployed Amazon SageMaker solutions on AWS for rapid experimentation and iteration of the core pose detection model</li></ul>	

## RESEARCH EXPERIENCE

University of California, San Diego	San Diego, California
GRADUATE STUDENT RESEARCHER	2022 – 2026
<ul style="list-style-type: none"><li>GHOST: Scalable self-supervised pipeline for trajectory estimation from monocular dashcam videos</li><li>GAMMS: A scalable graph-based multi-agent simulator, enabling fast evaluation of agent behaviors</li><li>MaD: Multi-view merging and disentanglement algorithm for sample-efficient, robust robotic manipulation policies</li><li>InfoMARL: Attention-based MARL method to enable coordinated multi-agent behavior with full parameter sharing</li><li>BOIL: A scalable method using environment structure to guide multi-agent strategies, outperforming heuristics</li></ul>	
Indian Institute of Technology Gandhinagar	Gandhinagar, India
UNDERGRADUATE STUDENT RESEARCHER	2018 – 2021
<ul style="list-style-type: none"><li>Evaluated capsule networks on routing and squash functions, providing insights to improve performance</li><li>Analyzed how urban travel patterns influenced the spread of SARS-CoV-2 in realistic city settings</li><li>Survey on Data-Driven Online Advertising: Reviewed user profiling, audience segmentation, real-time bidding, and privacy</li><li>Developed an approximate detection method using locality sensitive hashing for gravitational wave detection</li></ul>	

## SELECTED PUBLICATIONS

• Abdulaziz Almuzairee, <b>Rohan Patil</b> , Dwait Bhatt, Henrik I. Christensen <i>Merging and Disentangling Views in Visual Reinforcement Learning for Robotic Manipulation</i>	CoRL	2025
• <b>Rohan Patil</b> , Alexander Langley, Henrik Christensen <i>Scaling up multi-agent patrolling in urban environments.</i>	Proc. of SPIE Vol. 12544	2023
• <b>Rohan Patil</b> , Raviraj Dave, Harsh Patel, Viraj M Shah, Deep Chakrabarti, Udit Bhatia <i>Assessing the Interplay between travel patterns and SARS-CoV-2 outbreak in realistic urban setting</i> <i>Applied Network Science</i> 2021		
• Rithwik Kukunuri, Anup Aglawe, Jainish Chauhan, Kratika Bhagtni, <b>Rohan Patil</b> , Sumit Walia, Nipun Batra <i>EdgeNILM: Towards NILM on Edge devices</i>	BuildSys	2020

# TECHNICAL SKILLS

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**PROGRAMMING** Python, C/C++, L<sup>A</sup>T<sub>E</sub>X, Verilog, Rust, Go, SQL, Scala

**WEB DEVELOPMENT** Django, CSS, HTML5, JavaScript, GraphQL

**LIBRARIES** PyTorch, TensorFlow, Numpy, Pandas, Jupyter, Scipy, ROS

## OPEN SOURCE PROJECTS

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- GAMMS: GRAPH BASED ADVERSARIAL MULTIAGENT MODELLING SIMULATOR - *git:gammssim/gamms* 2025
  - Scalable graph-based multi-agent simulation framework for rapid environment and agent prototyping
  - Flexible API for defining agents, dynamics, and adversarial interactions
  - Lightweight design with built-in visualization and ML integration support
- MANAGED: AUTOMATE GPU ALLOCATION FOR PYTORCH - *git:bridgesign/managed* 2023
  - Provides ‘ManagedTensor’, a PyTorch-compatible tensor class that automates multi-GPU allocation and movement
  - Transparently handles device placement and tensor transfers between CPU and GPUs, reducing management
  - Enables parallel experiments on multi-GPU machines without explicit device specification for each tensor