

# 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

- Built an unsupervised pipeline to surface edge-case road events from AV logs, supporting edge-case discovery
- Developed a VAE variant using Cruise's frozen internal perception model embeddings to cluster similar events
- Evaluated the model's ability to zero-shot label road events in an unsupervised manner
- Created PoC for end-to-end data extraction and training pipeline using Google BigQuery for scalable training and inference
- Introduced LSH for efficient event indexing in standard databases, eliminating the need for specialized vector databases

The Trade Desk Inc.

Irvine, CA

SOFTWARE ENGINEER INTERN

June – Sept. 2022

- Built a scalable end-to-end ML pipeline (Scala + Spark) to estimate per-customer bid prices for real-time ad bidding
- Designed per-advertiser regression models to predict conversion probability and user monetary value
- Developed a distributed implementation to handle highly skewed advertiser data, for ingestion, training and evaluation.
- Defined performance metrics and built data pipelines to generate actionable insights for optimized bidding strategies

Gryt India Pvt Ltd

Remote

SOFTWARE ENGINEERING INTERN

May – Oct. 2020

- Designed and implemented backend API modules for an exercise management system using Django
- Developed a video-based exercise step detection algorithm using pose estimation techniques
- Deployed Amazon SageMaker solutions on AWS for rapid experimentation and iteration of the core pose detection model

## RESEARCH EXPERIENCE

University of California, San Diego

San Diego, California

GRADUATE STUDENT RESEARCHER

2022 – 2026

- GHOST: Scalable self-supervised pipeline for trajectory estimation from monocular dashcam videos
- GAMMS: A scalable graph-based multi-agent simulator, enabling fast evaluation of agent behaviors
- MaD: Multi-view merging and disentanglement algorithm for sample-efficient, robust robotic manipulation policies
- InfoMARL: Attention-based MARL method to enable coordinated multi-agent behavior with full parameter sharing
- BOIL: A scalable method using environment structure to guide multi-agent strategies, outperforming heuristics

Indian Institute of Technology Gandhinagar

Gandhinagar, India

UNDERGRADUATE STUDENT RESEARCHER

2018 – 2021

- Evaluated capsule networks on routing and squash functions, providing insights to improve performance
- Analyzed how urban travel patterns influenced the spread of SARS-CoV-2 in realistic city settings
- Survey on Data-Driven Online Advertising: Reviewed user profiling, audience segmentation, real-time bidding, and privacy
- Developed an approximate detection method using locality sensitive hashing for gravitational wave detection

## SELECTED PUBLICATIONS

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

## TECHNICAL SKILLS

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<b>PROGRAMMING</b>	Python, C/C++, $\text{\LaTeX}$ , Verilog, Rust, Go, SQL, Scala
<b>WEB DEVELOPMENT</b>	Django, CSS, HTML5, JavaScript, GraphQL
<b>LIBRARIES</b>	PyTorch, TensorFlow, Numpy, Pandas, Jupyter, Scipy, ROS

## OPEN SOURCE PROJECTS

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- **GAMMS: GRAPH BASED ADVERSARIAL MULTIAGENT MODELLING SIMULATOR** - *git:gammsim/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