

Education

University of California San Diego

California, USA

M.S. COMPUTER SCIENCE AND ENGINEERING (GPA: 4/4)

2022 - 2024

Relevant Coursework: Probabilistic Reasoning & Learning, Search and Optimization, Graduate Networked Systems

Indian Institute of Technology Gandhinagar

Gandhinagar, India

B.TECH. WITH HONOURS IN COMPUTER SCIENCE AND ENGINEERING (CPI: 9.01/10) [[Transcript](#)]

2018 - 2022

Technical Knowledge

Programming Languages: Python, Go, C, C++, SQL, Verilog, JavaScript, HTML, CSS, SLURM Scripting**Tools:** Git, PyTorch, Tensorflow, MATLAB, Docker, ROS, OpenCV, Django, \LaTeX , Node.js (Beginner), Intel OpenVINO, Autodesk Inventor

Publications

Zeel Patel, **Harsh Patel***, Palak Purohit*, Shivam Sahni*, Nipun Batra, **Accurate and Scalable Gaussian Processes for Fine-grained Air Quality Inference**, Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI (2022)) [[doi](#)]**Harsh Patel**, Xulang Zhang, Qian Liu **Enhancing Negation Scope Detection using Multitask Learning**, 2021 International Conference on Data Mining Workshops, (ICDMW (2021)) [[doi](#)]**Harsh Patel***, Praveen Venkatesh*, Shivam Sahni*, Varun Jain*, Mrinal Anand, Mayank Singh, **Program Synthesis: Does Feedback Help?**, ACM India 5th Joint International Conference on Data Science and Management of Data (CoDS-COMAD (2022)) [[doi](#)][[poster](#)]Rohan Patil*, Raviraj Dave*, **Harsh Patel**, Viraj Shah, Deepayan Chakrabarti and Udit Bhatia, **Assessing the interplay between travel patterns and SARS-CoV-2 outbreak in realistic urban setting**, (*Applied Network Science* 6, 4, SpringerOpen(2021)) [[doi](#)]

Relevant Experiences

Nanyang Technological University

Singapore

RESEARCH INTERN | MENTOR: PROF. ERIK CAMBRIA

May. 2021 - Jul. 2021

- Developed a *deep multitask learning* framework that enhances the performance of Negation Scope Detection using POS tagging as an auxiliary task. Used *transformers* and *neural tensor fusions* to leverage the inter-task correlations. Achieved **5%** improvement over the baseline models.

Mysuru Consulting Group (MCG AI)

Mysuru, India

MACHINE LEARNING INTERN | MENTOR: MR. GAUTAM RAMACHANDRA (CTO)

Apr. 2020 - Aug. 2020

- Stock market excess return prediction using complex Recurrent Neural Networks like Bidirectional Long Short-Term Memory networks (LSTMs)

EY (Ernst & Young)

Ahmedabad, India

WINTER INTERN | MENTOR: MR. RAJIV BHATT (ASSOCIATE PARTNER)

Dec. 2019 - Feb. 2020

- Designed a predictive quantitative model for evaluating an industry's attractiveness using Porter's Five Forces Framework and SWOT Analysis.

Projects

Motion Planning, Localization and Mapping using Qualcomm Robotics RB5 platform

UC San Diego

MENTOR: PROF. HENRIK CHRISTENSEN

Sept. 2022 - Present

- Implemented fundamentals of robotics on MegaBot mBots with on-board *Qualcomm RB5 platform*. Covered several aspects including kinematics, vision & perception, localization, control and motion planning for the robot.

Accurate and Scalable Gaussian Processes for Fine-grained Air Quality Inference [GitHub Repo](#)

IIT Gandhinagar

MENTOR: PROF. NIPUN BATRA, SUSTAINABILITY LAB

Aug. 2021 - May 2022

- Implemented stationary & non-stationary probabilistic Gaussian Process models for urban air quality estimation - as spatio-temporal regression. Our uncertainty-aware approach outperformed conventional baselines on standard air quality datasets.
- Prepared with the team an [Intuitive Explorable on Non-stationary Gaussian Process](#).

Exploring Safe Reinforcement Learning for Autonomous Driving [GitHub Repository](#)

IIT Gandhinagar

MENTOR: PROF. NIPUN BATRA

Jan. 2021 - May. 2021

- Explored the applicability of safety algorithms (eg. Constrained Policy Optimization) to custom environments like Highway environment.

Explainability Methods for Graph Neural Networks - Super-pixel Image classification [Report](#)

IIT Gandhinagar

MENTOR: ANIRBAN DASGUPTA

Jan. 2022 - May. 2022

Multi-Threaded Repository Synchronizer [GitHub Repository](#)

IIT Gandhinagar

MENTOR: PROF. NIPUN BATRA

Oct. 2020 - Dec. 2020

Mini-Face: Miniature prototype of Facebook [GitHub Repository](#)

IIT Gandhinagar

MENTOR: PROF. SAMEER KULKARNI

Oct. 2020 - Dec. 2020

Honors and Community Engagement

- 2022 **Awarded Shri Onkarprasad Tandon Scholarship**, for academic performance at IITGN (\$1250)
- 2022 **Cash Award for Journal Publication**, Scheme for IITGN Students (\$140)
- 2021 **Teaching Assistant - Machine Learning and Natural Language Processing courses**, IITGN
- 2021 **Pull Request (PR) accepted for PyMC**, Open source GitHub package for Bayesian statistical modeling
- 2018 **Joint Entrance Exam (JEE) Performance Reward**, All-India-Rank 143 out of 1.13 million candidates (\$440)