

# Rohan Patil

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## EDUCATION

University of California San Diego

M.S. Computer Science and Engineering Student

California, USA

Presently Pursuing

Indian Institute of Technology Gandhinagar

B. Tech, Computer Science and Engineering, CPI 9.55/10

Institute Silver Medal

Gandhinagar, India

2017 - 2021

## INTERNSHIPS & RESEARCH PROJECTS

Large-Scale Multi-Robot Adversarial Patrolling

UNDER GUIDANCE OF PROF. HENRIK CHRISTENSEN

UC San Diego

2021 Ongoing

- Investigating the performance of multi-robot patrolling based on team size, composition and environment
- Implementing efficient and finding approximate techniques as these problems are NP Hard
- Working towards a visual simulation for interpretation

Gravitational Wave Detection

UNDER GUIDANCE OF PROF. ANIRBAN DASGUPTA AND PROF. ANAND SENGUPTA

IIT Gandhinagar

2018-2020

- Worked on gravitational wave detection. Understood the challenges of curved parameter space and non-metric distances
- Along with random approximate search methods, explored filtering techniques as GW have comparatively low SNR
- Theoretical reduction in time complexity using approximate random search opens the possibility of near real time analysis

Gryt India Pvt Ltd

POSITION: SOFTWARE ENGINEERING INTERN

Pune (WFH)

May-Oct. 2020

- Designed part of API backend for exercise management system for trainers
- Developed a exercise step detection algorithm for videos and pose detection
- Deployed Sagemaker solutions on AWS for rapid experimentation and development of the core pose detection model

Summer Research Internship Programme

UNDER GUIDANCE OF PROF. BIRESWAR DAS

IIT Gandhinagar

May-July 2019

- Learned about factorization of polynomials in finite fields and focused on developing algorithms for specific finite rings
- Studied various NP Hard problems trying to prove the hardness of factorization over finite rings
- Proved that the problem of factoring a polynomial in two polynomials in rings belongs to class NP

## PUBLICATIONS & POSTERS

- Janvi Thakkar, Devvrat Joshi, Shril Mody, Siddharth Soni, **Rohan Patil**, Nipun Batra

Geometrical Homogeneous Clustering for Image Data Reduction

ICML 2021 SubsetML Workshop - Poster Presentation

2021

- **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 - **Core A Ranked Conference**

2020

## ACADEMIC ACHIEVEMENTS & AWARDS

- Selected for Summer Undergraduate Research Fellowships (**SURF**) at **California Institute of Technology**

Cancelled due to COVID-19 Pandemic

2020

- Appeared on the **Dean's List** for academic excellence

Semester I and II of AY 2017-18, 2018-19 and Semester I of AY 2019-2020

2017-2020

- Awarded A+ grade in Mathematics I : Calculus and Theory of Computation for exceptional performance

- **All India Rank 2710** in JEE Advanced among **1.5 million aspirants**

2017

## SKILLS

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<b>PROGRAMMING</b>	Python, C/C++, $\LaTeX$ , Verilog, Rust, Go
<b>WEB DEVELOPMENT</b>	Django, CSS, HTML5, JavaScript, GraphQL
<b>LIBRARIES &amp; FRAMEWORKS</b>	PyTorch, TensorFlow, Numpy, Pandas, Jupyter, Scipy

## COURSEWORK

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- **UCSD Courses:** Unsupervised Learning\*, Trustworthy ML\*, Probabilistic Reasoning & Learning\*
- **IITGN Courses:** Introduction to Differential Geometry, Advanced Machine Learning, Machine Learning, Databases, Natural Language Processing

\* - Currently enrolled

## EXTRACURRICULAR & POR

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- **Teaching Assistant** for ES654 - Machine Learning (IITGN) *Spring 2020*
- **Teaching Assistant** for CS301 - Operating Systems (IITGN) *Fall 2020*
- Secured silver medal in Saptang's Network Security Hackathon - Inter IIT Tech Meet 9.0 *March 2020*
- Won first cash prize of INR 5000 for reporting bugs in IITGN internal network *March 2020*
- Volunteered for organization of **ACM-India Annual Event** *Feb. 2020*
- Member of the **Conclave and Symposium** team of **Amalthea** (IIT Gandhinagar's Tech. Summit) for two years *2017 - 2018*
- Part of school **Table Tennis** team and **Runner's up** at District Level inter-school competition for 3 years *2011 - 2013*

## PROJECTS & PRESENTATIONS

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- **SHORT SURVEY ON DEVELOPMENT OF DATA DRIVEN TECHNIQUES IN ONLINE ADVERTISING** *June 2020*
  - Surveyed user profile creation, audience segmentation and realtime bidding for Online Advertising in a team of three
  - Noted the public datasets, privacy concerns and learned about the hardness of making optimal user profile
  - Course Project for CS328 (Introduction to Data Science - Prof. Anirban Dasgupta)
- **TOY GO COMPILER (C, Flex, Bison)** *June 2020*
  - Developed in a team of three a Go compiler
  - Created single pass compiler with register optimization and quick compilation
  - Course Project for CS327 (Compilers - Prof. Bireswar Das)
- **COVID19 DASHBOARD (Python, Django) covid19.iitgn.ac.in** *May 2020*
  - Developed and deployed COVID-19 dashboard for Ahmedabad with Prof. Udit Bhatia and team
  - Worked on road network calculation parallelization and code optimization
  - Designed and deployed the Dashboard UI
- **HACKRUSH IITGN HACKATHON** *Feb. 2020*
  - In a team of three, attempted the Machine Learning and Pentesting related problems
  - Developed ML model for predicting appliance electricity consumption and did pentesting on provided VMs
  - The team secured first and second position in pentesting and ML challenge respectively
- **SEMANTICALLY SENSIBLE THESAURUS (NLP, Python)** *Nov. 2019*
  - Designed a word suggester which preserves the meaning of the sentence.
  - Developed a classical model for word suggestion with online learning support.
  - Course Project for CS613 (Natural Language Processing - Prof. Mayank Singh)
- **EMAIL PARSER (Python, Stanford NLP API, Gmail API)** *Jan. 2019*
  - Tackled the Email Parsing problem in Hackathon at IIT Gandhinagar with four others
  - Extracted details of seminars, talks and workshops using NLP
  - Presented a live demo of the same