Rohan Patil

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EDUCATION

University of California San Diego
M.S. Computer Science and Engineering Student, CGPA 4.0

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 an 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*

SKILLS

Programming	Python, C/C++, LaTeX, Verilog, Rust, Go
Web Development	Django, CSS, HTML5, JavaScript, GraphQL
Libraries & Frameworks	PyTorch, TensorFlow, Numpy, Pandas, Jupyter, Scipy

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*

COURSEWORK

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

EXTRACURRICULAR & POR

- **Teaching Assistant** for ES654 - Machine Learning (IITGN)   *Spring 2021*
- **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

- 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 parallelizataion 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 detils of seminars, talks and workshops using NLP
  - Presented a live demo of the same