Rohan Patil

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EDUCATION

University of California San Diego	*California, USA*
M.S. Computer Science and Engineering Student	*Presently Pursuing*
Indian Institute of Technology Gandhinagar	*Gandhinagar, India*
B. Tech, Computer Science and Engineering, CPI $9.55/10$	*2017 - 2021*
Institute Silver Medal	

INTERNSHIPS & RESEARCH PROJECTS

Large-Scale Multi-Robot Adversarial Patrolling — *UC San Diego*
Under Guidance of Prof. Henrik Christensen — *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 — *IIT Gandhinagar*
Under Guidance of Prof. Anirban Dasgupta and Prof. Anand Sengupta — *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 — *Pune (WFH)*
Position: Software Engineering Intern — *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 — *IIT Gandhinagar*
Under Guidance of Prof. Bireswar Das — *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

PROGRAMMING	Python, C/C++, LaTeX, Verilog, Rust, Go
WEB DEVELOPMENT	Django, CSS, HTML5, JavaScript, GraphQL
LIBRARIES & FRAMEWORKS	PyTorch, TensorFlow, Numpy, Pandas, Jupyter, Scipy

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

* - Currently enrolled

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