Rohan Patil | IIT Gandhinagar

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Education

Indian Institute of Techonology Gandhinagar *Gandhinagar*
B. Tech Senior Undergraduate, Computer Science and Engineering, CPI 9.55 *2017 - 2021*

Deogiri College *Aurangabad*
HSC, Maharashtra State Board, 88.31% *2017*

Holy Cross English High School *Aurangabad*
SSC, Maharashtra State Board, 93.60% *2015*

Internships & Research Projects

Gravitational Wave Detection *IIT Gandhinagar*
Under Guidance of Prof. Anirban Dasgupta and Prof. Anand Sengupta *2018-2020*
- Worked on gravitational wave detection and understood the challenges of curved parameter space and non-metric distances
- Along with various random approximate search methods, explored various filtering techniques as GW have comparatively low SNR
- The theoretical reduction in time complexity using approximate random searches 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 a exercise step detection algorithm for videos
- Deployed Sagemaker solutions on AWS for rapid experimentation and development of the core motion 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

- 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*

- **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 *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 all semesters
  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 **2.2 lakh candidates** *2017*
- **All India Rank 5788** in JEE Mains among **15 lakh candidates** *2017*
- All India Rank 573 in Kishore Vaigyanik Protsahan Yojana **(KVPY)**, SA stream *2015*
  Selected and Attended National Science (VIJYOSHI) Camp 2016, IISC, Bangalore *2016*
- Awarded **Maharashtra Talent Search Examination** (MTSE) scholarship for three years *2013 - 2015*
- Received Merit Certificate at **Dr. Homi Bhabha Bal Vaidnyanik Competition**. *2014*
- Awarded Middle School State Merit scholarship Rank 14 by **MSCE, Pune** *2012*

Skills

Programming	Python, C, LaTeX, Verilog, Rust, Go
Web Development	Django, CSS, HTML5, JavaScript

Extracurricular & POR

- **Teaching Assistant** for ES654 - Machine Learning   *Spring 2020*
- **Teaching Assistant** for CS301 - Operating Systems   *Fall 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** 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)

- Rushell - Rust UNIX Shell *(Rust)*   *Nov. 2019*
  - In a team of five, created a UNIX shell in Rust.
  - Created in-built binaries for the shell.
  - Course Project for CS301 (Operating Systems - Prof. Nipun Batra)

- 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

- Pattern Matching using FPGA *(Verilog)*   *Nov. 2018*
  - Objective was to find the number of overlapping occurences with given pattern and text.
  - Project was done using Vivado and implemented on Basys3 board with a team of three others
  - Course Project for ES203 (Digital Systems - Prof. Joycee Mekie)

- Wi-fi Security   *Apr. 2018*
  - Attempted the Wi-fi security question in the Hackathon conducted at IIT Gandhinagar
  - Objective was to find security issues on the provided Wifi network
  - Discovered that network switch was vulnerable to CRSW insecure default IOS configuration