

# Rohan Patil

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## Education

### Indian Institute of Technology Gandhinagar

BACHELOR OF TECHNOLOGY, COMPUTER SCIENCE AND ENGINEERING, CPI 9.55/10

Gandhinagar

2017 - 2021

### Deogiri College

HSC, MAHARASHTRA STATE BOARD, 88.31%

Aurangabad

2017

### Holy Cross English High School

SSC, MAHARASHTRA STATE BOARD, 93.60%

Aurangabad

2015

## Internships & Research Projects

### Gravitational Wave Detection

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

IIT Gandhinagar

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

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
- Deployed Sagemaker solutions on AWS for rapid experimentation and development of the core motion 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

- Rithwik Kukunuri, Anup Aglawe, Jainish Chauhan, Kratika Bhagatani, **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,  $\text{\LaTeX}$ , Verilog, Rust, Go  
**Web Development** Django, CSS, HTML5, JavaScript, GraphQL

## 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 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)
- 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 details 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 occurrences 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. Joyce 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