

# Rohan Patil | IIT Gandhinagar

Gandhinagar - Gujarat - India

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## Education

### Indian Institute of Technology Gandhinagar

B. TECH SENIOR UNDERGRADUATE, COMPUTER SCIENCE AND ENGINEERING, CPI 9.48

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

IIT Gandhinagar

2018-2020

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

- 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

May-July 2019

UNDER GUIDANCE OF PROF. BIRESWAR DAS

- 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

## Manuscripts

- **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 (Under Review)

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 with Python, CSS, HTML5, JavaScript

## 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
- **Spell Check (Python)** Dec. 2018
  - Attempted to use basic parameters like difference in absolute length to predict the correct spelling
  - Determined the weight of each parameter and its powers using stochastic gradient descent
- **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
- **Question Paper Generator (Python)** Nov. 2017
  - Authored a script to retrieve question data from airtable and create a question paper with user input conditions in LaTeX typesetting.
  - Used the airtable API to retrieve the data and created a system get a random question set following the given constraints, and then output a question paper.
  - Course Project for ES112 (Computing - Prof. Neeldhara Misra)

## Extracurricular & POR

- **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
- Enjoy playing chess