Rohan Patil
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Education

Degree	Institute	CPI/%	Year
B.Tech	IIT Gandhinagar	9.48	2017-2021
Class XII	Deogiri, College	88.31	2016-2017
Class X	Holy Cross English High School	93.60	2014-2015

Academic Achievements & Awards

- Selected for Summer Undergraduate Research Fellowships **(SURF) of Caltech**
  Cancelled due to Covid19 Pandemic *2020*
- Appeared on the **Dean's List** 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, Bengaluru *2016*
- Qualified Level 1 of **National Talent Search Examination** (NTSE) *2015*
- 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*

Internships & Research Projects

Gravitational Wave Detection
IIT Gandhinagar

Under Guidance of Prof. Anirban Dasgupta and Assoc. Prof. Anand Sengupta *Currently Working*

- Aim is to detect existence of signal in timeseries data.
- Signal Parameter Estimation using LSH type methods.
- The theorectial reduction in time complexity opens the possibility of near real time analysis

Gryt India Pvt Ltd
From Home - Online

Position: Software Engineering Intern *May-Sept. 2020*

- Designed part of API backend
- Deployed Sagemaker solutions on AWS

Summer Research Internship Programme
IIT Gandhinagar

Under Guidance of Assoc. Prof. Bireswar Das *May-July 2019*

- Worked on factorization of polynomials in finite fields and rings.
- Focused on trying to understand the hardness of polynomial factorization in rings.
- Proved that the problem of factoring a polynomial in two polynomials in rings belongs to class NP.

Publications

- EdgeNILM: Towards NILM on Edge devices: *BuildSys 2020* - ***Core A Ranked Conference*** (Accepted) *2020*
- Assessing the Interplay between travel patterns and SARS-CoV-2 outbreak in realistic urban setting
  Applied Network Science (Under Review) *2020*

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 and privacy concerns due to user tracking.
  - 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.
  - Course Project for CS327 (Compilers - Assoc. Prof. Bireswar Das)

- Covid19 Dashboard *(Python, Django)* *May 2020*
  - Developed a covid19 dashboard for Ahmedabad with Asst. 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 - Asst. 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 - Asst. Prof. Nipun Batra)
- Email Parser *(Python, Stanford NLP API, Gmail API)* *Jan. 2019*
  - Tackled the Email Parsing problem in Hackathon at IIT Gandhinagar.
  - Extracted detials 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 occurences with given pattern and text.
  - Project was done using Vivado and implemented on Basys3 board.
  - Course Project for ES203 (Digital Systems - Asst. 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.
- Wikiscrape *(Python)* *Nov. 2017*
  - Objective was to scrape data from a given Wikipedia link.
  - Used BeautifulSoup4 library for parsing HTML.
  - Course Project for ES112 (Computing - Asst. Prof. Neeldhara Misra)
- 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 - Asst. Prof. Neeldhara Misra)
- Automail *(Python)* *Jul. 2017*
  - Created an automatic mailing script which use token separated files.
  - Utilized raw SMTP for sending e-mails.

Coursework

- **Computer Science and Engineering:**
  Computing , Data Structures and Algorithms I, Computer Organisation and Architecture , Discrete Mathematics, Data Structures and Algorithms II , Operating Systems, Theory of Computation , Natural Language Processing, Compilers , Machine Learning, Databases , Introduction to Data Science, Advanced Machine Learning* , Computer Networks*,
- **Mathematics and Statistics:**
  Calculus , Linear Algebra and Differential Equations, Complex Analysis and Differential Equations , Probability and Statistics and Numerical Methods,

(* - to be completed by Dec 2020)

Extracurricular & POR

- **Teaching Assistant** for CS301 - Operating Systems *Fall 2020*
- Volunteered for organization of **ACM-India Annual Event** *Feb. 2020*
- Worked as a member of the **Conclave and Symposium** team of **Amalthea** (IIT Gandhinagar's Tech. Summit) for two years *2017 - 2018*
- Represented my school for **Table Tennis** and was **Runner** at District inter-school competition organized by District Sports Authority for consecutive 3 years *2011 - 2013*
- Enjoy playing chess