



**Snehadeep Gayen | CS21B078**  
B. Tech Computer Science and Engineering  
Indian Institute of Technology, Madras



## PROJECTS

**WiFi Tomography** (Ongoing) *Python*  
Project Under Prof. Ayon Chakraborty 📅 May '23 - Present

- WiFi tomography is a low-cost and easily implementable method to image the environment using WiFi signals.
- Working on computational optimisation of Tomographic Reconstruction to make it suitable for outdoor and indoor drone application

**CPU Design** ☑☑ *Verilog*  
CS2610 Course Project - Prof. C. Chandra Sekhar 📅 Jan-May '23  
CS2310 Course Project - Prof. Ayon Chakraborty 📅 Jul-Nov '22

- Implemented a CPU with register file and ALU with instructions to perform Arithmetic and Logical operations on both 8-bit integers and 12-bit floating-point numbers
- Built a combinational 8-bit CPU from gate level

**Reading Project and Presentation** ☑  
CS6122 Course Project - Prof. B. V. R. Rao 📅 Jan-May '23

- Presented the paper on "Smoothed Analysis of Partitioning Algorithms for Euclidean Functionals" by Bläser, M., Manthey, B. & Rao, B.V.R. and discussed its applications to problems

**Closeness Centrality Algorithm** ☑ *C++*  
Project under Prof. Manikandan Narayanan 📅 May-Jun '23

- Implemented the CENDY algorithm based on this paper ☑
- This on-line algorithm updates Average Path Length and Closeness Centrality of all nodes in a Dynamic Graph

## EXPERIENCE

**Team Avishkar Hyperloop, CFI** 📅 Oct '22 - Present

- Part of Design & Code Development Team of the Main Control Unit and Navigation Unit of our Pod.
- Used RTOS and threading to collect and store data from over 20 sensors at **low latency, handling faults** appropriately.
- Used communication protocols like MQTT, CAN, etc to collect data and send data to the base station/on-Pod Storage.
- Participated in prestigious **European Hyperloop Week - Scotland 2023**, among over 25 teams globally to represent the country.

**Tutor & Contributor, NPTEL** 📅 March '23 - Present

- Created **YouTube tutorials** under NPTEL for previous year GATE CS questions especially for the less privileged applicants

## EXTRACURRICULAR ACTIVITIES

- Sports:** Taekwondo Red Dan II Belt, Awarded Best Athlete U14 at School, NSO Athlete at IITM
- Mentored freshmen, personally and academically, under **Saathi, IIT Madras**
- Avid book reader and Tabla player

## EDUCATION

**B. Tech CSE | CGPA 9.90** 📅 Jul '21 - Present  
*Indian Institute of Technology Madras*

**HSC Class 12<sup>th</sup> | 98.17%** 📅 Apr '19 - Apr '21  
*Pace Junior Science College, Mumbai*

**ICSE Class 10<sup>th</sup> | 98.80%** 📅 Apr '19  
*Lilavatibai Podar High School, Mumbai*

## SCHOLASTIC ACHIEVEMENTS

- Secured **AIR 5** in JEE Mains out of 1 million students
- Secured **AIR 161** in JEE Advanced
- Secured **AIR 10** in Indian Statistical Institute Exam
- Secured **AIR 21** in INChO and attended IChO Camp
- Awarded KVPY Fellowship (2021) with **AIR 338**
- Winner of Mimamsa '22 at IISER Pune
- 4<sup>th</sup> place in Chemenigma '22 at IISC Bangalore & Won Silver Medal in Homi Bhabha Science Competition (conducted in Maharashtra)

## CODING ACHIEVEMENTS

- Maximum Rating 1678 (**Expert**) on Codeforces
- ICPC 2022 - AIR 151** and **Institute Rank 7** in Kanpur-Mathura Qualifier Round
- AIR 3** in Shaastra CP Potpourri (Mixed-bag coding contest) [*Shaastra is Asia's largest student-run Techfest*]
- Global Rank 9** in CodeChef Starters 96
- Global Rank 231** in Codeforces Round 881
- Global Rank 373** in Google Farewell Round
- 1st place in Inter-School Java Competition in Mumbai

## SOFTWARE SKILLS

- Languages:** C++, C, HDL (Verilog), Python, Java, HTML, CSS, x86, RISC and 8085 ASM, R
- Tools:** TI CCS, Git, ~~LaTeX~~ **LaTeX**, AutoCAD, GDB
- Libraries:** TI RTOS, NumPy, PyLops, Matplotlib

## COURSES & LABS

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|--|--|
| • Basic Electrical Engg                          | • Discrete Maths                                 |
| • Computer Systems Design                        | • Basic Graph Theory                             |
| • Programming and Data Structures                | • Probability, Statistics & Stochastic Processes |
| • Computer Organisation and Architecture         | • Series and Matrices                            |
| • Design & Analysis of Algorithms                | • Multivariable Calculus                         |
| • Theory of Computation                          | • Ordinary Differential Eqns                     |
| • Probabilistic, Smoothed Analysis of Algorithms | • Principles of Economics                        |
| • Object Oriented Programming                    | • Intro to Game Theory                           |
|  | • Compiler Design *                              |
|  | • Operating System *                             |

\* Ongoing