Snehadeep Gayen | CS21B078

B. Tech Computer Science and Engineering
Indian Institute of Technology, Madras

EDUCATION

B. Tech CSE | CGPA 9.90 — Jul '21 - Present
Indian Institute of Technology Madras — Chennai, TN

HSC Class 12th | 98.17% — Apr '20 - Apr '21
Pace Junior Science College — Mumbai, MH

ICSE Class 10th | 98.80% — Apr '18 - Apr '19
Lilavatibai Podar High School — Mumbai, MH

EXPERIENCE

Team Avishkar Hyperloop, CFI — Oct '22 - Present

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

Tutor & Contributor, NPTEL — March '23 - Present

- Created **YouTube tutorials** for previous years' GATE CS questions
- These tutorials aim to support applicants who may have limited access to resources

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 B
- 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, AutoCAD, GDB
- **Libraries**: TI RTOS, NumPy, PyLops, Matplotlib

EXTRACURRICULAR ACTIVITIES

- **Sports:**
  - Taekwondo Red-II Belt
  - NSO Athlete at IITM
  - School Sports Captain 2018-2019
  - Awarded Best Athlete U14 and 13 medals in Track & Field events
- Mentored freshmen, personally and academically, under **Saathi, IIT Madras**
- Avid book reader and Tabla player

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 Orientation Camp for International Chemistry Olympiad
- Awarded KVPY Fellowship '21 with **AIR 338**
- Winner of Mimamsa '22 at IISER Pune
  4^{th} place in Chemenigma '22 at IISC Bangalore &
  Won Silver Medal in Homi Bhabha Science Competition (conducted in Maharashtra)

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

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

COURSES & LABS

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

* Ongoing