Milan Anand Raj

Junior Undergraduate
Department of **Computer Science and Engineering** (Double Major)
manandraj20 | Milan Anand Raj
manandraj20@iitk.ac.in | +91-7667411016

ACADEMIC QUALIFICATIONS

Year	Degree/Certificate	Institute	CPI/%
2020-2025	B.Tech	Indian Institute of Technology Kanpur	9.33/10
2020	CBSE (XII)	Chinmaya Vidyalaya, Bokaro	95.2%
2018	JAC (X)	Deoghar Public School, Deoghar	96.4%

SCHOLASTIC ACHIEVEMENTS

- Awarded **A* Grade** in two courses for **outstanding performance** and secured a perfect **10 SPI** in fourth semester
- Selected by **IIT Kanpur** as one of the five students to attend the prestigious **Sakura Science Program** in **Japan**
- Awarded **Acedemic Excellence Award** for being in the top **10 %** of the student in the academic year 2021-2022

PROJECTS and INTERNSHIPS

- **Quantitative Modelling**| (*Oct'22-Dec'22*)
  ML and research intern | TenSixty Biosciences, Boston, USA

Objective	**Quantitative framework** for characterizing the evolutionary history of mammalian gene expression at cell-level resolution
Strategy	Use scRNA-seq data across several tissues from 19 mammalian species to show that expression evolution across mammals is accurately modeled by the **Ornstein–Uhlenbeck** process, a commonly proposed model of continuous trait evolution Apply this model to identify expression pathways under neutral, **stabilizing**, and directional selection.
Results	Quantify the extent of **stabilizing selection** on a gene's expression, parameterize the distribution of each gene's optimal expression level Detect deleterious expression levels in single cell expression data from individual patients

- **Benchmarking of spatial and single-cell transcriptomics integration methods** | (*May'22-July'22*)
  (SURGE) | Prof. Hamim Zafar, Dept. of Computer Science and Engineering, IIT Kanpur
  – **Evaluated** the accuracy of **DestVI, CARD and AutogeneS** for predicting the cell proportions across tissue locations
  – **Implemented** pipeline for the Probabilistic models in **R** and **Python** to facilitate running them through the command shell
  – **Implemented Transfer Learning** on the models trained on standard scRNA reference datasets to cut down **GPU** usage
- **The Dorm Room Dealer Web Application** | *Course Team-Project, CS253* | (*Jan'23-April'23*)
  – **Developed** a web-based software where sellers can upload products and bidders can participate in auctions by placing bids
  – **Designed** Frontend with HTML, CSS and JavaScript and used Python **Django** framework for the Backend
  – **Carried** out thorough manual and automated testing of the web-application using **Django's unittest** module
  – Completed **Software Requirements Specification** Document, **Design** Document as well as **Test** Document
- **CF-Stress Clone** | *SnT Council, IIT Kanpur* | (*May'22-Jul'22*)
  – **Implemented customizable no-code tool** to generate the smallest possible counter example for failing codeforces submissions
  – **Rendered dynamic HTML content** on the web browser with the dynamic data being generated by the **C++ generators**
  – **Used NGINX** as a web server, **reverse proxy** and load balancer to help maximise performance and stability of the website
  – **Queued** submissions to be stress tested later using **Redis Queue** to design API to close requests as quickly as possible

TECHNICAL SKILLS

Programming Languages: C, C++, Go, Python, R, MATLAB **Tools:** Linux, MatPlotLib, NumPy, Pandas, LaTeX, Git

POSITIONS OF RESPONSIBILITY

- **Academic Department Mentor**| *Academics and Career Council, IIT Kanpur* (*July'22-Present*)
  – **Conduct** academic awareness session helping students with the strategies to study courses and to plan their research career
  – **Help** students know various projects being done by the professors and activities being offered in **BSBE** department

RELEVANT COURSES

Fundamentals of Computing	Data Structures and Algorithms	Probability and Statistics	Computer Organization
Software Development	Introduction to Electronics	Linear Algebra and ODE	Decision making and brain
NN & Deep Learning	Improving Deep Neural networks	The Data Scientist's Toolbox	Linear Algebra and ODE

EXTRA CURRICULUM

- Participated in SnT Code'22, the inter-hall Technical competition organised by Science and Technology council, IITK
- Participated in 800m and 1500m events organised under Udghosh'21, the sports festival organised by the student body, IITK