Karamveer Singh

Mechanical Engineering — Minor: Industrial & Management Engineering

 Be_Karam Portfolio in Karamveer-Singh
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ACADEMIC QUALIFICATIONS

Year	Degree/Certificate	Institute	CPI/%
2021 - Present	B.Tech	Indian Institute of Technology Kanpur	**8.2/10**
2020	CBSE (XII)	Samar Study Hall, Kashipur Uttarakhand	96.6%
2018	CBSE (X)	Samar Study Hall, Kashipur Uttarakhand	93.2%

SCHOLASTIC ACHIEVEMENTS

- Secured All India Rank **2436** in Joint Entrance Examination Advanced 2021 among **1.2** million registered candidates from the country
- Secured International Rank in top **0.5%** among **1.5** million students registered in **SOF's** International Mathematics Olympiad in 2017
- Achieved a peak rating of **1493** (Specialist) on Codeforces with multiple Global ranks under **2000** (Handle : Binary_ manipulator)

PROFESSIONAL EXPERIENCE

Dr. Reddys Laboratories Ltd. - *Young Leaders Program - Technical Intern*   (May'24-Jul'24)
*Received **Pre-Placement Offer** (PPO) & **Letter of Recommendation** (LOR) for outstanding performance & contribution to the Company*

Objectives	• To optimise **21** different **RMG** and **FBD** machine's input parameters ensuring efficiency & ensuring future batch quality • To develop & implement **Closed Loop** Granulation Automation System from scratch for material transfer b/w Machines
Approach	• Tested **MySQL** database of **150+** batches using **PowerBI** for machine's parameters like input current, dosing pump speed • Ensembled an **XGBoost** ML model to optimize input values, minimizing machine run time while ensuring product quality • Introduced **Pneumatic Transfer System** (PTS) for material transfer to RMG, FBD to Blender via Quadro-Sifter & Co-Miller • Created 3D CAD model & simulated particle dynamics in **Ansys Rocky** with **Valsartan PO**C for optimal GMP installation
Outcome	• Reduced time by **28.5 min from 5 hr**, increased flow rate by **146 kg/batch from 600 kg**, eliminating manual intervention • Runtime dropped by **26% in RMG** & **14% in FBD** by cautiously employing Algorithm-based optimized input combination

Call Astro (Vas Ventures Pvt. Ltd) , India - *Software Development Intern - Founder's Office*   (May'23-Sep'23)
*Received **Letter of Recommendation** (LOR) for outstanding performance and contribution to the Startup*

Objective	• To investigate housemap's specific areal divisions & derived **Astrological** variables for **Future Forecasting Algorithms**
Approach	• Developed **1st** Call Astro Android app using **Flutter** & In-app feature integrating Compass API & detecting **maps' centroid** • Created **Dynamic algorithm** to divide maps into **16** segments & extract detailed **geographical database** from areal aspects • Developed **API** endpoint to fetch & analyze **7000+ house maps**, integrating ML & current Offsets for **dynamic predictions**
Outcome	• Analyzed variables on data of **6,400+** Cancer patients to predict diagnoses & utility deployed on Call Astro's mobile App

RESEARCH EXPERIENCE

Gauging Crypto Market Over Intellect Opinions - *Students Undergraduate Research Graduate Excellence - IITK*   (May'23- Jul'23)
*Mentor - **Dr. Tushar Sandhan**, Professor Electrical Engineering, IIT Kanpur*

Objective	• To develop a strategy using varied **Learning models** and forecast cryptocurrency movements based on **Public Opinions**
Approach	• Mined a **Sentiment Analysis** dataset of last **7** years to analyze the sentiments of **Bitcoin & Ethereum edits** of Wikipedia • Applied **ARIMA, Random Forest, GradientBoost & LSTM** to raise prediction accuracy by minimizing standard deviation
Outcome	• Developed LSTM model for Bitcoin forecast (2014-2020) achieving **79% accuracy**, **0.85** Pearson correlation and **0.14 RMSE**

KEY PROJECTS

Real-Time Virtual Conversations Front - *Google Developer Students' Club , IIT Kanpur*   (Dec'23- Jan'24)

Objective	• To develop **MERN** stack **Chat Application** with real-time messaging, utilizing **websockets** for low-latency communication
Highlights	• Integrated **JSON** web token-based user authentication for **Robust session management** and secure user access control • Designed a responsive and stylish UI with **Tailwind CSS**, including **online user indicators** and **file upload** functionality

Exploiting Blockchain using OpenAI APIs - *Association of Computing Activities IIT Kanpur*   (Jan'23- May'23)

Objective	• To create **OpenAI NFT** marketplace by creating minting platform & publishing AI-generated image on **Solona Devnet**
Highlights	• Got acquainted by **decentralisation, Web3, NFTs, blockchain technology** & utilize **OpenAI API** to develop a **Web App** • Implemented a **Block mining protocol** on **JS** with random difficulty for nonce finding & **coded a Blockchain** based on it

Live Algorithmic Trading - *Finance and Analytics club IIT Kanpur — Quantify Capital*   (Dec'22- May'23)

Objective	• To develop & implement **Intraday algorithmic trading strategy**, deploying in an automated system for efficient execution
Highlights	• Utilized **NIFTY200** data to identify stocks for intraday trading strategies with optimized **SL/TP** using **Yahoo Finance API** • Produced an **After Market order**-based, risk-optimized intraday approach that has consistently returned **30% per month**

TECHNICAL SKILLS

App Development:- Dart, Flutter, ExpressJS, NodeJS, React	**Programming Languages :-** C, C++, Python, SQL, JavaScript
DS & ML :- Tensorflow, sklearn, Numpy, Pandas, Matplotlib	**Softwares/Utilities :-** Fusion360, OBS, Android Studio, Git, LaTeX

RELEVANT COURSES

Operating Systems	Fundamentals of Computing	Blockchain Solana Development	Computational Cognitive Science
Data Structures & Algorithms	Stock Market Analysis	System Design & DBMS	Introduction to Machine Learning

CO-CURRICULAR ACTIVITIES

Leadership	**Assistant Placement Coordinator** - *Students' Placement Office, IIT Kanpur* (Mar'23-May'24) • Assisted **1300+** students through strategic collaborations with **MAS & LevelUp**, providing tailored sector-wise preparation • Ideated and deployed an **in-house recruitment portal** to cater to the placement and internship processes for PhD students
Events	• Secured **1st position** in **Inter-City Debate Race**, against participants from **6 cities, 40+ schools & 160+ students** *(2020)* • Secured **1st position in Uttarakhand** at **Atal Tinkering Lab**'s Innovation Showcase Competition among **266 schools** *(2019)*
Sudoku	• Achieved **5th Zonal rank** among **350+ teams** in LMI 4-member Indian Sudoku Championship across **North India** *(2017)* • Achieved **78th National rank** among **1800+ teams** in LMI 5-membered Times Sudoku Championship across **India** *(2016)*
Mentorship	• Guided **40+** freshmen at IITK in their first year about Fundamentals of Computing (ESC101) as **Academic mentor** *(2022)* • Offering **DSA** course help as a **TA Intern** at Coding Ninjas & earned **Excellence Certificate** in C++ with **98.3%** score *(2024)*