GAURAV SANGWAN

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EDUCATION

Bachelor of Technology in Artificial Intelligence and Data Science, IIT Jodhpur — November 2020 - June 2024

Courses : Linear Algebra, Probability Statistics and Stochastic Processes, Financial Engineering, Deep Learning.
Grad. Level courses : Convex Optimization, Investment Banking, Game Theory, Graph theoretic Algorithms, Advance AI (Markov Chains and RL).

<u>JEE Advanced:</u> 107(12994) <u>JEE Mains:</u> 99.68%ile(4357) <u>XII Boards:</u> 91(P) 95(C) 84(M) 98(CS) <u>X Boards:</u> 10 CGPA

HONORS

- **Indian Institute of Technology Joint Entrance Examinations (IIT JEE):** Ranked in **top 0.5% in JEE Main** and **top 2.5% in the JEE Advanced**, with exceptional scores in Physics and Mathematics, 2020.

- **International Quant Championship 2023**: Rebounded from a faulty-alpha setback, achieving a **rank of 497 out of 29076 total participants (Top 2%)**.

- **IMC Prosperity Challenge 2024**: Ranked in **top 6%(645 out of 10,100 teams)** as a **solo candidate**, with exceptional profits in hypothetical goods using algorithm trading.

- Qualified for 2016, 2017 and 2018 **RMO – Top 5%** in KVS region in PRMO. Obtained 38 out of 102 in **RMO-2018**. Cutoff for KVS being 44.

PUBLICATIONS

- First Author [Publication](#) in Peer reviewed "Proceedings of the AAAI Conference on Artificial Intelligence".

- First Author [Publication](#) communicated in Core-A*-ranked peer reviewed Conference for Secure Deep Learning Pipeline Design for Vision transformer.

Find all my publication [here.](#)

EXPERIENCE

Quantitative Research Consultant — June 2023 - Present
WorldQuant Brain — *Remote*

- Implemented **multiple cross-sectional, seasonal-momentum strategies** in **US and China region**, achieving a **Sharpe ratio of 2.83**, **returns of 16.34%** and **turnover of 34.06%**, enhanced by combining weakly correlated signals into super-alphas.

- **Ranked 2nd among 60 other consultants** in advisory cum mentorship program under [Stanislav Prokopyev](#) (ex-VP Brain Researcher).

Data Scientist — June 2023 - November 2023
Thynaa Healthy Naturally — *Delhi*

- Thynaa promotes sustainable farming across India, supporting **100+ farmers** and managing an IoT agri-tech startup optimizing tea plantations.

- Designed and implemented an **advanced federated learning-based framework for IoT applications**, optimizing plant disease detection and fruit ripeness prediction with **decentralized data processing** for **over 50k images everyday**.

- Focused on cleaning and organizing datasets, performing statistical and image data analysis for **9 disease classes in a two-stage approach**, resulting in improved system-wide performance.

- **Achieved an 18.33% reduction in model size** and a **93% improvement in inference time** through model compression and quantization, facilitating efficient deployment on resource-constrained IoT devices.

Find all my experiences [here.](#)

PROJECTS

Statistical Arbitrage in Cryptocurrencies

- Developed a pairs trading strategy across **100 cryptocurrencies**, achieving a **1.89 backtested sharpe ratio (net)** and strong alpha generation.

- Cleaned and processed intraday pricing data for **300 cryptocurrencies** from 2018-2024. Utilised **correlation and cointegration analysis** to identify highly correlated pairs, constructing trading signals based on residual returns from linear regression.

- Replicated [Deep Learning for Statistical Arbitrage](#) on cryptocurrencies, which helped to obtain **Sharpe Ratio of 1.67** and **lower the transaction cost by 17%**.

SKILLS

Python (Pandas/NumPy), SQL, ML, DL(Pytorch), CUDA C++, JAVA (distributed), KDB+, C++, Linux, Quantitative Research, Backtesting, Statistical Modelling, Academic Writing.

Interests : Chess, Poker, Trading, Hiking, Soccer, Reading, Speedcubing.
Languages : English, Hindi and German.

CERTIFICATES

- **NVIDIA DLI** — <u>Fundamentals of Accelerated Computing with CUDA C/C++</u> — Licensed January 2022 — [Link](#)
- **Forage** — <u>JPMorgan Chase & Co. - Quantitative Research Job Simulation</u> — Licensed December 16,2023 — [Link](#)