Gaurav Sangwan

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EDUCATION

B.Tech in Artificial Intelligence and Data Science, IIT, Jodhpur | Nov 2020 – May 2024 | 3.1 GPA

JEE Advanced: 107; JEE Mains: 99.52 %ile (4357); XII Boards: 91(P) 95(C) 84(M) 98(CS) 84(E); X Boards: 10 CGPA

HONORS

- 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.
- **National Talent Search Examination 2016**: Ranked in top 20% in region.
- **Indian Institute of Technology Joint Entrance Examinations(IIT JEE)**: Ranked in t**op 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**: Ranked 497 out of 29,076 (Top 2%) with an IS Score of 10340 in 3 days.
- **World Quant Challenge**: Progressed from Bronze to Silver to Gold in 55 days, qualifying as a Research Consultant with 17 alphas.

PUBLICATIONS

IdProv: Identity-Based Provenance for Synthetic Image Generation (Student Abstract) | Proceedings of the AAAI Conference on Artificial Intelligence, 37(13), 16164-16165| Peer-reviewed Conference | Gaurav Sangwan, Harshil Bhatia, Jaisidh Singh, Aparna Bharti, Richa Singh, Mayank Vatsa

HAVIT: An Efficient Hardware-Accelerator for Vision Transformer with Informative Patch Selection Techniques | Communicated to A-level Journal| Peer-reviewed Conference | Aradhya Patel, Anadi Goyal, Gaurav Sangwan, Palash Das

Bio-inspired Vision Security with SIFT and Symbolic AI | Communicated to 'A+' level conference | Peer-reviewed Conference | Gaurav Sangwan, Anadi Goyal, Palashdas

PROFESSIONAL EXPERIENCE

Research Consultant, World Quant Brain | June 2023 – Present | Remote

- Implemented cross-sectional, seasonal-momentum strategies in US and CHN with 2.83 Sharpe ratio, 16.34% returns, and 34.06% turnover.
- Utilized advanced platform features: extended simulations, data visualizations, multi-simulation, SuperAlphas and Python API integration. Compensated based on algorithm quality.
- Engaged in mentorship under Stanislav Prokopyev (VP Brain Researcher).

Software Engineer, Scale AI | February 2024 – Present | Part-Time Remote

- Enhanced AI large-language models for data tasks through partnerships, improving performance and accuracy.
- Collaborated on code optimization and test cases for robust AI algorithms.
- Provided human feedback on LLM outputs to improve model performance and accuracy.
- Translated complex data problems into clear summaries for non-technical stakeholders, facilitating understanding of AI technology.

PERSONAL QUANT PROJECT

Statistical Arbitrage in Cryptocurrencies

- Researched a cross-sectional, long-short seasonal-momentum strategy in crypto with a back tested Sharpe of 0.8 and an information ratio of 0.7 after accounting for fees, commissions and expected slippage. Researched a reversal strategy based on "group-pairs" and residual returns from a multivariate regression
- Combined all of the strategies based on their volatilises to generate a combined strategy with a back tested SR of 1.6+ and IR of 0.9.

Deep Learning Statistical Arbitrage(Link)

- Replicated and applied a statistical arbitrage framework to cryptocurrency markets, leveraging residual portfolios from conditional latent asset pricing factors to construct arbitrage portfolios. Implemented optimal trading policies based on these signals, achieving steadily high out-of-sample mean returns of 8.2% and Sharpe ratios exceeding 1.5, and lowered the transaction costs by 17%.

SKILLS : Python (Pandas/NumPy/PyTorch/Tensorflow), C++, R, MATLAB, Java (basics/distributed), Econometrics, Regression analysis, Quantitative Trading, Discretionary Trading, Statistical Modeling, Mathematical Modeling, Academic Writing.

CERTIFICATES

- NVIDIA DLI – Fundamentals of Accelerated Computing with CUDA C/C++ – Licensed January 22,2022 – (Link)
- Forage – JPMorgan Chase & Co. - Quantitative Research Job Simulation – Licensed December 16, 2023 - (Link)