Gobind Singh

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Education

Indian Institute of Technology, Delhi *July' 16 - July' 20*

B.Tech. | Physics & Computer Science | Overall GPA : **9.2/10** | CS **GPA**: **9.4/10** | **Rank 2/60** students

Key Courses: Linear Algebra, Probability, Data Structures, Algorithms, Databases, Signals & Systems, Mathematical Physics, Machine Learning, Artificial Intelligence, Group Theory, General Relativity, Game Theory, Computational Physics

Experience

Quantitative Strategist, Goldman Sachs *Feb '22 - Present*

Structured Finance and Lending, Global Markets Division

Building mathematical models for pricing, structuring and market making of **exotic credit derivatives**

Creating a novel derivative - **collaterized cross currency callable swap**; by defining payoffs; modelling credit, interest rates and FX using stochastic calculus and Monte Carlo simulations; and developing the pricing engine in **Slang and C++**

Quantitative Researcher, Kivi Capital *Sep '20 - Feb' 22*

Low and Medium Frequency Trading Team, Kivi Capital, Gurgaon

Researched, back-tested and deployed **live trading strategies** on F&O segment for Indian markets, consisting of novel alphas assisted with risk management, satisfying Sharpe Ratio and ROC thresholds, with holdings from **1 hour to 3 days**

Worked on **portfolio optimization problems** - building meta-alphas based on live strategy metrics to allocate capital efficiently, and building novel correlation measures to cluster strategies

Worked as a **hybrid quant developer** mainly building a back-testing and trading infrastructure for Forex commodities, with side projects in order management systems (OMS) and data management

Software Development Intern, Citi *May '19 - July '19*

Citi-Connect Team, Trade and Treasury Solutions, Citi Pune

Built a trainable **web-page automation** bot using **Selenium, Javascript and Python** by learning a data-dynamic policy for MDPs generated from webpages, resulting in optimised software engineering pipelines

Summer Researcher, University of Tokyo *May '18 - July '18*

Ando Gravitational Wave Lab, Physics Department, University of Tokyo

Among **22** students selected globally from **600+ applicants** to participate in fully funded research, working towards the noise characterisation of the torsion bar **gravitational wave detector**, TOBA using differential equations based models

Research Projects

Neuro-Symbolic Transfer Learning *Jan' 20 - July' 20*

Supervisor - Prof Mausam and Prof Parag Singla, Dept. of Computer Science, IIT Delhi

Building a generalised neural planner for allowing efficient training and **zero-shot transfer** of policies across different probabilistic RDDL planning domains using **graph attention networks** and auxiliary domain-based tasks for the A3C algorithm

Error Correction for Quantum Key Distribution *Jul' 19 - Dec' 19*

Supervisor - Prof Bhaskar Kanseri, Physics Department, IIT Delhi

Formulated error correction as a **linear programming** optimisation problem using a quantum-secure shared secret, and investigated local search and LDPC based message passing algorithms to solve the optimisation problem efficiently **Symbolic Planner for a Robotic Manipulator** *Feb' 20 - Apr' 20*

Course Project - Machine Learning for Robotics under Prof Rohan Paul, Dept. of Computer Science, IIT Delhi

Wrote a search based symbolic planner for an agent (mobile manipulator) capable of interacting with objects in a physics based virtual environment, and performing basic pick and place tasks, endowing the robot with semantics

Extra-Curriculars

Teaching Assistant, Database Management Systems *Jan '20 - Jun' 20*

Teaching assistant for the course Databases with **100+ students** under Prof. Maya Ramanath in the Spring' 20 semester

Academic Mentor, Linear Algebra & Differential Equations *Jan '18 - Apr' 18*

Mentored freshmen and solved student doubts for the course with **400+** students in Spring' 18

Scholastic Achievements

Awarded the **IIT Delhi Merit Prize** in 5 semesters for being in the top 7 percentile among all undergraduates (800+)

Secured **99.9** percentile in JEE Main and Advanced 2016 amongst **1.2 million** candidates

Selected for the **Advanced Standing M.Tech** in **Computer Science** at IIT Delhi (Declined)

Technical Skills

Programming Languages - Python, C/C++

Libraries / Tools - Tensorflow, PyTorch, SQL, VSCode, Pandas, Selenium, Git, Bash, Linux LaTeX