

RAHUL VENKATESH

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EDUCATION

National University of Singapore

Master of Science in Data Science and Machine Learning

Singapore

2023-Present

Indian Institute of Technology (IIT), Delhi

Bachelor of Technology in Computer Science and Engineering

New Delhi, India

2016-2020

TECHNICAL SKILLS

Languages: C++, Python, SQL, Bash

Tools/Software: TensorFlow, OpenMP, CUDA, Git, GDB

WORK EXPERIENCE

Squarepoint Capital

Software Engineering

Paris, France

Aug 2020 - Jun 2023

- Developed and supported (in production) **low-latency** order entry gateways (OEG) for algorithmic trading.
- Built new OEGs to 5+ **exchanges**, including **CME**, **ICE** and **OSE** over various protocols like OUCH and FIX.
- Implemented frameworks for trading 2 new asset classes: **bonds** and **non-deliverable forwards (NDF)**.
- Coordinated with QA and delivered numerous new projects (gateways) and business requests (features).
- **Improved performance** of the gateway application by **collecting and analyzing** latency-related **data**.

PROJECTS

Parallel Laplacian Solver

Algorithms Project

Prof. Amitabha Bagchi

Aug 2019 - Dec 2019

- Implemented a novel **random-walk distributed** method to solve an important class of Laplacian systems.
- Leveraged C++/OpenMP API for parallelization and gprof and valgrind for **profiling**.
- Improved performance on sparse graphs with **optimizations** like the Alias Method and "densifying".
- Visualized performance against existing solvers like Dan Spielman's and Bechetti's:
Overall, it's **better than** Bechetti's. With a lot of parameter fine-tuning, it's **comparable with** Dan's.

AI Game-playing bot

Artificial Intelligence Project

Prof. Mausam

Oct 2018

- Created a bot to play Yinsh, a 2-player game on a hexagonal board with a branching factor of 30.
- Implemented **Alpha-beta pruning** with **static move ordering** to choose the next move to evaluate.
- Optimized move generation using **Bitboards** and **Zobrist Hashing**, boosting the search to 4 moves ahead.
- Fine-tuned weights for explicit hand-crafted features through automated trial-and-error.

RELEVANT COURSEWORK

Mathematics: Linear Algebra, Calculus, Probability and Stochastic Processes

Computer Science: Artificial Intelligence, Machine Learning, Advanced Algorithms