RISHI MAHADEVAN

Senior Year Computer Engineering student, who is interested and has experience in Robotics, IOT and AI. I enjoy building and tinkering projects that solve problems using technology.

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Singapore citizen - (applicable for **H-1B1** with a separate quota)

EDUCATION

National University of Singapore (Bachelor of Engineering (Honors) in Computer Engineering) — Aug 2018-May 2022

- 4.6/5.0 (First Class Honours) / Dean's List (AY 2019/2020 Sem 2)

AI Planning and Decision Making (A)	Machine Learning(A-)	Data Structures and Algorithms (A)	Probability and Statistics(A)

SKILLS

C,C++ ROS Python TensorFlow OpenAI OpenCV GoLang Numpy/Pandas Mysql

WORK EXPERIENCE

Shopee (Search-team Backend SW Engineering Intern) — Dec 2021-Mar 2022

- Developed scalable API checkpoints for in-house data analytics platform using Golang, Redis and Mysql.
- Ensured that the production pipeline is error-free by implementing unit tests and implementing monitoring through Prometheus.

DSO National Laboratories (Research SW Intern) — Jan 2021-Jun 2021

- Developed a novel Line of Sight analyzing system in C++ for an Unmanned Aerial Vehicle (UAV) to identify areas where signals might be lost (visibility map) due to terrain interference for different flying heights.(900 million data points per height level).
- Accelerated the analysis using GPU and OpenGL. Furthermore, used 'batch-like' processing and Shader Objects (SSBOs) for seemless transfer of data from GPU to CPU.
- Engineered a system to automatically vectorize the visibility map for mission planning.
- The system achieved an acceleration of 8 minutes per height level for over 900 million data points looped through a maximum of 200 million data points.

National University of Singapore (CG2271, Teaching Assistant) — Jan 2020-May 2020

- Explained concepts, clarified doubts and assisted Yr 2 students through their weekly tutorials in Real-Time Operating System(RTOS)

COdUE (Founder) — Aug 2019-Present

- Founded a startup that mentors young students basic coding concepts in our proprietary gamified platform, where students develop game functionalities in their own 2d space theme game or cool chatbots.
- Headed the Technical development of the coding platform such as designing the architecture (Backend and JS) by following the Application Lifecycle Management (ALM) principles.
- Pitched and won SGD 10K Grant as part of I&E Practicum for development of platform.
- Fine-tuned the curriculum using learning analytics obtained from teaching over 60 students.

Propertyquants (Data Engineer Intern) — May 2019-Jul 2019

- Automated and streamlined the data extraction process by building a data pipeline for property prices.
- Implemented an API that allows employees to seamlessly upload a Microsoft excel to the database.

RELEVANT PROJECTS

Multi-Agent Coordination - Final Year Project — Jun 2021-Present

- Researching on multi-agent coordination for warehouse applications, where agents need to plan their path and schedule the boxes to be pushed.
- Developed a visual AI testbed simulator using Pygame, Pymunk and with OpenAI integration for ease of testing baseline algorithms

Underwater autonomous Vehicle - Computer vision (SAUVC) — Sep 2018-Mar 2019

- Designed and researched a novel algorithm using OpenCV in python and C++ to detect buckets as far as 18m and the floor tiles in different lighting conditions underwater. The approach included using dynamic whitening based on the alpha value of the feed.
- Designed the state machine system and mission planning for underwater autonomous vehicle in C++. The vehicle reached the finals of the SAUVC 2019 competition

Pairs Trading - NUS Investment Society — Sep 2018-May 2019

- Researched and evaluated the performance of pairs trading strategy on 1827 stocks listed on the US Stock Exchange from 1990s to 2018.

PERSONAL PROJECTS

Resume2go

- Created a block-based resume creator using Javascript, CSS, HTML for easy version control and formatting.
- This resume was built using this tool. The tool can be found at https://resume2go.herokuapp.com

MedicAid

- Designed an web-based algorithm to identify symptoms from patient's speech using NLP techniques, built a login system for the doctors and patients. Lastly, created an API to identify a medicine's name and the dosage required for the patient from an image of the medication.
- Achieved 'Apollo level' [highest level] among teams that competed in the Orbital Module.

Backtesting Platform

- Engineered the backend and the data pipelines to abstract out the data manipulation and financial calculations. They can call it using a simple function call (in python) and using dropdowns in Javascript
- One can easily test their strategies on Equities to Property prices.

ACHIEVEMENTS

Finalist - Splash Awards 2019, Singapore Computer Society

- Built an autonomous traffic accident detection using CCTV footage and ML techniques such as YOLO to detect vehicles from a frame and used a probabilistic estimation to track a vehicle from 1 frame to another.
- We made it to the finals among top 6 teams from a pool of 30 teams

LEADERSHIP

NUS investment society, QF department director

- Collaborated and communicated with industry experts from Worldquant to teach the basics of quantitative finance to the members. Interviewed members to recruit them in the department.
- Additionally, taught a group of 70 NUS students the basics of programming. Lastly, selected the research questions for the members to work on during the semester.