Harikrishnan Vinod

Results-oriented Computer Science undergraduate with a passion for
Software Engineering and Artificial Intelligence

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EDUCATION

Nanyang Technological University, Singapore   Aug 2023-May 2027

Bachelor of Computing (*Honours*), Computer Science with Minor in Business

- Honours (Distinction) (Current)| GPA: 4.21/5
- Relevant Coursework: Data Structures and Algorithms, Software Engineering, Artificial Intelligence

Tampines Meridian Junior College   Jan 2019-Dec 2020

- 86.25 in A-Levels (2020) - Attained 4 Distinctions
- TM Gold Book Prize – Awarded for being top 5% in cohort for A-Levels

SKILLS

- Backend: Python, C, Java, JavaScript, TypeScript, Node.js, React.js, Next.js
- Cloud: Google Cloud Platform(GCP), Firebase, AWS, Docker
- Other: C, C++, Firestore, HTML/CSS, Artificial Intelligence, Machine Learning, Data Analytics, Web Development, RESTful APIs
- Languages: Proficient in English, Hindi, Malayalam

PROJECTS

CycleGoWhere!   Jan 2025-May 2025

- Developed a web-based navigation app for cyclists designed to leverage Singapore's PCN and Smart Nation open datasets to give them safe, optimal cycling paths while accessing nearby amenities such as water coolers, repair shops, and bike parks within 500m.
- Engineered intuitive user features including ride activity logging, saved route management, and a dashboard for weekly and monthly cycling stats, enhancing user engagement and retention.
- Implemented real-time route planning and turn-by-turn navigation using OneMap API, integrated with interactive UI to deliver a seamless, responsive user interface
- Designed and deployed a modern full-stack application with React (Vite) and Flask, integrating Firebase Authentication and Firestore for secure, scalable user management and data storage.

Connect 4 Bot   Aug 2024 - Dec 2024

- Designed a fully playable Connect 4 game with AI opponent, implementing Minimax algorithm with alpha-beta pruning to efficiently simulate and evaluate optimal game states up to a configurable depth of 5.
- Engineered the game logic in Python, utilising recursive search, utility-based move evaluation and built custom utility functions for board evaluation, win checking and consecutive piece counting
- Created an interactive, responsive dynamic game-board for real-time human gameplay

HACKATHONS

NTU-WIT Hackathon Top 5   Feb 2025-Feb 2025

- Designed and developed an AI-powered programming education platform to improve learning outcomes and foster ethical coding practices, addressing limitations in existing rigid, syntax-based code checking systems.
- Implemented a flexible code evaluation engine using an AI "code marker" that accepts logically correct solutions regardless of syntax, enabling learners to express creative alternatives without being penalised.

- Developed a full-stack web application using TypeScript + React for the frontend, Flask for the backend API layer, and MySQL for scalable, structured data storage with user-level privacy controls and the AI Coding Assistant using Perplexity API

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DSTA BrainHack   May 2024-Jun 2024

- Engineered an AI-powered automatic turret system prototype for potential defence applications, integrating computer vision, speech recognition, and natural language processing for real-time autonomous threat assessment and decision-making
- Fine-tuned Automatic Speech recognition (ASR), Natural Language Processing (NLP) and Vision-Language Models (VLMs) to enable the turret to interpret verbal commands, classify visual targets, and respond to contextual instructions with precision.
- Built and deployed models using TensorFlow, PyTorch, and Google Cloud Platform, with Python and Jupyter Notebooks as the primary development environment for model refinement.
- Achieved an accuracy of close to 80%

LEADERSHIP EXPERIENCES/CO-CURRICULAR ACTIVITIES

Hall 12 Social Subcommittee EXCO Member   Aug 2024 - May 2025

- Planned and Organised 3 hall-wide social events with a team of 20 members
- Conducted meetings with other members to discuss and plan upcoming events for Hall

WORK EXPERIENCE

Retail Assistant, Kaboom Times   Feb 2023-Apr 2023

Served airline passengers in picking toys and ensured a positive shopping experience. Maintained and organized a visually appealing store layout, contributing to increased sales and customer engagement. Adapted quickly to product knowledge updates, staying informed of latest toy trends.

Artwork assistant, Light To Night Festival, Peobable   Jan 2023-Jan 2023

Furnished visitors with information of artworks on display and constantly tried to promote the festival to the public. Helped to maintain cleanliness at the festival and make sure the artworks remained in good condition.