

Harikrishnan Vinod

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[LinkedIn](#) | [GitHub](#) | [Personal Website](#)

WORK EXPERIENCE

Software Engineering Intern, Synapse

Jan 2026-Jul 2026

- Contributed to the development and enhancement of national healthcare systems, including ACC and CCPS.
- Implemented and refactored frontend components and form workflows to improve usability and align with Figma designs.
- Maintained consistency across frontend applications, backend APIs, and external healthcare data endpoints.
- Diagnosed and resolved complex data submission issues involving NEHR.
- Independently managed cross-layer refactoring of data structures and field mappings.
- Ensured accurate JSON-to-XML transformations for national healthcare integrations.
- Worked with React, .NET/C#, PostgreSQL, Azure DevOps, and CI/CD pipelines.

EDUCATION

Nanyang Technological University, Singapore

Aug 2023-May 2027

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

- Honours (Distinction) (Current) | GPA: 4.31/5
- 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, .NET
- Cloud: Google Cloud Platform(GCP), Firebase, AWS, Docker, Azure
- Other: C, 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

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%