Lim Yi Hong

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Profile

Experienced Software Engineer with a solid foundation in Artificial Intelligence. Committed to ongoing learning and professional development, as demonstrated through academic accomplishments and practical expertise. Proficient in utilizing advanced technologies to craft creative solutions. Recognized for the seamless integration of technical prowess and a commitment to excellence, consistently contributing to successful software engineering and AI initiatives.

Highly motivated and hardworking individual with a strong foundation in Computer Science. Proficient in database management and Artificial Intelligence, with the ability to apply theoretical knowledge to real-world scenarios. Committed to delivering high-quality results through effective problem-solving and collaborative teamwork.

GitHub: https://github.com/AlvinLim1010 LinkedIn: https://www.linkedin.com/in/yi-hong-lim-895892220/

Experiences and Leadership

Software Engineering • Pingspace Robotics, Malaysia • Sept 2023 – Present

- **Backend Development:** Leveraged Python to construct a robust backend infrastructure, ensuring the seamless execution of algorithms and facilitating communication between the robotic fleet and the control system. Created API endpoints using Flask-RESTX to expose functionalities for the frontend and other system components. Implemented OAuth2 authentication to establish a secure login system, enabling user tracking and providing transparency on API calls.
- **Frontend Development:** Utilized Vue.js to design and implement an intuitive and user-friendly frontend interface. Implemented a secure login system using OAuth2, enabling transparency in user actions and facilitating accountability within the system.
- **Chat box Integration**: Designed and implemented a chat box feature on the frontend to prevent users from inadvertently triggering conflicting actions for the robots. This streamlined communication and enhanced overall system efficiency.
- **Robotic Visualisation:** Developed a visually engaging representation of robotic movements using Three.js, and Digraph visual that stores the nodes, and edges using D3.js. This visualisation tool offered real-time insights into the status of the robotic fleet, aiding in monitoring and decision-making processes.
- **Job Assignment Algorithm:** Implement an intelligent job assignment algorithm that optimally allocates tasks to robots based on real-time factors such as the robot's current position, the goal position and the prioritization of each job.
- **Pathfinding Algorithm:** Developed sophisticated pathfinding algorithms using Python to generate collision-free paths for robots.

Programming Events

- **Shopee Code League • March 2022**
- **AI Hackathon • Sept 2021**

Voluntary Experiences & Leadership

- **Vice President • UNM Archery Club • Sept 2020 – Jun 2021**
- **House Captain • CHIS Yellow House • Feb 2017 – April 2019**

Design Exercises and Projects

Portfolio Website • Personal Project • In Progress

- Developed a personal portfolio website using Vue.js and Tailwind CSS to showcase skills, projects, and resume.
- Implemented a modern and responsive design for optimal user experience.

Bookkeeping • Personal Project • Sept 2023 – Jan 2024

- Developed a Financial Bookkeeping while utilizing Python as the backend language, Vue.js, and Vuetify as the frontend technologies.

- **Backend**
  - Implemented a FastAPI backend to create multiple API routes for seamless communication with the frontend.
  - Utilised PostgreSQL to store data such as user information to provide a login system.
  - Enabled users to create transaction actions (e.g., expenses on Food/Travel) and are stored in the PostgreSQL.
- **Frontend**
  - Designed and implemented five main pages for user interaction:
    - **Overview**: Displays a summary of number of actions users stored and the user's previous created/updated actions.
    - **Table**: Presents detailed information about user actions with options to edit or delete each entry.
    - **Create**: Allows users to create new financial actions directly from the frontend.
    - **Visualization**: Provides data visualization for users to comprehend their financial status more easily.
    - **Profile**: Shows user information with an option to edit details.

Designing AI Agents to play Chess • CSAI Year 3 Individual Project • March 2022 – May 2022

- Developed AI agents using Minimax and Monte Carlo algorithms for move decision-making in chess.
- Compared agents based on win percentage, move-by-move execution time and etc.

Smart City Visualisation with Artificial Intelligence • CSAI Year 3 Individual Project • Oct 2022 – April 2022

- Created a GUI for visualizing extensive public data with historical excel dataset or API live dataset using various visualization tools.
- Implemented artificial intelligence to make predictions based on the data.

Calculator with History • Personal Project • Oct 2022

- Developed a versatile calculator GUI with "Single Operator" and "Multiple Operator" modes.
- Includes a history box displaying user-entered expressions.

GUI with Artificial Intelligence Prediction • CSAI Year 2 Group Project • Oct 2021 - Apr 2022

- Developed a GUI for predicting POME using datasets, allowing users to choose features.
- Conducted data pre-processing for outlier removal.

Software Refactoring • CSAI Year 2 Sem 1 Design Exercise • Oct 2021 - Dec 2021

- Refactored a "Brick Breaker" game for Java Swing, adding features and improving code organization.

Software Developments • CSAI Year 1 Design Exercises • Nov 2020 & Apr 2021

- Created a game in "Scratch," while learning and following software development processes.
- Developed a grocery list using linked list data structure in C.

Education

BSc Computer Science with Artificial Intelligence – University of Nottingham (Sept 2020 – Jun 2023)

- Over the three years combined, achieved Second Upper Division.

Year 3

- Worked individually on developing a GUI to visualise data and predict data using machine learning.
- Worked individually to implement AI agents to play Xiangqi, Chinese Chess.
- Worked as a group of 2 to code a robot using Python.
- Project leader for taking care a team of 5 to apply the machine learning skill in Python.

Relevant Module:

- Individual Dissertation
- Machine Learning
- Autonomous Robotic Systems
- Designing Intelligent Agents

Year 2

- Achieved an average mark of 72.17 for the second year.

- Worked individually to refactor and improve on a Brick Game on Java.
- Project leader for taking care a team of 5 to find an optimisation algorithm for the benchmark datasets given.
- Worked in a different group to develop a GUI to predict the POME value using machine learning and Python.

Relevant Module:

- Software Maintenance
- Software Engineering Group Project
- Artificial Intelligence Methods

Year 1

- Achieved an average mark of 79.67 and a recipient of Dean's Progression Scholarship for first year.
- Worked individually to create a small Grocery Database using C language.
- Project leader for taking care a team of 6 to develop a game using Scratch.
- Project leader for taking care a different team to create a database website using PHP, CSS, JavaScript and XAMPP SQL.

Relevant Module:

- Programming & Algorithms
- Software Engineering
- Database & Interfaces

Foundation in Science – University of Nottingham Malaysia (Sept 2019 – Sept 2020)

Achieved an average mark of 83 and a recipient of Dean's Progression Scholarship. Worked individually to generate a Digital Clock using C language. Project leader for taking care a team of 5 to find Searching Algorithm and develop a simple application to run it, and to create a website using HTML and CSS.

IGCSE – Crescendo HELP International School (Feb 2017 – June 2019)

Achieved 2A*, 4A and 3B, Mathematics (A*), Additional Mathematics (A), Physics (A), First language English (B).

Skills

Language Proficiency

- Fluent in Chinese, English, and Bahasa Malaysia.

Programming Languages

- Proficient in C, Python, Java, JavaScript.
- Familiar with Vue.js, Haskell.
- Competent in HTML and CSS.

Database

- MySQL, PostgreSQL
- MongoDB

Other Technical Skills

- Experience with MATLAB.
- Proficient in Docker, Microsoft Office.
- Basic understanding of Robotic Operating System (ROS).

Soft Skills

- Demonstrated leadership and teamwork in university projects, co-curricular societies, and activities.
- Proven ability to multitask and effectively manage time to achieve work-life balance.
- Fast learner, adept at quickly acquiring new skills and adapting to new technologies.

Interests

Sports: Badminton, Football, Racing (Formula 1)

Other: Software engineering, Robotics are very interesting to me since I have always been interested in building and testing stuff from young.