

Kexin Wei

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Software and robotics engineer with expertise in **full-stack** development, **AI** integration, and team **leadership**. Strong focus on system **architecture**, **quality** control, and cross-functional collaboration.

Experience

Research Engineer

Imperial Global Singapore.

Mar 2025 — Now

Singapore, Singapore

- Full-Stack:** Built a Flask + Vue.js web application for real-time simulation and cyberattack visualization.
- Simulation:** Translated MATLAB controllers to Python, implemented and tuned a real-time glucose-insulin simulator.
- DevOps:** Dockerized and deployed a closed-loop glucose simulation stack with multi-container orchestration.
- Mobile:** Developed a Flutter based Android app and Vue.js based front end for attendance monitoring.
- CyberSecurity:** Researching agentic automated penetration testing for medical cyber-physical systems.
- IT:** Administers lab workstations, servers, and container infrastructure.

Software Team Lead

Creative Medtech Solutions Pte.Ltd.

Mar 2024 — Jan 2025

Singapore, Singapore

- Robot:** Engineered robotics control systems including kinematics optimization for 4-DoF robot and control interfaces.
- CyberSecurity:** Enhanced security through encryption protocols, SQL injection protection, and streamlined Qt based GUI.
- Image:** Developed 4D DICOM processing and US/MRI registration algorithms for medical image alignment.
- Lead:** Led Git workflow standardization, Scrum adoption, GoogleTest integration, and code review standards.

Research and Development Engineer

Creative Medtech Solutions Pte.Ltd.

Jun 2022 — Mar 2024

Singapore, Singapore

- Robot:** Designed motion tracking algorithm for 6 DoF robot arm integrating A* STAR CNN algorithm, verified in animal trial.
- AI:** Developed and validated a AI based 3D medical image segmentation pipeline for prostate biopsy guidance.
- Image:** Prototyped kidney segmentation solutions using SAM, MedSAM, and OpenCV for potential implementation.
- Sensor:** Integrated electromagnetic sensor system in the HIFU treatment software for 3D visualization of the ultrasound probe.
- Patent:** Filed 3 patents in medical algorithm design: HIFU calibration, respiratory tracking, and time synchronization.

Education

M.Eng in Medical Robotics and AI

National University of Singapore, Singapore

Aug 2020 — May 2022

GPA: 4.63/5.00

- Thesis: Deep Reinforcement Learning (DRL) for Robot-assisted Surgical Training
- TA for ME2143E Motor Characteristics and ME5405 Machine Vision.

B.Eng in Mechanical Engineering

Tongji University, China

Sep 2014 — Jul 2019

GPA: 4.61/5.00

Awards & Honors

AI Mathematics Modeling Scholarship	Hackathon "Runner Up" Prize at bio LLMs hosted by 4Catalyzer (2023) 2nd Prize in CUMCM (2018); Honorable Mention in MCM/ICM (2018) 3rd Class Award(2018); 1st Class Award(2016); 3rd Class Award(2015)
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Skills

Programming AL/ML CAD/CAE Language	C++, Python, Flask, Vue.js, Linux, Git, flutter, Matlab, SQL, Docker, ROS, Qt, VTK, OpenCV PyTorch, TensorFlow, Deep Learning (CV, CNN, DRL), LLM (Claude, OpenAI, Gemini, LangChain) Solidworks, AutoCAD English (C1), German (C1), Mandarin (native)
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