Dazheng Fang

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SUMMARY

Full-stack engineer delivering production-grade web applications. Recently built a Next.js/TypeScript e-commerce platform and booking system, cutting transaction errors by 40% and manual overhead by 60% through robust scheduling workflows and admin dashboards. Previously co-founded a VR startup and engineered a multi-camera motion-tracking pipeline that achieved sub-millimeter accuracy, improving gait stability by up to 45%. Seeking to apply this blend of full-stack development and real-time systems experience to create reliable, high-impact software solutions.

EDUCATION

Vanderbilt University   **Jan 2023 - Dec 2024**
Master of Science, Computer Science   *Nashville, TN*

Southeast University   **Aug 2018 - Jun 2022**
B.Eng.(Honors), Computer Science and Technology (Artificial Intelligence)   *Nanjing, China*

EXPERIENCE

Ted Tech   **Jan 2025 - Present**
Full-Stack Software Engineer   *Nashville, TN*
- Built and operated two production systems-a full-stack queue e-commerce platform (500+ SKUs) and a booking management system for 10 massage shops-using Next.js, TypeScript, Prisma, PostgreSQL, and Stripe, delivering reliable online sales and appointment scheduling for the businesses.
- Designed scheduling and state-driven workflows, reducing transaction errors and booking conflicts by 40% while improving operational reliability.
- Developed internal admin dashboards for inventory, orders, and scheduling, cutting manual operational overhead by 60% and streamlining day-to-day business workflows.
- Owned system architecture, deployment, and long-term maintenance across a 200+ file production codebase, leveraging agent-assisted development (Cursor) to accelerate feature delivery and refactoring.

SYH Technology Co., Ltd.   **Jul 2022 - Dec 2022**
Cofounder & Software Engineer (Motion Tracking & Locomotion Systems)   *Nanjing, China*
- Co-founded SYH Technology and led software development for the Hex-Core-MK1 omnidirectional treadmill, building motion-tracking and locomotion modules that enabled the first functional prototype for investor demonstrations.
- Designed a four-camera passive localization system based on PnP/EPNP multi-view geometry, improving tracking accuracy from centimeter-level to sub-millimeter precision and reducing vibration-induced pose drift by 50% compared to two-camera baselines, without relying on active emitters.
- Developed a human gait-energy control system using an extended inverted-pendulum model with feedforward–feedback control, reducing lateral oscillation by 35–45% and improving walking stability compared to open-loop and feedback-only control schemes.
- Integrated the perception–control pipeline into Unity 3D and contributed to prototype demonstrations and technical documentation for early-stage fundraising.

PROJECTS

Website-Deployed Engineering RAG Knowledge Assistant
- Building a retrieval-augmented system for my personal website that answers grounded questions over project documentation, technical notes, and code-related materials.
- Designing ingestion, chunking, metadata indexing, retrieval, and citation pipelines to improve transparency, answer relevance, and source-backed reasoning.
- Evaluating groundedness, retrieval quality, and latency to turn the system into a user-facing AI product rather than a simple chatbot demo.
- Integrating the assistant into a portfolio website experience to showcase applied LLM engineering, search design, and product-oriented deployment.

ROS2-Based Treadmill-Driven Robot Teleoperation Prototype
- Designing a software-first teleoperation prototype that maps locomotion inputs to robot motion commands using a modular ROS2 pipeline.
- Building simulation, control-mapping, telemetry, and visualization components to explore human-in-the-loop interaction and downstream robotics data collection.
- Using the project to extend prior motion-control experience into software-defined embodied interface systems.

Keepsake – Intelligent Object Memory App
- Built an AI-powered iOS application for capturing, organizing, and retrieving personal objects, enabling users to create structured digital memories from everyday items.
- Developed computer vision pipelines using SwiftUI, Core Data, and VisionKit for automatic background removal and object classification with over 90% accuracy.
- Designed a scalable MVVM + Repository architecture with async/await concurrency, resolving Core Data deadlocks and improving long-term application stability.

TECHNICAL SKILLS

- **Languages**: Python, Java, C++, C, C#, SQL, PostgreSQL, MySQL, MongoDB, JavaScript, R
- **AI & Data**: LLMs, RAG, Vector Databases, FAISS, Chroma, Computer Vision, Embeddings, Information Retrieval
- **Web & Systems**: React, Node.js, FastAPI, Flask, RESTful APIs, Redis, Prisma, Stripe, Next.js
- **Mobile & Simulation**: SwiftUI, Core Data, VisionKit, Unity 3D
- **Infrastructure & Tools**: Git, Docker, CI/CD, Travis CI, Google Cloud Platform

Publications

- Ziyao Wang, Chiyi Liu, Jialiang Chen, **Dazheng Fang**.Strolling in Room-Scale VR: Hex-Core-MK1 Omnidirectional Treadmill. IEEE Trans. Vis. Comput. Graph. 29(12): 5538-5555 (2023).

Achievements

- Region 10 Winner, IEEE Circuits and Systems Society Student Design Competition, 2020–2021
- Silver Medal, International Exhibition of Inventions Geneva, 2022