Zhao Lou

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SUMMARY

I build the layer between AI models and the people who use robots: interaction, teleoperation and data collection, evaluation and deployment. Since Dec 2025 on a humanoid robot, working AI-native with many coding agents in parallel; before that, 15 years taking consumer devices from zero to launch, deep in Wi-Fi and networking.

EXPERIENCE

Fauna Robotics (an Amazon company)

Senior Software Engineer — Dec 2025 – present

Sprout is Fauna Robotics' consumer humanoid. I built the human side of it, how people talk to it, see it and teach it.

Autonomous robot stage · co-owner · *Jun 2026 – present*

- Co-led a 6-engineer program that turned the Sprout humanoid into an autonomous host, with an LLM voice agent, co-speech gestures and a perception-driven visit flow; rated 4.6/5 by more than 100 visitors.
- Split the robot's agent so the model chooses the words and a deterministic layer guarantees every gesture and movement (from about half the time to every time); visits end on time-outs, not noisy perception signals.
- Designed the robot's conversation layer; stage logic picks the moment (welcome, reveal, farewell and more) and the LLM writes only the words, from a reviewed prompt library.
- Contributed much of the robot's comic persona, drawn from published research on robot stand-up, and tested it like code against the same agent without it, on friendly and skeptical visitor lines.
- Built the show the robot runs, including a 180° turn-to-camera photo with a printed keepsake, dances with synced lights and a personal song for each visitor.
- Built the multi-computer ROS 2 system and its tooling, with one-command deploys from one commit, drift checks that fail loudly and cross-host visit logs.
- Led 3 of 6 workstreams, including hardware fabrication with an external vendor and the lab move; delivered on schedule for the showcases.

Mixed-reality robot platform · creator and lead developer · *Jan – Oct 2026*

- Built alone an AR data-collection tool that a robot lab uses every day to collect robot-learning data.
- Created a Quest 3 mixed-reality platform to see, drive and teleoperate a life-size humanoid in your own room; defined its main products and was its main developer.
- Redesigned the headset interaction, replacing 8+ controller mappings with one point-and-trigger gesture, and built reach planning with a live reachability map on real surfaces.
- Led a browser living-world simulation in Three.js with Gaussian-splat scenes and AI-driven characters.

Across projects

- Build AI-native at the scale of an engineering org; parallel coding agents, every change behind blocking checks and tests a machine can rerun.
- Built a containerized Jetson inference testbed with TensorRT nodes for an on-robot compute study.

Lucid Lake (independent studio)

Creator — Oct 2026 – present

- Created Velia (velia.lucidlakelabs.com), a sailing game set on a real lake, Emerald Bay at Lake Tahoe: survey terrain, real-time ocean physics on WebGPU and 30 ft sloop dynamics, in a browser tab with nothing to install. Its launch post was #3 on r/threejs that day, with 7,000+ views.
- Built solo with parallel AI coding agents; public 24 hours after the first commit, 945 commits in 9 days, and 971 tests plus 10 pixel-checked reference frames gating every merge.
- Created Snoot, a plush performing robot (a polar bear that sings, dances and does stand-up), in concept design; character, industrial design, mechanism and electronics architecture, an eye/face engine, physics simulation.

- Ran a feasibility study on independent testing of humanoid robots for specific jobs.

Amazon Lab126

Senior Software Engineer — Jun 2021 – Dec 2025

- Device-side tech lead for Managed integrations for AWS IoT Device Management, a smart-home platform for internet providers (launch customer TELUS). Led the hub SDK for Zigbee, Z-Wave and Matter devices, defined the data model, and co-defined the device-to-cloud architecture with the AWS IoT team. On the project from day one to launch.
- Designed a new Wi-Fi Simple Setup protocol from scratch for partner IoT devices; AWS launched it in January 2026.

Software Dev Engineer — Nov 2016 – May 2021

- Designed and implemented the SOCKS5-proxy path that lets a new device reach the cloud through an Amazon device already online, chosen over NAT for memory, firewall safety and one code base across Linux, Android and RTOS. Now on about 80M devices. Drafted the patent and was main code contributor to the Echo and Fire TV setup provisioner.
- Co-invented and built a Bluetooth LE rescue tunnel so a device with broken Wi-Fi can reach the cloud through a nearby device or the phone; four US patents, two as first-named inventor.
- Took over Fire TV's Network Status Advisor two weeks before release lock and shipped the revamp in 30 days; owned the Fire OS implementation of Wi-Fi self-recovery.

Broadcom System Design Engineer, Staff II / Staff I — Oct 2012 – Nov 2016

Entropic Communications (now MaxLinear) Software Engineer — May 2011 – Aug 2012

PATENTS

5 US patents in wireless networking (2 as first-named inventor).

SKILLS

- **Robotics:** ROS 2, Zenoh, inverse kinematics, teleoperation UX, AprilTag, human-robot interaction, MuJoCo, NVIDIA Jetson, TensorRT
- **AI engineering:** spec-driven development with AI coding agents, multi-agent workflows, code-guaranteed LLM actions, LLM voice agents, tool calling, TTS
- **XR and 3D:** Unity 6, C#, Meta XR SDK, Quest 3, mixed-reality interaction design, URDF pipelines, OpenXR, Three.js, Gaussian Splatting, WebGPU
- **Web:** JavaScript, Three.js, WebGPU, Vite, Vitest, Playwright, Cloudflare Pages
- **Connectivity and IoT:** Wi-Fi (802.11), Wi-Fi provisioning, Linux networking, wpa_supplicant, SOCKS5, BLE, IoT device SDKs, fleet-scale device software, Zigbee, Z-Wave
- **Leadership:** program co-ownership, vendor management, cross-team alignment, hiring (40+ interviews), mentoring

EDUCATION

M.S. Electrical Engineering, University of California, San Diego, 2011 · B.S. Microelectronics, Fudan University, 2009