

KODY BROWN

MECHANICAL ENGINEER — ROBOTICS HARDWARE

San Mateo, CA | kodybrown.me | [linkedin.com/in/kodyabrown](https://www.linkedin.com/in/kodyabrown)

PROFILE

Mechanical engineer with 13+ years developing robots and vehicles from concept through production. Expertise in structural design and FEA, actuator and drivetrain integration, IP-rated enclosures, high-cycle mechanisms, and DFM for stamping, casting, and machining. Currently design owner of the core load-bearing structure on a 3,000 lb-payload mobile-robot platform. Builder of AI-powered engineering tools in production use. Four issued U.S. patents. Extensive hands-on prototyping, test, and root-cause analysis experience.

TECHNICAL SKILLS

- Design & CAD (13+ yrs): SolidWorks, Onshape, CATIA, Fusion 360; GD&T and tolerance stack-up; PDM/PLM (Arena, Duro) and MES administration
- Analysis: Ansys and SolidWorks FEA (static, impact, buckling, thermal); analytical fatigue (Coffin-Manson, Smith-Watson-Topper); simulation-test correlation
- DFM & processes: sheet-metal stamping (formability, tonnage, springback, tooling economics), casting/forging, CNC machining, injection molding, weldments
- Test & reliability: durability/cycle test design, HALT planning, load and shock testing, ingress-protection (IP67) design and validation, root-cause analysis
- Vendors & production: RFQ through production qualification, ECO/change control, QA protocols, build documentation, overseas and domestic sourcing
- Automation & AI tooling: robotic work cells (UR + PLC), Python, AI-augmented CAD/PLM/FEA tools developed and deployed team-wide

PROFESSIONAL EXPERIENCE

Staff Mechanical Design Engineer | Mytra

Apr 2024 – Present

South San Francisco — warehouse automation: dense 3D storage grid operated by mobile robots handling loaded pallets up to 3,000 lb

- Lead structural design of the platform's 3,000 lb-payload load-bearing tray across two hardware generations; driving the architecture change from a multi-piece riveted assembly to a single-piece stamped-steel design, with unit cost down 65% on prototype tooling and on a path to roughly 90% reduction at production volume.
- Resolved a press-tonnage infeasibility on a compressed timeline: structural analysis proved a lower-strength, more formable steel preserved all design margins, and paired with a major geometry redesign it significantly reduced forming tonnage — cutting material and tooling costs and unlocking a far broader stamping supply base.
- Support ongoing design qualification with analysis and test: FEA and fatigue analysis predicting cycle life well beyond design-life requirements, and a forklift durability test correlating measured deflection within 10% of FEA predictions.
- Designed two iterations of the mobile-robot chassis supporting 3,000 lb payloads: thorough FEA analysis drove significant increases in chassis stiffness while significantly reducing cost.
- Lead mechanical engineering for two additional programs, including a trailer-loading end-effector and maintenance equipment co-developed with an external lift manufacturer.
- Developed AI engineering tools adopted team-wide: CAD-PLM integration deployed as default tooling, automated Ansys FEA workflows, and a hardware-library importer; helped evaluate and select the company's PLM and MES platforms and define their workflows.
- Assembled first-article units, ran vendor production builds, and resolved field issues on the deployed robot fleet, including on-site debugging at customer facilities.

Staff / Senior Mechanical Engineer | Chef Robotics

Apr 2021 – Apr 2024

San Francisco — robotic food-assembly systems deployed in production food plants (Staff from May 2023)

- Led mechanical design of food-assembly robots from prototype through production deployment at customer plants: hygienic stainless-steel platforms rated for repeated chemical and high-pressure washdown, operating safely alongside line workers.

- Selected and integrated high-force, fast-actuating IP67 pneumatic end-effector actuation supporting the full tooling family; designed utensil tooling covered by three issued patents.
- Designed a high-cycle quick-change tool interface using precision wire-EDM tapered dovetails held to tight profile tolerances, enabling tool swaps in seconds with no loose parts.
- Validated operator safety to OSHA/ISO pinch-point requirements through instrumented load-cell testing and clearance redesign.
- Established PLM and MES; built an in-house production line producing multiple robots per week; managed build technicians, QA protocols, and domestic and overseas vendors.

Mechanical Engineer | Zoox
Mar 2017 – Mar 2021

Foster City — purpose-built autonomous vehicles

- Engineered two generations of L3 autonomous test-vehicle platforms, integrating sensors and electronics at production positions and tolerances across a cross-functional team.
- Designed IP67-equivalent camera enclosures with sealing, venting, and internal moisture management, eliminating water ingress and lens fogging.
- Designed and FEA-validated rollover outriggers for vehicle-dynamics testing; built robotic durability test cells and the structural frame for a full-vehicle dynamometer test buck.
- Designed vacuum lift-assist devices and manufacturing fixtures for vehicle assembly; delivered hundreds of tight-tolerance CNC parts through internal and external machine shops.

Mechanical Engineer | Del West USA
Oct 2013 – Mar 2017

Santa Clarita — precision valvetrain components for racing and aerospace

- Performed failure analysis and FEA on high-stress engine components, implementing design corrections in production.
- Integrated a robotically loaded CNC cell (UR5, conveyor, pneumatic gripper, PLC safety system) for automated machine tending; designed and constructed an isothermal forge cell on schedule.
- Reviewed and approved manufacturing drawings for GD&T accuracy and manufacturability across the machine shop.

Co-Captain — SAE Baja | UC Davis
2012 – 2013

- Led chassis design and fabrication (SolidWorks, MIG/TIG welding); senior design project: semi-active suspension with closed-loop damper control and a custom shock dynamometer for damping characterization.

PATENTS

System and/or Method for Robotic Foodstuff Assembly — US 12,186,916 B2	Jan 2025
Foodstuff Utensil — US D1,074,307	May 2025
Foodstuff Utensil — US D1,085,811	Jul 2025
Warehouse robotics — U.S. Patent No. 12,679,649 (Mytra, named inventor)	2026

EDUCATION

B.S. Mechanical Engineering, University of California, Davis	2013
Engineer-in-Training (EIT), California UC Davis Mechanical Engineering Service Award	