

JAMES DUGAN

MECHANICAL ENGINEER

PROFILE

Innovative Mechanical Engineer with 10+ years of expertise in robotics, autonomous systems, and strategic product development. Distinguished track record of resolving complex technical challenges, architecting high-performance mechanical solutions, and optimising manufacturing workflows in high-velocity, international environments. Proven expert in bridging the gap between digital design and physical deployment for global Tier-1 industrial and automotive partners.

SKILLS

- CAD/CAM software
- Solidworks
- Autodesk
- Plastic injection molding
- Design for manufacturing
- Technical drawings
- Technical writing
- GD&T
- ECO/ECR processes
- Hydraulic/Pneumatic systems
- Electronic actuators
- Project planning/management
- ERP management
- Test development
- C++ and Python
- Github
- Linux

HOBBIES

- Home Improvement
- hobby electronics
- 3D printing
- Coding/scripting
- Hobby robotics

CONTACT

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EDUCATION

Ivy Tech community college

Associate Mechanical Engineering technology

- Deans list
- CAD design award
- Worked full time in a degree related industry during enrolment

Perdue University Indianapolis (No Degree)

Worked towards Bachelors Mechanical Engineering (Sophomore year completed)

- Beginner Japanese courses

LANGUAGES

English native language

Japanese Intermediate reading and comprehension, beginner writing

EXPERIENCES/ WORK HISTORY

February 2024-Current

Acieta (Capital Industries) - Design Engineer

- **Project Leadership:** Serve as Lead Engineer for high-value capital projects for Tier-1 industrial clients (Caterpillar, Wabash). Manage end-to-end project lifecycles, ensuring technical milestones are met within strict budgetary and delivery constraints.
- **Multi-Company Collaboration:** Navigate complex, multi-organizational engineering initiatives for major automotive accounts (General Motors). Delivered high-precision contributions under aggressive timelines; systems remain in active production with zero performance issues.
- **Advanced Optimization (FEA):** Systematically utilize Finite Element Analysis (FEA) to identify critical failure points and optimize structural integrity, achieving up to 40% reduction in component weight while maintaining safety factors.
- **Manufacturing Liaison:** Bridge design and production by translating complex requirements into detailed fabrication prints. Manage technical procurement with external suppliers and provide oversight to internal assembly teams.

April 2023-January 2024

Kokusai USA (contract) - Mechanical Engineer

- **Design Maintenance:** Maintained technical drawings and supported the production of industrial tooling and specialized equipment.
- **Legacy Integration:** Translated and updated 2D CAD archives from the Japanese parent company into modern 3D parts and assemblies for current production lines.
- **BOM Management:** Managed Epicor BOMs, incorporating upgrades, job masters, and additional components to streamline ERP workflows.
- **Simulation:** Conducted fatigue analysis simulations on critical components, providing actionable recommendations for design hardening.

March 2020-August 2022

Accel Robotics Japan - Mechanical Engineer

- **Autonomous Retail Leadership:** Led mechanical design for flagship automated retail projects for Lawson and 7-Eleven Japan, demonstrating proof-of-concept technology to strategic global clients.
- **Design for Scalability:** Developed automated retail hardware using DFM best practices, resulting in a 15% reduction in production and testing cycle times.
- **Supply Chain Optimization:** Coordinated with international suppliers to source off-the-shelf solutions and accelerated production methods, successfully reducing lead times from months to weeks.
- **Cross-Functional Engineering:** Collaborated with electrical and software teams to identify potential PCB failures and software bugs during the prototyping phase of person-tracking sensor arrays.

March 2019 -February 2020

Attrac lab Japan - Mechanical Engineer

- **Toyota / Olympics Project:** Engineered internal mechanical systems for Toyota's Field Service Robot (FSR) deployed during the 2020 Tokyo Olympic Games.
- **International Research:** Led mechanical integration for an autonomous bus project in collaboration with Nanyang Technological University of Singapore.
- **Aerospace & Robotics:** Designed electronic actuators and servos for Unmanned Ground Vehicles (UGVs) and drones, producing designs that were lighter and more cost-effective than commercial alternatives.
- **Precision Stabilization:** Integrated camera stabilization gimbals for agricultural monitoring, achieving a 30% weight reduction and increased electrical efficiency over legacy models.

Further Experience

January 2017 -February 2019

EAMS lab Japan - Product development engineer

March 2010 -June 2016

Allison Transmission - Machinist/Intern