Kalen Cole Jaroszewski

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EDUCATION

Texas A&M University – College Station, Texas BS in Mechanical Engineering GPA - 3.57 May 2027

EXPERIENCES

Human-Empowering Robotics and Control (HERC) Lab September 2025 – Present
Undergraduate Researcher | Part-time

- Designing an alternative rotor design for a space-rated magnetic cycloidal gearbox (CyMG)
- Assembling a 150 $\mathrm{N\,m}$ EtherCat-based dynamometer station compatible with the lab's three gearbox projects
- Performing an adhesive performance trade study to address bonding failures to nickel-coated magnets

Texas A&M Engineering Experiment Station - RAD Lab June 2025 – August 2025
Mechanical Intern

- Presented a trade study focused on improving torque density while reducing stiction and hysteresis in CyMGs
- Manufactured a 20:1 Halbach-array CyMG using N48 magnets with swappable inner rotors to enable stiction comparison between a traditional and an experimental rotor design
- Designed a RESOLUTE encoder readhead mount capable of adjusting within its 0.7–0.9 mm operating range using FEA and validation through beam theory derivation of blade flexures

ORGANIZATIONS

TAMU AggieSat Laboratory - AggieSat8 TMS Member | Team of 6 November 2025 – Present

- Creating trade studies for the thermal, mechanisms, and structures of an ISS experiment mission, validating the space worthiness of liquid crystal antennas
- Applying the V-model systems engineering life cycle from requirements and verification to validation

Texas A&M University Robotics Team and Leadership Experience January 2024 – December 2025
Development Vice President | Senior leadership, 320 members May 2024 – Present

- Engaging 200+ undergraduates a week through the Hatchling Development Program, while coordinating 20 inter-organizational officers and the curriculum spanning technical and project management concepts
- Establishing and executing a multi-organization expansion plan, resulting in partnerships with 3 TAMU and TAMU Galveston organizations to address internal capacity limitations and doubling program reach
- Spearheading the Hatchling overhaul, driving tenfold member count (120 internal), a sixfold increase in project completion (to 60%), tripling member retention (to 75%), and net-positive operations in two semesters
- Implementing an automated Excel tracking system, reducing procurement lead time by 1 week across 21 project teams, and allowing project spending analysis to assist budget allocation decisions

QUAD Mechanical Lead | Team of 10 August 2024 – December 2025

- Led the mechanical design of two Raspberry Pi quadruped robots, including QUADV2, a 3-feet-long $2,400 dog, and Mini-Quad, a low-cost 10-inch-long dog serving as a software testbed for QUADV2
- Created a backdriveable 19:1 cycloidal actuator within safety and torque feedback control requirements using an MJ5208 DC motor controlled via a Moteus-C1 or R4
- Optimized a 3-DOF robotic leg using design for additive manufacturing and assembly principles, including modular actuators, replaceable sensor-embedded silicon feet, and an accessible toe-link failure mode

TAMU IGNITORS Rocketry Team - Avionics Member | Team of 15 November 2024 – May 2025

- Manufactured all SRAD flight-critical components using a CO2 Laser Cutter and additive manufacturing
- Designed a 360° field of view camera department featuring 3 ESP-CAMs and a MicroSD card breakout board
- Implemented a prelaunch startup sequence to prevent the ESP-CAMs from overheating during launch delays

SKILLS

- **Mechanical**: SolidWorks (CSWP), ANSYS FEA, GD&T Y14.5, DFMA, Soldering, Power Tools
- **Software:** MS Office Suite (Excel, Word, PowerPoint), Python, C++, Git / GitHub, Linux, Inkscape