Ryo Kato

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EDUCATION

Texas A&M University College Station, Texas

Bachelor of Science in Mechanical Engineering *May 2028*

Minor in Mathematics *Cumulative GPA: 3.1/4.0*

Relevant Coursework: Solid Mechanics, Geometric Modeling for Mechanical Design, Linear Algebra, Differential Equations, Principles of Materials and Manufacturing, Principles of Electrical Engineering, Statistics

PROFESSIONAL SUMMARY

Dedicated Mechanical Engineering student at Texas A&M University experienced in building robotic platforms. Proficient in Python, Embedded C++, SolidWorks, and System Design. Passionate about control systems, mobile space robotics, and mechanical design. Actively involved in multiple collaborative hands-on projects to further expand and refine my technical skill set.

SKILLS

Software: SolidWorks, Onshape, FEA, ROS, Git, Github, Linux, Windows, Visual Studio Code (VS Code), Arduino IDE, Multi-Sim, WaveForms, LaTeX, QGIS, DaVinci Resolve, Microsoft Office (Word, Excel, PowerPoint)

Hardware: Raspberry Pi, Arduino, Multimeter, Soldering, 3D printers, Power Tools, GD&T

Programming: Python (NumPy, SciPy), Embedded C++, R, JavaScript (Node.js, Express.js, Socket.IO), HTML/CSS

Languages: English (fluent), Japanese (fluent)

RELEVANT EXPERIENCE

Human-Empowering Robotics and Control (HERC) Lab College Station, Texas

Undergraduate Researcher | Advisor: Dr. Gray Thomas *Jan 2026 – Present*

- Modeling end effectors with SolidWorks and implementing novel control schemes for strength amplification onto a 6DOF robotic arm utilizing ROS and C++

Texas A&M University Robotics Team and Leadership Experience (TURTLE) College Station, Texas

Software Engineer - OLSN *Jan 2026 – Present*

- Designing software architecture with real-time control of a myoelectric prosthetic hand via a gesture recognition

Mechanical Systems Lead - DRON *Jan 2025 – Present*

- Directing a team of 5 members to develop a modular mechanical design of an autonomous drone swarm for disaster response
- Initiated an iterative 3D printing prototyping process to rapidly incorporate learned improvements, resulting in a collaborative agile design cycle
- Deployed flight capabilities using Betaflight and troubleshooting critical mechanical and electronic components
- Prepared detailed technical design reviews for all subteams, receiving positive feedback from reviewers

Controls System Engineer - BLNC *Aug 2025 – Dec 2025*

- Spearheaded the development of a cascade PID controller system for a self-balancing two-wheeled inverted pendulum robot in Python with Neo motors and Moteus motor controllers, enabling pitch and position control

Hatchling Program Member *Sep 2024 – Dec 2024*

- Collaborated with two teammates to win first place in an intraorganizational robotics competition
- Utilized SolidWorks to design and model a RC vehicle capable of placing an object into a moving target
- Integrated electronics and coded the entire Arduino program, tested and troubleshooted issues

Texas A&M Rocket Engine Design (RED) College Station, Texas

Avionics and Controls Subteam Member *May 2025 – Present*

- Delivered a Critical Design Review (CDR) for Elysium 2 to industry professionals, presenting detailed hardware specifications and showcasing tested safety features on the system
- Oversaw detailed component analysis for electronics, wires, and sensors to confirm compatibility and prevent integration issues, minimizing project delays and resource waste
- Presented a Design Concept Review (DCR) and Preliminary Design Review (PDR) for Project Ragnarok, explaining modifications to Elysium 2's avionic/electrical systems for use in a semi-cryogenic rocket engine

Structures Subteam Member *Feb 2025 – Aug 2025*

- Oversaw detailed component analysis for electronics, wires, and sensors to confirm compatibility and prevent integration issues, minimizing project delays and resource waste
- Led the design of a steel flame diverter capable of redirecting a 1800 K exhaust plume for 15+ seconds, safeguarding critical test infrastructure and the surrounding environment
- Executed failure mode and effects analysis (FMEA) and wrote component testing procedures to minimize operational failure and improve safety of the team
- Prepared and presented a Preliminary Design Review (PDR) for Elysium 2, addressing technical feasibility of the flame diverter and demonstrating system requirement compliance

Control and Robotics (CTRLROBOT) Lab College Station, Texas

Undergraduate Researcher | Advisor: Dr. Minghui Zheng *Aug 2025 – Dec 2025*

- Conducted research into a 3D printable anthropomorphic robotic gripper, programmed calibration tests with Dynamixel servos and integrated force-sensing resistors for feedback control using Embedded C++ and Arduino

PUBLICATIONS & POSTERS

- I. Wilhite, C. Ambroziak, A. Briggs, **R. Kato**, et al., *"Disaster Response Observation Network (DRON)"*, TURTLE Robotics, Nov 20th, 2025 [Showcase Poster]
- J. Foltyn, A. Bailey, J. Belda, B. Chuang, K. X. Fernandez, J. Godfrey, **R. Kato**, et al., *"Self Balancing Rovers (BLNC)"*, TURTLE Robotics, Nov 20th, 2025 [Showcase Poster]
- I. Wilhite, A. Briggs, J. Fuerst, E. Hannsz, C. Ambroziak, Q. Belmar, M. Ferguson, T. Francis, **R. Kato**, et al., *"Disaster Response Observation Network (DRON)"*, TURTLE Robotics, April 26th, 2024 [Showcase Poster]

EXPERIENCE

College of Engineering, Texas A&M University College Station, Texas

Student Assistant | ENGR 217 Experimental Physics and Engineering Lab III *Jan 2026 – Present*

- Assisting students in labs on electromagnetism and electromechanical systems, grading lab reports on a weekly basis

Student Assistant | ENGR 102 Engineering Lab I - Computation *Aug 2025 – Dec 2025*

- Assisted in teaching Python to over 100 students and graded assignments in a timely manner
- Hosted exam reviews to dozens of students, provided academic support to students during office hours

Texas A&M University Robotics Team and Leadership Experience (TURTLE) College Station, Texas

Documentation/Logistics Officer *April 2025 – Present*

- Created and managed the application system, overseeing 450+ applications per semester for the organization
- Coordinated with upper leadership and 20+ project leads to improve application data visualization and processing, analyzing and identifying trends for effective data-driven public relation campaigns
- Secured a $1000 corporate sponsorship, alleviating budget constraints and strengthening project funding
- Expanding and maintaining the TURTLE Knowledge Base, writing technical documentation on the common power tools, software, and hardware used in the organization and outlining system engineering processes

MedXplore Biomedical Engineering Competition College Station, Texas

Team MyoTronic *Jan 2026*

- Collaborated in a team of six to compete in a 48-hour intensive biomedical engineering design competition
- Presented a business model using an lower exoskeleton for rehabilitation assistance for post-op patients with muscle atrophy
- Awarded an honorary mention for placing 2nd place in the muscular electrophysiology category

SIMIODE College Station, Texas

SIMIODE Challenge Using Differential Equations Modeling (SCUDEM) *Oct 2025 – Nov 2025*

- Received the Meritorious award in an international differential equations modeling contest, worked with 2 teammates to solve real world modeling problems and present a 10-minute video presentation

Students for Exploration and Development of Space (SEDS) College Station, Texas

TAMU Lunar Search and Rescue Team *Oct 2024 – Nov 2024*

- Competed in the Lunar Search & Rescue Design Challenge by Texas Space Grant Consortium (TSGC) with 8 members
- Implemented motion planning algorithms for rovers using Python and Space Teams Pro for obstacle avoidance