Ryo Kato

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EDUCATION

Texas A&M University College Station, TX
Bachelor of Science in Mechanical Engineering May 2028
Minor in Mathematics GPA: 3.8/4.0
Relevant Coursework: Differential Equations, Engineering Mechanics, Principles of Materials and Manufacturing, Statistics

PROFESSIONAL SUMMARY

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

RELEVANT EXPERIENCE

Control and Robotics (CTRLROBOT) Lab College Station, TX
Undergraduate Researcher | Dr. Minghui Zheng Aug 2025 - Present
- Conducting research into a 3D printable anthropomorphic robotic gripper, implementing control algorithms and integrating force-sensing resistors for feedback control

Texas A&M University Robotics Team and Leadership Experience (TURTLE) College Station, TX
Controls System Engineer - BLNC Aug 2025 – Present
- Implementing a PID control system for a self-balancing two-wheeled robot, enabling movement and position control

Mechanical Systems Lead - DRON Jan 2025 – Present
- Leading a team of 5 members to develop the mechanical design of an autonomous drone swarm for disaster response
- Implementing an iterative 3D printing prototyping process to rapidly incorporate learned improvements, resulting in a collaborative agile design cycle
- Deploying flight capabilities using Betaflight and troubleshooting critical mechanical and electronic components
- Prepared detailed technical design reviews for all subteams, receiving positive feedback from reviewers

Hatchling Project 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 (TAMU RED) College Station, TX
Avionics 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
- Conducting detailed component analysis for electronics, wires, and sensors to confirm compatibility and prevent integration issues, minimizing project delays and resource waste.

Structures Subteam Member Feb 2025 - Aug 2025
- Developed a modular vertical test stand for a 1500 lbf thrust liquid bipropellant rocket engine, enabling testing capabilities in flight-like configurations
- Designed a steel flame diverter capable of redirecting a 1800 K exhaust plume for 15+ seconds, safeguarding critical test infrastructure and the surrounding environment
- Conducted failure mode and effects analysis (FMEA) and developed 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

Students for Exploration and Development of Space (SEDS) College Station, TX
TAMU Lunar Search & Rescue Team Oct 2024 – Nov 2024
- Competed in the Lunar Search & Rescue Design Challenge by Texas Space Grant Consortium with 8 members
- Implemented motion planning algorithms for rovers using Python and Space Teams Pro for obstacle avoidance

Aggie Astronaut Corps (AAC) Space Research Crew Sep 2024 – Nov 2024
- Contributed to Gaia Vari, a citizen science project funded by the European Space Agency
- Classified over 700 variable sources from the space observatory Gaia

PUBLICATIONS AND POSTERS

- I. Wilhite, A. Briggs, J. Fuerst, E.Hannsz, C. Ambroziak, Q.Belmar, M. Ferguson, T. Francis, **R. Kato,** J. Lev, B. Russell, C. Santiago, J. Witten, *"Disaster Response Observation Network (DRON)"*, TURTLE Robotics, April 26th, 2024 [Showcase Poster]

SKILLS

Software: CAD (SolidWorks, Onshape) | SolidWorks FEA | ROS2 | Git & Github | Linux | Windows | Visual Studio Code | QGIS | DaVinci Resolve | Microsoft Office (Word, Excel, PowerPoint)

Hardware: Raspberry Pi, Arduino, multimeter, soldering, 3D printers, GD&T

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

Languages: Fluent in English and Japanese

EXPERIENCE

Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations College Station, TX
SIMIODE Challenge Using Differential Equations Modeling Oct 2025 - Present

- Competing in an international differential equations modeling contest, working with 2 teammates to solve real world modeling problems and present a 10-minute video presentation

Department of Computer Science & Engineering, Texas A&M University College Station, TX
Peer Teacher | ENGR 102 Engineering Lab I - Computation Aug 2025 - Present

- Assisting in teaching Python to over 100 students and grading assignments in a timely manner
- Hosting exam reviews to dozens of students, providing academic support to students during office hours

Texas A&M University Robotics Team and Leadership Experience (TURTLE) College Station, TX
Logistics Officer April 2025 – Present

- Created and managed the application system, processing 450+ applications and improving data organization
- Managing forms and communication with the Mechanical Engineering Business Office

TIDAL Hackathon College Station, TX
Team CrewQuest Oct 2024

- Proposed a web/mobile application that provides personalized hangouts for college students, intended to simplify meeting new people and encourage the exploration of College Station
- Utilized Large Language Models to further interpret the user's specific needs and preferences to meet their inputted budget and available schedule
- Presented the concept to three judges within 48 hours, receiving an honorable mention