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: Linear Algebra, Differential Equations, Solid Mechanics, Geometric Modeling, 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: CAD (SolidWorks, Onshape), SolidWorks FEA, ROS2, Git & Github, Linux, Windows, Visual Studio Code (VS Code), Arduino IDE, 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: Fluent in English and Japanese

RELEVANT EXPERIENCE

Control and Robotics (CTRLROBOT) Lab   College Station, Texas

Undergraduate Researcher | Dr. Minghui Zheng   *Aug 2025 – Present*

- Conducting research into a 3D printable anthropomorphic robotic gripper, implementing control algorithms with Dynamixel servos and integrating force-sensing resistors for feedback control using Embedded C++ and Arduino

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

Controls System Engineer - BLNC   *Aug 2025 – Present*

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

Mechanical Systems Lead - DRON   *Jan 2025 – Present*

- Leading a team of 5 members to develop a modular 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
- 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

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 remote-control (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
- Conducting 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*

- 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

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. Xavier 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

SIMIODE
College Station, Texas

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

- Competed in an international differential equations modeling contest, worked 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, Texas

Student Assistant | 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, Texas

Logistics Officer   April 2025 – Present

- Created and managed the application system, processing 450+ applications and improving data organization
- Secured a $500 corporate sponsorship, alleviating budget constraints and strengthening project funding
- Creating and maintaining the TURTLE Knowledge Base, writing technical documentation on the common power tools, software, and hardware used in the organization
- Managing important forms and communication with the Mechanical Engineering Business Office

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

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

TIDAL Hackathon
College Station, Texas

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 (LLM) 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