

Taichi Uchida

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EDUCATION

Kyoto University

Bachelor of Engineering in Engineering Science (Aeronautics and Astronautics)

Kyoto, Japan

Apr 2023 – Present

- Focus: Astrodynamics, Control Theory, Space Robotics.
- Activities: Varsity Track & Field (Middle/Long Distance), Shogi Club, Microcomputer Club.

Seiko Gakuin High School

High School Diploma

Kanagawa, Japan

Apr 2020 – Mar 2023

Pathways School Gurgaon

IB Middle Years Program (Exchange Student)

Haryana, India

2018 – 2020

- Awards: Highest Level Achievement (Math, English), Effort Award, Math Inquiry Fair 1st Place.
- Activities: Athletic School Team (Captain), School Choir (Musical "Mamma Mia").

Seiko Gakuin Junior High School

Junior High School

Kanagawa, Japan

Apr 2017 – Mar 2018

RESEARCH EXPERIENCE

Research Intern (Mission Design)

Institute of Space and Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA), supervised by Assoc. Prof. Naoya Ozaki

Aug 2025 – Present

Kanagawa, Japan

- Designing and optimizing trajectories for future **Outer Planetary Exploration** missions.
- Applying **Astrodynamics** principles to analyze interplanetary transfer orbits.

Research Assistant (Space Robotics / Reinforcement Learning)

Learning Machines Group, Dept. of Informatics, Kyoto University, supervised by Asst. Prof. Satoshi Yamamori

Oct 2025 – Present

Kyoto, Japan

- Designing **Reward Functions** and **Curriculum Learning** for **Reinforcement Learning (RL)** of lunar robots.
- Developing control algorithms for a hybrid **three-wheeled-legged robot** (8-DOF arm & 8-DOF legs).

Research Fellow (Space Robotics)

German Research Center for Artificial Intelligence (DFKI), Robotics Innovation Center

Feb 2025 – Apr 2025

Bremen, Germany

- Developed control algorithms for **7-DOF Robotic Arms** for Space Debris Capture.
- Utilized **Drake** for physics simulation; implemented **Impedance/Position Controllers**.
- Selected for the **Nakatani Foundation Scholarship** (Fully Funded).

Research Fellow (Bioinformatics)

Georgia Institute of Technology, School of Biological Sciences (Dr. DiChristina Lab)

Aug 2024 – Present

Atlanta, USA

- Conducting **Metagenomic Analysis** using Python, R, and Linux for heavy metal contaminant stabilization.
- Performing **In-silico** data processing and statistical analysis.
- Selected for the **Nakatani Foundation Scholarship** (Fully Funded).

Research Intern (Microbiology / Chemistry)

Biochemical Engineering Lab, Kyoto University, Graduate School of Engineering (Prof. Atomi Lab) Kyoto, Japan

Sep 2023 – Aug 2024

- Wet lab research on microbial metabolic pathways for hydrogen and oxygen utilization.

Research Intern (Astrobiology)

Tokyo Institute of Technology (Institute of Science Tokyo), Earth-Life Science Institute (ELSI), supervised by Assoc. Prof. Kosuke Fujishima

Dec 2020 – Mar 2023

Tokyo, Japan

- Conducted 3-year wet-lab research on **Extreme Halophiles** in rock salts.
- Performed PCR, Electrophoresis, and Sequence Analysis; constructed **Phylogenetic Trees** using PhyML.
- Project funded by **JST** (Japan Science and Technology Agency).

Student Researcher (Meteorite Analysis)

Meteorite Research Group, Seiko Gakuin High School

Aug 2021 – Feb 2022

Yokohama, Japan

- Operated **Electron Microscopes (SEM)** for meteorite composition analysis.
- Collaborated with UK high schools and university faculties on international joint research.

Individual Researcher (Aerospace Engineering)

Seiko Gakuin High School

Aug 2020 – Aug 2021

Yokohama, Japan

- Prototyped a novel **Artificial Gravity** mechanism and evaluated its effectiveness.
- Integrated **Arduino-based Force Sensors** for real-time data acquisition.
- Project funded by Seiko Gakuin research grant.

PROFESSIONAL EXPERIENCE

- Software Engineer Intern (Natural Language Processing)** *Mar 2025 – Present*
Tleez Inc. *Kyoto, Japan*
 - Developing AI-based Grammatical Error Correction systems for Russian language learning using python and its NLP related libraries.
- Private Tutor (Mathematics)** *2023 – Present*
Gakushuju Tetsuryokukai (Prestigious Prep School) *Japan*
 - Teaching advanced mathematics to high-achieving high school students aiming for top-tier universities.

ENTREPRENEURSHIP & SELECTED ACHIEVEMENTS

- Team Leader & 2nd Place Winner** *Nov 2025*
Startup Weekend Space Osaka 5th *Osaka, Japan*
 - Led a team to develop and pitch a space business plan within 54 hours, securing **2nd Place**.
- Founder & Manager** *2018*
"Yokohama Banana" Project *Japan*
 - Founded a pop-up banana sales venture; successfully **sold 3,800 bananas in a single day** through strategic marketing and team management.
- Founder** *2021*
Seiko SDGs Food Ambassador *Japan*
 - Established a volunteer organization focusing on sustainable food initiatives and education.
- Rice Farming Practitioner** *2012 – Present*
Traditional Rice Farming Circle *Japan*
 - 12+ years of engagement in traditional organic rice farming, demonstrating long-term commitment and interest in sustainability.
- Athletics (Track & Field)** *2019 – Present*
Various Competitions *International*
 - 1st Place:** ISSO National Games (India) - 800m, 1500m, 3000m; 2nd Place: 4 × 100m, 4 × 400m relay (2019).
 - 1st Place:** Harvest Global Energy Run 5km (Open Age) (Sep 2019).
 - 1st Place:** MYP Cross Country Run (New Record) (Feb 2020).
 - Individual Champion:** Annual Athletic Meet 2019-2020 (400m 3rd, 800m 1st, 1500m 1st).
 - 1st Place:** Yurikamome Relay Marathon (Team, 56 teams) (Nov 2021).
 - Current Middle/Long Distance Runner at Kyoto University Medical School Track & Field Team.
- Shorinji Kempo (Japanese Martial Arts)** *2012 – Present*
Practitioner *Japan*
 - Practicing martial arts focusing on self-defense, mental discipline, and physical resilience.
 - Competed at the **National Junior High School Championship** (Pair/Group Performance) (2018).

CONFERENCE PRESENTATIONS

- 69th The Japan Society of Aerospace and Environmental Medicine (JSAEM)** *Nov 2023*
 - Oral: "Current Status and Prospects of Space Medicine Education in Japan" (Student Session)
 - Poster: "Career Paths in Space Medicine: An Interview Project" (General Session)
- NASA x AGI x High School Students Exchange Session** *May 2022*
 - Oral (Online): "Isolation and Identification of Extreme Halophiles from Global Rock Salts"
- Japan Geoscience Union (JpGU) Meeting 2022** *May 2022*
 - Poster: "Isolation and Identification of Extreme Halophiles from Global Rock Salts"
- The Japanese Society of Scientific Fisheries** *Mar 2022*
 - Oral (Online): "Isolation and Identification of Extreme Halophiles from Global Rock Salts"
- International Research for School** *Jan 2022*
 - Oral (Online): "Analysis of Meteorite Composition using Electron Microscopy"

LEADERSHIP & SERVICE

- Conference Staff / Participant, 71st The Japan Society of Aerospace and Environmental Medicine (JSAEM)** *Nov 2025*
 - Supported the operation of a symposium on space medicine.
- Organizer, Kyoto University Space Medicine Study Tour** *Aug 2023*
 - Organized a study tour focusing on space medicine for university students.
- Conference Staff, 7th Global Moon Village Workshop & Symposium** *Dec 2023*
 - Supported the operation of an international symposium on lunar exploration.

- **President, Seiko Space Development Association (SeSDA)** 2020–2023
Led high school space club; organized events, competitions, and media outreach.
- **Food Section Vice-Leader, Seiko Festival (School Festival)** Oct 2021
Managed procurement and sales; achieved complete sell-out of all products.
- **JAXA Hello Explorer Project – High School Reporter** 2022
Contributed articles for TELSTAR space magazine as a student journalist.
- **Founder & Leader, Seiko SDGs Food Ambassador** 2021
Founded a volunteer group to promote SDGs through food education.
- **Organizer, Japan Students Space Forum** Jun 2021
Co-organized with Hiroo Gakuen; invited professors from Tokyo University of Science and Tohoku University; 100+ participants over two days.
- **Organizer, Science Club Summit** Feb 2021
Founded and organized a summit connecting science clubs from various schools.
- **Volunteer Math Tutor (Online)** 2020
Provided free online calculus and trigonometry lessons to junior students in India during COVID-19 lockdown.
- **Member, Moon Village Association Study Group** Jul 2020–Present
Participating in lunar exploration research discussions.
- **Cultural Ambassador, Japanese Calligraphy Event** 2019
Promoted Japanese culture by writing Indian names in traditional calligraphy at school events.
- **Organizer, International Online Meeting on Next-generation Outer-space Technology** 2019
Coordinated an exchange meeting between students from India and Japan.

SELECTED WORKSHOPS & TRAINING

- **Space Medicine Workshop – Oita University (Hosted by Kyoto University)** Sep 2023
Fully Funded. Hands-on training regarding medical issues in space.
- **Summer Marine Biology Program – University of the Ryukyus** Sep 2023
Funded participant. Fieldwork and biological research in a marine environment.
- **GSC (Global Science Campus) National Presentation** Oct 2021
Presented astrobiology research at the nationwide GSC student presentation.
- **Legislative Intern (ICAS Program) – Office of Vice-Chairperson Motohashi, Tokyo Metropolitan Assembly** Aug 2021
Funded internship. Observed assembly sessions; assisted with campaign activities; delivered street speech on space development and politics.
- **KEK Belle Plus (Particle Physics Camp) – High Energy Accelerator Research Organisation (KEK)** Aug 2021
Selected participant for an advanced elementary particle physics camp.
- **National High School SR Summit FOCUS 2021** Jul–Aug 2021
Completed a nationwide science research summit program.
- **Keio Astrobiology Camp – Keio University** Mar 2021
Selected participant for an intensive astrobiology learning program.
- **Symposium, The Society for the Study of the Origin and Evolution of Life** Mar 2021
Participated in academic symposium on origin of life.
- **Chofu / Kakuda Aerospace School – JAXA** Jan–Feb 2021
Participated in JAXA aerospace education programs.
- **Young Women in Engineering Symposium – University of Toronto** 2020
Participated in engineering symposium.
- **Science Masterclass Series – University of Queensland, Australia** Jun 2020
Completed online science masterclass program conducted for students in India.

SELECTED ACADEMIC AWARDS

- **Nakatani Foundation Scholarship Program (Fully Funded)** Mar 2024
- **JpGU Award for Academic Excellence (High School Session)** May 2022
- **Japanese Society of Scientific Fisheries Award** Mar 2022
- **SDGs Tankyu Award (Nihon Ryoko Prize)** Feb 2022
- **Intelligent Water Rocket Competition (Missions Award)** Dec 2021
- **Super Science High School (SSH) Research Symposium Award** Aug 2021
- **Satellite Design Contest (Participated 2 consecutive years)** 2020, 2021
- **Chemistry Grand Prix (Participated)** Jul 2021
- **Global English Award 2021 (Block Winner & Special Jury Prize)** Feb 2021

MEDIA COVERAGE

- **Weekly Asahi:** Interview feature (Mar 2023).
- **TELSTAR:** Article Contribution for Space Magazine (May 2022).
- **TBS Radio:** "High School A go go" - Guest Speaker (Nov 2021).
- **Mainichi Shimbun:** "News for 15-year-olds" Interview (Sep 2021).
- **Koukousei Shimbun (High School Newspaper):** Interview feature (Jan 2021).
- **Kanagawa Shimbun H!P:** Interview feature (Sep 2019).

SKILLS & QUALIFICATIONS

- **Languages:** Japanese (Native), English (Proficient; TOEFL iBT 100), Russian (Learning).
- **Code/Tools:** Python, C++, MATLAB, R, Julia, Go, Linux, ROS, Drake, STK, Pinocchio, Isaac Lab, Arduino, React, Blender.
- **Research Techniques:** PCR, Electrophoresis, DNA Extraction, Metagenomics, Sequence Analysis.
- **Certifications:** EIKEN Grade 1, Nihon Model-Rocket License Grade 4, NAUI Open Water Diver.
- **Interests:** Ukulele, Cooking, Diving, Backpacking.