Raul Steinmetz

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About

I am a second-year Computer Science Master's student at the University of Tsukuba, Japan. I have been conducting research for approximately four years, focusing on deep learning applied to robotics. I also have experience in computer vision and am open to research opportunities involving deep learning.

General Information

Nationality: Brazilian, Italian (dual citizenship)
Date of Birth: August 08, 2003 (22 years old)
Current Occupation: First-Year Computer Science Master's Student at the University of Tsukuba

Education

University of Tsukuba, Japan, MS in Computer Science — Apr. 2025 – Mar. 2027
Current GPA: 3.0/3.0
Focus: Machine Learning, Robotics

Federal University of Santa Maria, Brazil, BS in Computer Science — May. 2021 – Dec. 2024
Grade Average: 9.26/10.00
Focus: Machine Learning, Robotics

Colégio Murialdo de Ana Rech (Brazil), High School Diploma — Feb. 2018 – Dec. 2020
Grade Average: 9.22/10.00

Experience

Robotics Intern, Qiron Robotics — Sep. 2022 – Feb. 2023
Developed a conversational interface and a facial recognition algorithm for a humanoid robot

Service

Paper reviewer for journal, IEEE Robotics and Automation Letters — Oct 2025

Paper reviewer for journal, Results in Engineering — Aug 2025

Paper reviewer for journal, Knowledge-Based Systems — Jul 2025

Paper reviewer for conference, IEEE ICRA 2025 — Nov 2024

Paper reviewer for conference, IEEE CIS-RAM 2024 — May 2024

Lecturer for Machine Learning Workshop, Federal University of Santa Maria — Jul. 2022

Lecturer for Git and GitHub Workshop, Federal University of Santa Maria — Jun. 2022

Lecturer for Java Workshop, Federal University of Santa Maria — May 2022

Lecturer for LaTeX Overleaf Workshop, Online Course for Public School Teachers, Santa Maria (RS, Brazil) — Feb. 2022

Awards

Monbukagakusho Scholarship, University of Tsukuba — Apr 2025 - March 2027
For pursuing my Master's Degree

CNPq Scholarship, Federal University of Santa Maria — Sep. 2023 – Aug 2024
For Researching deep reinforcement learning for terrestrial robot navigation as an undergraduate

CNPq Scholarship, Federal University of Santa Maria Mar. 2023 – Jul. 2023

For researching image instance segmentation methods for weed and soy detection in crops as an undergraduate

PET Scholarship, Federal University of Santa Maria Dec. 2021 – Aug. 2022

For supporting peer learning, teaching workshops for new students and conducting research as an undergraduate

Robot Competitions

Tsukuba Challenge Mayor's Award, Tsukuba, Japan Dec 2025

Tsukuba Challenge is an annual large-scale autonomous navigation experiment testing autonomous mobile robots in real-world urban environments. The Mayor's Award is the highest distinction awarded for successfully achieving full autonomy, safety, and task completion. I participated in a University of Tsukuba robotics team named Kerberos, and worked in computer vision.

Skills

Languages: Brazilian Portuguese (native), English (C1), Japanese (learning)
I can work with: Python (PyTorch, learning Jax), C++, C, ROS, Linux, Isaac Sim, Git

Academic References

Akihisa Ohya, Ph.D.

Master's degree supervisor

ohya@cs.tsukuba.ac.jp

Celio Trois, Ph.D.

Professor and Research Project Manager at Federal University of Santa Maria

trois@inf.ufsm.br

Publications

[1] Jair Augusto Bottega, Victor Augusto Kich, Junior Costa de Jesus, Raul Steinmetz, Alisson Henrique Kolling, Ricardo Bedin Grando, Rodrigo da Silva Guerra, and Daniel Fernando Tello Gamarra. Jubileo: An immersive simulation framework for social robot design. *Journal of Intelligent & Robotic Systems*, 109(4):91, 2023.

[2] Jair Augusto Bottega, Raul Steinmetz, Alisson Henrique Kolling, Victor Augusto Kich, Junior Costa De Jesus, Ricardo Bedin Grando, and Daniel Fernando Tello Gamarra. Virtual reality platform to develop and test applications on human-robot social interaction. In *2022 Latin American Robotics Symposium (LARS), 2022 Brazilian Symposium on Robotics (SBR), and 2022 Workshop on Robotics in Education (WRE)*, pages 1–6, 2022.

[3] Victor A. Kich, Jair A. Bottega, Raul Steinmetz, Ricardo B. Grando, Ayano Yorozu, and Akihisa Ohya. Curling the dream: Contrastive representations for world modeling in reinforcement learning. In *2024 24th International Conference on Control, Automation and Systems (ICCAS)*, pages 952–957, 2024.

[4] Victor A. Kich, Jair A. Bottega, Raul Steinmetz, Ricardo B. Grando, Ayano Yorozu, and Akihisa Ohya. Kolmogorov-arnold networks for online reinforcement learning. In *2024 24th International Conference on Control, Automation and Systems (ICCAS)*, pages 958–963, 2024.

[5] Joao DR Mazzarolo, Raul Steinmetz, and Sergio LS Mergen. Um estudo sobre a falta de padronização na descrição de produtos em notas fiscais eletrônicas. In *Anais do XVII Escola Regional de Banco de Dados*, pages 31–40. SBC, 2022.

[6] Raul Steinmetz, Fabio Demo Rosa, Victor Augusto Kich, Jair Augusto Bottega, Ricardo Bedin Grando, and Daniel Fernando Tello Gamarra. World models for autonomous navigation of terrestrial robots from lidar observations. *Journal of Intelligent & Fuzzy Systems*, page 18758967251399741, 2025.

[7] Raul Steinmetz, Victor Augusto Kich, Henrique Krever, João Davi Rigo Mazzarolo, Ricardo Bedin Grando, Vinicius Marini, Celio Trois, and Ard Nieuwenhuizen. From seedling to harvest: The growingsoy dataset for weed detection in soy crops via instance segmentation. In *2024 IEEE International Conference on Cybernetics and Intelligent Systems (CIS) and IEEE International Conference on Robotics, Automation and Mechatronics (RAM)*, pages 502–507, 2024.