# Raul Steinmetz

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## About

I'm Raul, a Brazilian Computer Science student passionate about the synergy between computing and intelligence. I focus mainly on researching Deep Reinforcement Learning.

## General Information

**Nationality**: Brazilian
**Date of Birth:** August 08, 2003 (21 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

**Federal University of Santa Maria, Brazil**, BS in Computer Science — May. 2021 – Dec. 2024
Grade Average: 9.26/10.00
Focus: Machine Learning, Artificial Intelligence, 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 conference**, IEEE ICRA 2025 — Nov 2024

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

**Machine Learning Workshop Presenter and Organizer**, Federal University of Santa Maria — Jul. 2022

**Git and GitHub Workshop Presenter and Organizer**, Federal University of Santa Maria — Jun. 2022

**Java Workshop Presenter and Organizer**, Federal University of Santa Maria — May 2022

**LaTeX Overleaf Workshop Presenter and Organizer**, 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

## Skills

**Languages:** Brazilian Portuguese (native), English (C1), French (elementary)
**Programming Languages:** Python 3, C++, C
**Frameworks and Libraries:** PyTorch, Numpy, Gym
**Technologies:** ROS2, Linux, GitHub, Roboflow, AWS (to some extent)

## Academic References

**Akihisa Ohya, Ph.D.**
Master's degree supervisor
ohya@cs.tsukuba.ac.jp

**Daniel Fernando Tello Gamarra, Ph.D.**
Professor and Research Project Manager at Federal University of Santa Maria
daniel.gamarra@ufsm.br

**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] Linda Dotto de Moraes, Victor Augusto Kich, Alisson Henrique Kolling, Jair Augusto Bottega, Raul Steinmetz, Emerson Cassiano da Silva, Ricardo Grando, Anselmo Rafael Cuckla, and Daniel Fernando Tello Gamarra. Double deep reinforcement learning techniques for low dimensional sensing mapless navigation of terrestrial mobile robots. In *International Conference on Intelligent Systems Design and Applications*, pages 156–165. Springer, 2022.

[4] Matheus dos Santos Lima, Victor Augusto Kich, Raul Steinmetz, and Daniel Fernando Tello Gamarra. Delta robot control by learning systems:: Harnessing the power of deep reinforcement learning algorithms. *Journal of Intelligent & Fuzzy Systems*, 46(2):4881–4894, 2024.

[5] Ricardo B. Grando, Raul Steinmetz, Victor A. Kich, Alisson H. Kolling, Pablo M. Furik, Junior C. de Jesus, Bruna V. Guterres, Daniel T. Gamarra, Rodrigo S. Guerra, and L. J. Drews. Improving generalization in aerial and terrestrial mobile robots control through delayed policy learning. In *2024 IEEE 20th International Conference on Automation Science and Engineering (CASE)*, pages 1028–1033, 2024.

[6] 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.

[7] 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.

[8] Victor A. Kich, Jair A. Bottega, Raul Steinmetz, Ricardo B. Grando, Ayanori Yorozu, and Akihisa Ohya. Advancing behavior generation in mobile robotics through high-fidelity procedural simulations. In *2024 33rd IEEE International Conference on Robot and Human Interactive Communication (ROMAN)*, pages 43–48, 2024.

[9] 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.

[10] 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.