Arthur Fender Coelho Bucker

Roboticist and AI Researcher

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May 4th, 1999

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EDUCATION

Carnegie Mellon University (CMU)
PhD in Robotics *2023-today*
MSc in Robotics *2023-2025*
At the roBot Intelligence Group (BIG)

Technical University of Munich (TUM)
MSc. Mechatronics and Robotics *2020-2022*
Thesis led to 2 publications at IROS and ICRA

Universidade de São Paulo (USP)
BSc. Mechatronics Engineering *2017-2023*
Achieved 2 publications at ICRA 2021

FELLOWSHIPS

Fundação Estudar Fellowship *2024-today*
Leaders Program — Brazil's most competitive scholarship with a 0.05% approval rate

TCS Presidential Fellowship *2024-today*
Presidential Scholarship funded by Tata Consultancy Services (TCS) for outstanding graduate students at CMU

AUCANI Merit Scholarship *2020-2022*
USP merit Scholarship for academic exchange programs

LANGUAGES

Portuguese - Native
English - Fluent
German - Intermediate
Spanish - Intermediate
French - Intermediate
Chinese - Basic

OBJECTIVE

I am a passionate roboticist and AI researcher pursuing a PhD in Robotics at Carnegie Mellon University (CMU) at the roBot Intelligence Group (BIG). Focusing on self-supervised robot learning, my research delivers cross-embodiment solutions to generalize robotic policy in the real world.

EXPERIENCE

Microsoft — Research Intern

Applied Sciences Group (ASG) *May 2024 - Aug 2024*
Researched autonomous virtual agents for the Windows OS, contributed to the Windows Agent Arena project, and developed a temporal aware RAG system for Autonomous Agents.

Autonomous Systems and Robotics Research Group *Jan 2023 - Apr 2023*
Researched foundational models for Robotics & Developed an autonomy stack for indoor monocular drones. video

Koya AI Startup — Machine Learning Researcher *Jul 2023 - Aug 2023*
Led the research on foundational models knowledge distillation for efficient entity extraction and classification in web-scraped data and product catalogs.

MIRMI & Microsoft collaboration — Researcher *Nov 2021 - Nov 2022*
Led a collaboration between the Munich Institute of Robotics and Machine Intelligence (MIRMI) and Microsoft. Researched on reshaping robotic motion plans using visual-language human interactions. Published at IROS 2022 and ICRA 2023.

Carnegie Mellon University Internship — Research Intern *May 2020 - Nov 2020*
Robotics Institute Summer Scholar (RISS) at the AirLab CMU. While still an undergraduate, I achieved two publications at IEEE -ICRA 2021 as 1st and 2nd author.

CITI USP, Brazil — Research intern *Aug 2018 - May 2020*
Created and developed an embedded system for sea turtle monitoring and organic sensing. Applied concepts of distributed networks, swarm intelligence, and Lora communication. link

USP & Aalto University collaboration *Aug 2018 - May 2019*
International Product Development in collaboration with Aalto University, Finland. Led a team of 8 in the technical development of a Hydroacoustic Localization and Communication System for Divers, sponsored by SAAB (€10k). The project was the cover of the Finnish magazine "Metallitekniikka". link

Skyrats - Member *Feb 2018 - Apr 2020*
Group of Autonomous drones in USP. Developed computer vision and path planning algorithms for embedded systems. link

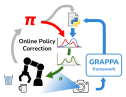
Grupo Turing - Head of Project Management *Feb 2018 - Aug 2018*
A group at USP with the goal of studying, applying, and disseminating Artificial Intelligence Knowledge.

AB InBev - Summer Intern *Jan 2018 - Mar 2018*
Developed computer vision solutions for product identification, Business Intelligence, and predictive analytics at the Logistics and Distribution Center in São Paulo.

PUBLICATIONS

RIO: Flexible Real-time Robot I/O for Cross-Embodiment Robot Learning *2026*
preprint - under review pdf

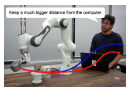
↓ more publications



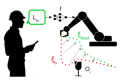
GRAPPA: Generalizing and Adapting Robot Policies via Online Agentic Guidance *2025*
IEEE Robotics And Automation Letter | RSS 2025 Workshop on Semantic Reasoning and Goal Understanding in Robotics *pdf* *link*

Windows agent arena: Evaluating multi-modal os agents at scale *2024*
Published in ICML 2025 | Neurips 2024 Workshop on Safe & Trustworthy Agents (SATA) | Neurips 2024 Workshop on Open-World Agents | AAAI workshop Web Agent Revolution *link* *pdf*

ChatGPT for Robotics: Design Principles and Model Abilities *2023*
Published in IEEE Access Journal | Microsoft Research Tech Report *link* *pdf*



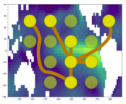
LATTE: LAnguage Trajectory TransformEr *2022*
Published at ICRA 2023 conference. *pdf*



Reshaping Robot Trajectories Using Natural Language Commands: A Study of Multi-Modal Data Alignment Using Transformers *2022*
Published at IROS 2022 conference | IEEE 2022 ICRA workshop on Shared Autonomy in Physical Human-Robot Interaction | IEEE 2022 ICRA workshop on Collaborative Robots and the Work of the Future | Northwest Robotics Symposium 2022 *pdf* *video*

Do You See What I See? Coordinating Multiple Aerial Cameras for Robot Cinematography *2021*
Published in IEEE International Conference on Robotics and Automation (ICRA 2021) *pdf* *video*

Batteries, camera, action! Learning a semantic control space for expressive robot cinematography *2021*
Published in IEEE International Conference on Robotics and Automation (ICRA 2021) *pdf* *video*



Graph Neural Networks for Improved El Nino Forecasting *2020*
Published in NeurIPS 2020 workshop on Tackling Climate Change with Machine Learning & EGU2021 (Proposal paper) *pdf*

HONORS & AWARDS

TCS Presidential Fellow *Presidential Scholarship funded by Tata Consultancy Services (TCS) for outstanding graduate students at CMU* *2024*

Spotlight contribution - IEEE 2022 ICRA workshop on Collaborative Robots and the Work of the Future *2022*

Fellow at Fundação Estudar *07/2020 - today*
Leaders program (approval rate = 0.05%)

AUCANI merit scholarship recipient *2020*
USP merit Scholarship for academic exchange programs

Microsoft AI for Earth Grantee 2020 *2020*

Summer Exchange in China (Huawei) *Oct 2019 - Nov 2019*
(Seeds for the Future program)

Winning Team at Hackathon Ambev *2017*
(Hack the World 2017 SP)

Best project award and Team leader *at PACE POLI USP 2017 Competition (1st out of 200 teams)*

Brazilian Robotics Olympics Finalist (OBR) *2015 & 2016*
A representative of the State of São Paulo at the national stages of the Brazilian Robotics Olympics.

Silver medal in the national Theoretical Robotics Olympics (OBR) *2016*

Team gold medal at the "International Olympiad Mathématiques sans frontières" *2016*