



# Arthur Fender Coelho Bucker

Robotician and AI Researcher

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## EDUCATION

- Carnegie Mellon University (CMU)**  
PhD in Robotics *2023-today*  
At the roBot Intelligence Group (BIG)
- Technische Universität München (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 – 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 - Basic
- Chinese - Basic

## PUBLICATIONS

## 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). My research focuses on Robotic Learning facilitated by multimodal human-robot interaction and self-supervised learning.

## 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*  
Research on 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. Still as an undergrad, I achieved 2 publications at IEEE-ICRA 2021 as 1<sup>st</sup> and 2<sup>nd</sup> 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 on the technical development of a Hydro Acoustics Localization and Communication System for Divers, sponsored by SAAB (€10.000). 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.

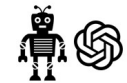
 **Windows agent arena: Evaluating multi-modal os agents at scale** *2024*  
Published in Neurips 2024 Workshop on Safe & Trustworthy Agents (SATA) | Neurips 2024 Workshop on Open-World Agents | AAAI workshop Web Agent Revolution | ICML 2025 (under review) [🌐 link](#) [📄 pdf](#)



## GRAPPA: Generalizing and Adapting Robot Policies via Online Agentic Guidance

preprint | 2025 (under review)

2025



## ChatGPT for Robotics: Design Principles and Model Abilities

Published in IEEE Access Journal | Microsoft Research Tech Report [link](#) [pdf](#)

2023



## LATTE: LAnguage Trajectory TransformEr

Published at ICRA 2023 conference. [pdf](#)

2022



## Reshaping Robot Trajectories Using Natural Language Commands: A Study of Multi-Modal Data Alignment Using Transformers

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](#)

2022



## Do You See What I See? Coordinating Multiple Aerial Cameras for Robot Cinematography

Published in IEEE International Conference on Robotics and Automation (ICRA 2021) [pdf](#) [video](#)

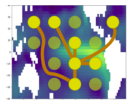
2021



## Batteries, camera, action! Learning a semantic control space for expressive robot cinematography

Published in IEEE International Conference on Robotics and Automation (ICRA 2021) [pdf](#) [video](#)

2021



## Graph Neural Networks for Improved El Nino Forecasting

Published in NeurIPS 2020 workshop on Tackling Climate Change with Machine Learning & EGU2021 (Proposal paper) [pdf](#)

2020

## 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 retodayative 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