

CAIO V. G. FREITAS

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ABOUT ME

24 years old, born in Brazil. I started my studies in **electrical engineering**, as well as my experience in the aerial robotics team Skyrats, at the University of São Paulo (USP). In the third year, I was selected to pursue my master's degree in a **Double Degree** program at the TU Darmstadt. There I recently wrote my master's thesis exploring diffusion-based graph generative models as a policy for imitation learning in robotics.

EDUCATION

ESCOLA POLITÉCNICA DA USP
ELECTRICAL ENGINEERING - DIPLOM
São Paulo | Jan 2018 - Set 2021 (TBC.)

TECHNISCHE UNIVERSITÄT DARMSTADT
ELEKTROTECHNIK UND
INFORMATIONSTECHNIK M. SC.
AUTOMATISIERUNGSTECHNIK
Darmstadt | Oct 2021 - May 2024

SKILLS

TECHNICAL SKILLS

Proficient with:

C/C++ • Python • Matlab • Git • Linux •
ROS • Pytest • Pytorch • GNNs •
Diffusion Models • Power BI • MS Excel

Improving myself with:

QML • Javascript • MS PowerPoint • MS
Word

Have an idea with:

VHDL • Flutter • Hydra • FastAPI • SQL

SOFT SKILLS

Team work • Communication •
Leadership • Adaptability

Languages

Portuguese (native) • English (fluent) •
German (advanced) • Spanish
(intermediate)

LINKS

[LinkedIn](#) | [GitHub](#)

EXPERIENCE

WINGCOPTER GMBH | WORKING STUDENT ON BACKEND AND COMMUNICATION ENGINEERING

September 2023 – Present | Weiterstadt, Germany

- Designed end-to-end HIL simulation for satellite communication system
- Drafted test cases for the UAV's communication systems
- Developed automated hardware tests for the UAV's communication systems
- Automated workflows for updating software on proprietary hardware (and control station)

NEXPLORE TECHNOLOGY GMBH | WORKING STUDENT ON ROBOTICS AND DATA PROCESSING

December 2022 – September 2023 | Darmstadt, Germany

- Operated Boston Dynamics' Spot robot and developed ROS tools for on-site operations
- Pre- and post-processed the data collected with Spot for useful insights
- Acted as the point of contact with TU Darmstadt's robotics researchers
- Created custom datasets using auto-annotation and active learning pipelines
- Maintained and monitored on-site Linux-based monitoring systems at construction sites

DEPARTMENT OF SIMULATION, SYSTEM OPTIMIZATION AND ROBOTICS | RESEARCH ASSISTANT ON UI DEVELOPMENT

October 2021 – December 2022 | Darmstadt, Germany

- Maintained the user interface for robot operation (QML and Javascript integrated with ROS)
- Designed and implementation of new features
- Assured integration with the robots' base functionalities

NAVI YIELD LTDA. | DATA ANALYST INTERN

October 2020 – September 2021 | São Paulo, Brazil

- Monitored pulverized credit portfolios through Power BI Dashboards
- Prototyped a proprietary tool for dashboard creation
- Created a C# Web scraper for asset monitoring (from resource-backed loans)
- Performed statistical modeling on top of data from governmental agencies

SKYRATS: AUTONOMOUS DRONES TEAM | SOFTWARE MANAGER

March 2018 - November 2020 | São Paulo, Brazil

- Worked on top of PX4 flight stack and embedded Linux, using ROS and Gazebo for simulation
- Managed the software team with Agile
- Developed computer vision and machine learning projects for international competitions
- Implemented trajectory planning and obstacle avoidance algorithms
- Created and maintained simulation environment and software stack
- Employed both LIDAR and vision-based indoor localization
- 1st Place in National Competition Cobruf Drones 2018 and 2019
- International MicroAir Vehicle Conference and Competition (IMAV) – Madrid, 2019 - 5th place (outdoor) and 6th place (indoor)