JOÃO MARCOS CORREIA MARQUES

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EDUCATION

Expected December 2024

University of Illinois at Urbana-Champaign, Grainger School of Engineering, Urbana-Champaign, Il, USA
PhD Student in Computer Science
Advisor: Kris Hauser
GPA: 3.96/4.0

August 2015 – December 2017

Politecnico di Milano, Scuola Di Ingegneria Industriale e dell'Informazione, Milano,Mi,Italy
Double Degree student from the University of São Paulo, M.Sc.
Thesis: "A point-and-command interface for grasping unknown objects with robotic manipulators"
Major: Automation and Control Engineering
Voto di Laurea: 109/110

January 2011 – December 2018

University of Sao Paulo, Polytechnic School, Sao Paulo, SP, Brazil
Major: Mechatronic Engineering (Robotics)
GPA: 8.2/10

August 2013 – May 2014

Duke University, Pratt School of Engineering, Durham , NC, United States of America
Exchange Student for the 2013-2014 school year, sponsored by the Brazilian Government
GPA: 3.95/4.00

WORK EXPERIENCE

August 2019 – July 2021 and January 2022 - Present

University of Illinois at Urbana-Champaign (Intelligent Motion Laboratory), Urbana-Champaign, Il, USA
Graduate Research Assistant under Professor Kris Hauser, 20 hours of weekly dedication

- Leader of the Human-Robot Interaction Team in the TRINA 2.0 project, responsible for designing the backend for integrating the output of our industry partner and our code, investigating suitable modes of operation, processing sensor streams and investigating possible semi-autonomous functionalities.
- Studied Optimal path planning for the automated UV disinfection of indoor environments and planning for object instance retrieval in indoor environments.
- Currently studying semantic calibration of real-time 3D maps and its impact on downstream tasks.

August 2021 – December 2021

University of Illinois at Urbana-Champaign, Urbana-Champaign, Il, USA
Teaching Assistant – CS440 under Professor Margaret Fleck, 20 hours of weekly dedication

- Conducted two major refactors of machine programs to diversify the problems given to students – programming the backend code, autograder and model solutions;
- Provided weekly TA hours to help students understand the course and finish their MPs, as well as frequently answering Piazza questions.
- Graded open-reply questions for the midterms and finals for over 100 students.

July 2018 – April 2019

Epistemic, São Paulo, SP, Brazil
Data Science Intern, 30 hours of weekly dedication

- Responsible for improving an early-warning system for the detection of epileptic seizures. Improved model sensitivity by 15%, while reducing false positive rates by 25%.

August 2017 – April 2018

Big Data Brasil, São Paulo, SP, Brazil
Data Science Intern, 30 hours of weekly dedication

- Responsible for feature engineering, creating and maintaining webcrawlers, developing predictive models using neural networks and developing an automatic auditing system for a hospital, which resulted in up to R$ 2 Million in yearly savings.

August 2012 - June 2013

Automation Systems Laboratory (LSA), **Polytechnic School, University of São Paulo**, SP, Brazil

Undergraduate Research Intern, under Professor Diolino José dos Santos Filho

- Project Title: "Test Generator development for Ventricular Assist Devices (VAD)"
- Research funded by a government-based foundation (CAPES), awarded R$ 400 monthly.
- Results: Improved Petri Net Test simulator for a VAD that now supports dependent probabilities

TEACHING EXPERIENCE

- **Spring 2018** Undergraduate Teaching Assistant – PMR3508 – "Pattern Recognition and Computer Vision"
- **Fall 2021** Teaching Assistant – CS440 – "Artificial Intelligence"

SKILLS

Python (Advanced); Klamp't (intermediary); Solidworks (Intermediary); Unity (Beginner); PyTorch (Advanced); Path and Motion Planning (Intermediary);

PUBLICATIONS AND PATENTS

- **Marques, J.M.C.**, Peng, J.C., Naughton, P., Zhu, Y., Nam, J. S., Hauser, K. (2023) "Commodity Telepresence with Team AVATRINA's Nursebot in the ANA Avatar XPRIZE Finals". In 2nd Workshop Toward Robot Avatars, IEEE International Conference on Robotics and Automation (ICRA)
- Naughton, P., Nam, J. S., **Marques, J. M. C.**, Peng, J.C., Zhu, Y., Kong, Q., Hauser, K. (2023). Pan-Tilt-Roll Televisualization with Adjustable Baseline Stereo. In 2nd Workshop Toward Robot Avatars, IEEE International Conference on Robotics and Automation (ICRA)
- **Marques, J. M.**, Naughton, P., Zhu, Y., Malhotra, N., & Hauser, K. (2022). "Commodity telepresence with the AvaTRINA Nursebot in the ANA Avatar XPRIZE semifinals". In RSS 2022 Workshop on "Towards Robot Avatars: Perspectives on the ANA Avatar XPRIZE Competition**.**
- Qiu, R., Sun, Y., **Marques J. M. C.**, Hauser, K., "Real-time Semantic 3D Reconstruction for High-Touch Surface Recognition for Robotic Disinfection", in 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- **J. M. Correia Marques,** R. Ramalingam, Z. Pan and K. Hauser, "Optimized Coverage Planning for UV Surface Disinfection," 2021 IEEE International Conference on Robotics and Automation (ICRA), 2021, pp. 9731-9737
- (pending) Hauser, K, **Marques, Joao M. C.**, Pan, Z. "A Targeted Approach for Utraviolet Disinfection of Surfaces". US Patent Appl. No. 17/085,416, filed October 30, 2020.
- **Marques, Joao M. C.**, F. Gagliardi Cozman and I. Ferreira dos Santos "**Automatic Summarization of Technical Documents in the Oil and Gas Industry**", in *2019 8th Brazilian Conference on Intelligent Systems (BRACIS)*, Salvador, Brazil, 2019 pp. 431-436
- **Marques, Joao M. C**., H. A. Cerdeira, E. Tanaka, C. D. Vitor and P. Gomez, "**Heuristic Active Learning for the Prediction of Epileptic Seizures Using Single EEG Channel**", *2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, Madrid, Spain, 2018, pp. 2628-2634.
- **Marques, Joao M. C.** (2018),"**Automatic Summarization of Technical Literature on Oil and Gas**", (Undergraduate Thesis), Universidade de Sao Paulo, USP, Sao Paulo, Brazil).
- **Marques, Joao M. C**. (2017),"**A Point-and-Command Interface for Grasping Unknown Objects With Robotic Manipulators** "(Master's Thesis, Politecnico di Milano, Milan, Italy)
- SANTOS FILHO Diolino J., **MARQUES, Joao M. C**., CAVALHEIRO, Andre (2013),"**Gerador de Testes Para Um Dispositivo de Assistencia Ventricular**", XXI Simposio Internacional de Iniciacao Cientiica e Tecnologica da Universidade de Sao Paulo - XXI SIICUSP.

AWARDS AND ACHIEVEMENTS

2022 - 4th place in the ANA Avatar XPrize as a team lead of team AvaTRINA
2021 - Best Robotics Demonstration at the 16th CSL Student Conference – with Intelligent Motion Laboratory
2020 - Best Robotics Demonstration at the 15th CSL Student Conference – with Intelligent Motion Laboratory
2011 - 1st overall in PAS – Serial Evaluation Program / University of Brasilia out of 12.294 candidates
2011 - 1st overall in the regular entrance exam at the University of Brasilia-UNB out of 24.987 candidates
2010 - Gold Medal in the Brazilian Physics Olympiad - OBF
2010 - Silver Medal in the Brazilian Chemistry Olympiad -OBQ
2010 - Gold Medal in the Federal District Chemistry Olympiad - OQDF
2009 - Silver Medal in the Federal District Chemistry Olympiad - OQDF

SERVICE

- Reviewer – ICRA (2021,2022), IROS (2022,2023)
- Co-chair of the Robotics Session of the 17th Coordinated Sciences Laboratory Conference (CSLSC)
- Research Experiences for Undergraduates (REU) Summer Internship Mentor – Ramya Ramalingam (2020)