Thais Campos (de Almeida)

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EDUCATION

Cornell University, Ithaca, NY — May 2021 (expected)
Ph.D. Mechanical Engineering, Minor in Computer Science
Thesis topic: Automated synthesis of modular manipulators from high-level task specifications

Aeronautics Institute of Technology (ITA), São José dos Campos, SP, Brazil
Master of Science, Aeronautical and Mechanical Engineering — Apr 2016
Bachelor of Science, Aeronautical Engineering — Dec 2014

EXPERIENCE

Research Assistant — Aug 2017 - Present
Cornell University, Verifiable Robotics Research Group, Ithaca, NY
- Project: Syntax-Guided Synthesis for Cyber-Physical Systems
  - Formulated a constrained nonlinear optimization approach to automatically synthesize correct-by construction design and control of modular serial chain manipulators from high-level task specifications.
  - Compared results with the state-of-the-art approach showing an improvement in the number of valid solutions for highly constrained environments and decrease in the total runtime for the tested cases.
  - Conducted experiments in both simulation environment developed in MATLAB and real-world using modular robots.
- Project: SMT-Solver Based Feedback for Social Navigation
  - Developed a control paradigm based on the Satisfiability Modulo Theories (SMT) formulas for safe, correct, and uninterrupted robot navigation alongside humans.
  - Conducted experiments in both simulation environment developed in Python and real-world using the Vicon motion capture system and Robot Operating System (ROS).
- Mentored and designed research projects for 2 students (an undergraduate and a master's in engineering).
- Deliverable: 3 first-authored publications: two articles at International Conference on Robotics and Automation (ICRA 2019) and one article at Robotics: Science and Systems (RSS 2020); 1 Workshop presentation (ICRA 2019).

Content Specialist — Jan 2020 - Present
eCornell, Cornell University, Ithaca, NY
- Reviewed content creation for Autonomous Mobile Robots online course to ensure technical accuracy and organization.

Teaching Assistant — Aug 2017 - Present
Cornell University, Sibley School of Mechanical and Aerospace Engineering, Ithaca, NY
- Developed and led discussion sessions for Feedback and Control Systems class of over 60 students. Awarded the Sibley Prize for Excellence in Graduate Teaching based on recommendations of students and endorsed by the faculty.
- Led discussions and laboratory sessions for Autonomous Mobile Robots class of over 60 students. Collaborated in the development of a sensor model in simulation environment (MATLAB) used in class.
- Awarded the Center for Teaching Innovation Graduate Teaching Fellowship.

Mechanical Engineering Instructor — Jan 2014 - Apr 2016
Brazilian Air Force, Aeronautics Institute of Technology, São José dos Campos, SP, Brazil
- Assisted and prepared samples for Materials Engineering laboratory classes.
- Conducted and created experiments to train Nickel-Titanium wires to present the Reversible Shape Memory Effect to be used as actuators.
- Designed a flexible wing rib and performed Finite Element Analysis using CATIA.
- Deliverable: 1 first-authored publication at the Journal of Aerospace Technology and Management.

Lieutenant — Jan 2012 - Apr 2016
Brazilian Air Force, Department of Aerospace Science and Technology, São José dos Campos, SP, Brazil
- Led and briefed a team of over 100 military personnel responsible for providing surveillance and security for the base.

SELECTED PEER-REVIEWED PUBLICATION (1 OF 4)

Campos T., Marri S., Kress-Gazit H.,"Automated Synthesis of Modular Manipulators' Structure and Control for Continuous Tasks around Obstacles". Robotics: Science and Systems, 2020. (Acceptance rate: 32%)

SKILLS

Code: Python and MATLAB; used in the past: C++. **CAD**: CATIA. **Languages**: Portuguese.