

Thales Costa Silva, Ph.D.
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Postdoctoral Researcher at GRASP Lab

Department of Mechanical Engineering and Applied Mechanics
School of Engineering and Applied Science

University of Pennsylvania
Philadelphia, PA - U.S.

RESEARCH INTERESTS I aspire to develop formal analysis and control design strategies for dynamical systems to shape their behavior and convergence properties. In the long term, I am interested in finding elegant control solutions for distributed control systems operating jointly in real-world environments to enhance the interface between humans and processes in the physical world.

Keywords:

Multi-Agent Systems
Control Theory

Delayed Systems
Robust Control

Nonlinear Systems
Automation & Robotics

EDUCATION **Ph.D. in Electrical Engineering** May 2021
Universidade Federal de Minas Gerais
Thesis: *Analysis and Design of Distributed Protocols for Multi-Agent Systems Subject to Input Saturation and Time-Varying Delays*
Supervisors: Dr. Luciano Pimenta and Dr. Fernando Souza

M.Sc. in Electrical Engineering Apr. 2019
Universidade Federal de Minas Gerais
Dissertation: *Consensus in Multi-Agent Systems with Input Saturation and Time-Varying Delays*
Supervisors: Dr. Luciano Pimenta and Dr. Fernando Souza

B.Sc. in Electrical Engineering Jan. 2017
Universidade Federal do Tocantins
High Honors (average 9.3/10)
Supervisor: Dr. Kathy Senhorini

RESEARCH EXPERIENCE **Postdoctoral Researcher** Aug. 2021-Present
General Robotics, Automation, Sensing, & Perception (GRASP) Lab at UPenn
Project: *Developing control strategies for stochastic communication in multi-robot systems*
Supervisor: Dr. M. Ani Hsieh

Graduate Researcher Aug. 2017-May. 2021
Control, Automation, and Robotics Lab at Universidade Federal de Minas Gerais
Project: *Formulated methods to analyze the stability and to design controllers for multi-agent systems subject to dynamical restrictions*
Supervisors: Dr. Luciano Pimenta & Dr. Fernando Souza

Undergraduate Researcher Jan. 2014-Dec. 2016
Universidade Federal do Tocantins
Projects: *Designed, implemented, and experimentally evaluated microwave band-pass filters in parallel-coupled transmission lines, & developed and implemented auxiliary methods to design electrical transformers, considering running losses*
Supervisor: Dr. Kathy Senhorini

TEACHING EXPERIENCE **Universidade Federal de Minas Gerais**
Teaching Assistant, Digital Systems Design and Practice 1st and 2nd semester of 2020

Universidade Federal do Tocantins
Teaching Assistant, Principles of Electromagnetism 1st semester of 2016
Teaching Assistant, Differential Calculus 2nd semester of 2015
Teaching Assistant, Linear Algebra 1st semester of 2015

SKILLS	Programming	Robotics	Languages
	Python Matlab C++ C Julia	ROS GAZEBO OptiTrack Optimization	Portuguese: First Language English: Advanced (<i>Score TOEFL iBT 102/120</i>)
SCHOLARSHIPS	Coordination for the Improvement of Higher Education Personnel (CAPES)		2017-2021
	National Fund for the Development of Education (FNDE)		2014-2016
	Undergraduate Teaching Assistant Scholarship		2015-2016
WORKS IN PROGRESS	Silva, T. C. & M. Ani Hsieh. Consensus Analysis in the Presence of Disturbances, Intermittent Interactions, and Input Saturation. Manuscript in Preparation.		
PEER REVIEWED PUBLICATIONS	<p>Silva, T. C., Leite, V. J. S., Souza, F. O., & Pimenta, L. C. A. Regional Consensus in Discrete-Time Multi-Agent Systems Subject to Saturating Inputs and Time-Varying Delays. <i>International Journal of Control</i>, DOI: 10.1080/00207179.2022.2053207.</p> <p>Silva, T. C., Souza, F. O., & Pimenta, L. C. A. (2020). Consensus in Multi-Agent Systems Subject to Input Saturation and Time-Varying Delays. <i>International Journal of Systems Science</i>, DOI: 10.1080/00207721.2020.1860267.</p> <p>Silva, T. C., Souza, F. O., & Pimenta, L. C. A. (2020). Distributed formation-containment control with Euler-Lagrange systems subject to input saturation and communication delays. <i>International Journal of Robust and Nonlinear Control</i>, 30(7), 2999-3022. DOI: 10.1002/rnc.4919.</p> <p>Silva, T. C., Souza, F. O., & Pimenta, L. C. A. (2018). <i>Consenso em sistemas multiagentes sujeitos a saturação e atrasos variantes no tempo</i>. Anais do XXII Congresso Brasileiro de Automação, 1-8. (Published in Portuguese.)</p> <p>Freitas, S. C. L., Silva, T. C., Silva, G. C., Martins, R., Rezende, R. R., Oliveira, P. S. (2015). <i>Estratégia para Incremento da Aprendizagem e do Conteúdo Ministrado na Disciplina Conversão de Energia</i>. Revista SODEBRAS, v. 10, p. 339-344. (Published in Portuguese.)</p>		
CONFERENCE PUBLICATIONS AND PRESEN- TATIONS	<p>Silva, T. C., Souza, F. O., & Pimenta, L. C. A. (2018). <i>Consenso em sistemas multiagentes sujeitos a saturação e atrasos variantes no tempo</i>. Oral presentation delivered at the Congresso Brasileiro de Automação, 1-8.</p> <p>Freitas, S. C. L., Silva, J. C., Silva, T. C. (2015). A New Contribution to the Calculation of Losses in Transformers in Function of Magnetic Flux Density. Oral presentation delivered at the XI Latin American Congress on Electricity Generation and Transmission, 2015, Guaratinguetá. Proceedings and Book of Abstracts of The 11 th Latin-American Congress on Electricity Generation and Transmission - CLAGTEE2015. p. 176-176. ISBN: 978-85-61065-02-7</p> <p>Silva, T. C., Freitas, S. C. L., Oliveira, P. S., Torres, P. R.(2015) <i>Aplicativo para dispositivos móveis como ferramenta educacional auxiliar ao projeto de transformadores monofásicos e trifásicos</i>. Oral presentation delivered at the XI Latin American Congress on Electricity Generation and Transmission, 2015, Guaratinguetá. Proceedings and Book of Abstracts of The 11 th Latin-American Congress on Electricity Generation and Transmission - CLAGTEE2015, p. 176-177. ISBN: 978-85-61065-02-7 (Published in Portuguese.)</p>		
REFERENCES	<p>Luciano Cunha de Araújo Pimenta, Ph.D. Associate Professor Department of Electronic Engineering Universidade Federal de Minas Gerais, Brazil.</p> <p>Fernando de Oliveira Souza, Ph.D. Associate Professor Department of Electronic Engineering Universidade Federal de Minas Gerais, Brazil.</p>		