

María Santos

maria.santos@gatech.edu • +1 (404) 428 - 7026

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia, USA

Doctor of Philosophy in Electrical and Computer Engineering

Aug 2016 – present

- Current cumulative GPA: 4.0/4.0

Master of Science in Electrical and Computer Engineering

Aug 2014 – May 2016

- Master's Thesis: Musical Abstractions for Multi-Robot Coordination
- Current cumulative GPA: 4.0/4.0

Universidade de Vigo, Vigo, Spain

Master in Advanced Industrial Processes and Technologies Research

Oct 2013 – Jul 2014

- Master's Thesis: Obstacle Avoidance System in 3D Based on CVM
- Cumulative GPA: 9.18/10.00

Industrial Engineering, specialization in Controls and Electronics

Sep 2008 – Sep 2013

- Master's Thesis: Adaptation of Tools of the RIDE Environment to the ROS Architecture
- 5 year engineering degree equivalent to BSc and MSc
- Cumulative GPA: 8.67/10.00

Conservatorio de Música Manuel Quiroga, Pontevedra, Spain

Professional Degree in Music, specialization in Violin

Sep 2005 – Jun 2012

- Cumulative GPA: 8.60/10.00

RESEARCH EXPERIENCE

Georgia Institute of Technology, School of Electrical and Computer Engineering

Graduate Research Assistant, GRITS Lab

Aug 2016 – present

Graduate Student, GRITS Lab

Jan 2015 – May 2016

- Advisor: Dr. Magnus Egerstedt
- Research areas: control theory, multi-robot control, human-swarm interaction

Universidade de Vigo, Department of Controls and Systems Engineering

Graduate Research Assistant, Group of Robotics and Intelligent Systems

Oct 2013 – Jul 2014

Undergraduate Research Assistant, Group of Robotics and Intelligent Systems

Oct 2012 – Jul 2013

- Advisor: Dr. Joaquín López Fernández
- Research areas: executive layer of robotic control architectures, obstacle avoidance

PUBLICATIONS

JOURNALS

M. Santos and M. Egerstedt, "From Motions to Emotions: Can the Fundamental Emotions be Expressed in a Robot Swarm?", in *International Journal of Social Robotics*, under review. arXiv preprint available at:1903.12118..

M. Santos, Y. Diaz-Mercado and M. Egerstedt, "Coverage Control for Multirobot Teams With Heterogeneous Sensing Capabilities," in *IEEE Robotics and Automation Letters*, vol. 3, no. 2, pp. 919-925, April 2018.

J. López, D. Pérez, M. Santos and M. Cacho, "GuideBot. A Tour Guide System Based on Mobile Robots," in *International Journal of Advanced Robotic Systems*, 10:381, November 2013.

CONFERENCES

M. Santos, G. Notomista, S. Mayya, and M. Egerstedt. "Interactive Multi-Robot Painting Through Colored Motion Trails", *ICRA 2020*, submitted.

A. Benevento, M. Santos, G. Notarstefano, K. Paynabar, M. Bloch, and M. Egerstedt. "Multi-Robot Coordination for Estimation and Coverage of Unknown Spatial Fields", *ICRA 2020*, submitted.

R. Funada, M. Santos, T. Gencho, J. Yamauchi, M. Fujita, and M. Egerstedt. "Visual Coverage Maintenance for Quadcopters Using Nonsmooth Barrier Functions", *ICRA 2020*, submitted.

G. Notomista, S. Mayya, M. Selvaggio, M. Santos, and C. Secchi. "A set-theoretic approach to multi-task execution and prioritization". *ICRA 2020*, submitted.

M. Santos, S. Mayya, G. Notomista, and M. Egerstedt, "Decentralized Minimum Energy Coverage Control for Time-Varying Density Functions", in *2019 IEEE International Symposium on Multi-robot and Multi-agent Systems (MRS)*, New Brunswick, NJ, August 2019, to appear. Outstanding paper finalist.

G. Notomista, M. Santos, S. Hutchinson, and M. Egerstedt. "Sensor Coverage Control Using Robots Constrained to a Curve". *2019 IEEE International Conference on Robotics and Automation (ICRA)*, Montreal, May 2019, pp. 3010-3016.

R. Funada, M. Santos, J. Yamauchi, T. Hatanaka, M. Fujita, and M. Egerstedt. "Visual Coverage Control for Teams of Quadcopters via Control Barrier Functions", *2019 IEEE International Conference on Robotics and Automation (ICRA)*, Montreal, May 2019, pp. 3010-3016.

M. Santos and M. Egerstedt. "Coverage Control for Multi-Robot Teams with Heterogeneous Sensing Capabilities Using Limited Communications", in *2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Madrid, October 2018, pp. 5313-5319.

WORKSHOPS

M. Santos and M. Egerstedt. "From Motions to Emotions: Exploring the Emotional Expressiveness of Robot Swarms", in *ICRA-X: Robotic Art Program*, Montréal, May 2019.

TEACHING EXPERIENCE

Georgia Institute of Technology, Graduate Teaching Assistant

Optimal Control, ECE 6553

Jan 2017 –May 2017

Advanced Programming Techniques, ECE 4122/6122

Aug 2015 –Dec 2015

HONORS & AWARDS

La Caixa Scholarship for Graduate Studies in North-America

Jul 2016

- Awarded by Obra Social La Caixa

Premio Fin de Carrera, Xunta de Galicia

Oct 2015

- Awarded to the most outstanding Industrial Engineer graduating in the academic year 2013-14 in the autonomous community of Galicia, Spain

Premio Extraordinario Fin de Carrera, University of Vigo

Jan 2015

- Awarded to the most outstanding Industrial Engineer graduating in the academic year 2013-14 at the University of Vigo

Fulbright Scholarship for Graduate Studies

Jun 2013

- Awarded by the Fulbright Commission in Spain