Joana Fonseca

Education

2017–2023 **Decision and Control**, ***Ph.D***, KTH, Sweden, Supervised by *Karl H. Johansson*, working on Robotics, Control, Adaptive Estimation, Path Planning, and Target Tracking.

2016–2017 **Automatic Control**, ***M.Sc.***, U.Porto, Portugal, Focus Control and Robotics. Supervised by *Maria R. Pinho* and *Aníbal Matos*. GPA: 17/20 (Top 1%).

2015 **Systems and Control**, ***M.Sc.***, T.U.Delft, Netherlands, One semester of studies within the Masters of Systems and Control, GPA: 17/20.

2012–2015 **Electrical and Computer Engineering**, ***B.Sc.***, U.Porto, Portugal, Specialization in Automation, GPA: 17/20 (Top 1%).

Experience

2019-2022 **Teaching Assistant in *Underwater Technology***, *SMaRC - KTH*, Course focusing on modelling and control of autonomous underwater vehicles.

2019-2022 **Master Thesis supervisor**, *KTH*, Supervised about 10 MsC thesis, most related to adaptive estimation and control, marine robotics, and learning.

2018-2021 **Bachelor Thesis supervisor**, *Robotics, Control, and Learning*, KTH.

2018-2023 **Member of the WOP@KTH committee**, *Network that supports women PhD students and PostDocs across KTH and promotes gender equality* .

2017-2020 **Teaching Assistant in *Nonlinear Control***, *KTH*, Course focusing on Lyapunov analysis and controller design for nonlinear systems.

2014–2017 **Public Relations**, *U.Porto*, Spokesperson for events aimed at high-school students in Portugal, to teach them about engineering and motivate them in their studies.

2016 **Teaching Assistant in *FEUP Project***, *U.Porto*, Course focusing on basic electronics.

2014–2015 **Teaching Assistant in *Mathematics and Physics***, *U.Porto*, Helped bachelor students to learn mathematics and physics.

Publications

2023 **Optimizing Ocean Feature Estimation and Tracking through Adaptive Sampling and Formation Control of Autonomous Underwater Vehicles**, *J. Fonseca*, Doctoral thesis in KTH.

Submitted for revision **Distributed Formation Control for Environmental Monitoring: A Gradient Estimation-based Approach**, *Z. Yang, J. Fonseca, S. Zhu, C. Chen, and K. H. Johansson*, Transactions on Automatic Control.

Submitted for revision **Adaptive Sampling of Algal Blooms Using Autonomous Underwater Vehicle and Satellite Imagery: Experimental Validation in the Baltic Sea**, *J. Fonseca, S. Bhat, M. Lock, I. Stenius, K. H. Johansson*, IEEE Journal of Oceanic Engineering.

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2023 **Adaptive Estimation for Environmental Monitoring using an Autonomous Underwater Vehicle**, *Z. Yang, J. Fonseca, S. Zhu, C. Chen, and K. H. Johansson*, CDC 2023, Marina Bay Sands, Singapore.

2023 **Adaptive Sampling of Algal Blooms using an Autonomous Underwater Vehicles and Satellite Imagery**, *J. Fonseca, A. Rocha, M. Aguiar, K. H. Johansson*, CCTA 2023, Bridgetown, Barbados.

2021 **3D Tracking of a River Plume Front with an AUV**, *D. Teixeira, J. Sousa, R. Mendes, J. Fonseca*, OCEANS 2021, San Diego, US.

2021 **Algal Bloom Front Tracking Using an Unmanned Surface Vehicle: Numerical Experiments Based on Baltic Sea Data**, *J. Fonseca, M. Aguiar, J. Sousa, K. H. Johansson*, OCEANS 2021, San Diego, US.

2020 **Cooperative Multi-Vehicle Circumnavigation and Tracking of a Mobile Target**, *J. Fonseca*, Licentiate thesis in KTH.

2020 **Cooperative Circumnavigation for a Mobile Target using Adaptive Estimation**, *J. Fonseca, J. Wei, K. H. Johansson, T. A. Johansen*, CONTROLO 2020, Braganca, Portugal.

2019 **Cooperative Decentralised Circumnavigation with Application to Algal Bloom Tracking**, *J. Fonseca, J. Wei, K. H. Johansson, T. A. Johansen*, IROS 2019 Macau, China.

2017 **Optimal Control Applied to AUVs**, *J. Fonseca*, Master Thesis in U.Porto.

2017 **Design of Minimum Time Trajectories for Autonomous Underwater Vehicles**, *J. Fonseca, M. Pinho, A. Matos*, Poster presented at NHOC2017, and EPCO2017.

Awards

2023 **EECS-KTH Impact Travel Grant**, *Award for best research poster in the 2023 EECS Poster Festival.*

2022 **DigiLeaders Award**, *Award for attending the DigiLeaders conference for future women leaders in the area of digitalization.*

2019 **Jubileumsanslaget Grant**, *Grant for promoting personal scientific exchanges for the benefit of Swedish research.*

2017 **Program of Excellence of KTH**, *Award for the most promising woman PhD student in the School of Electrical Engineering of KTH.*

2017 **Research Scholarship at U.Porto**, *Scholarship for research on Optimal Control Applied to underwater robotics.*

2015 **ERASMUS Scholarship**, *Scholarship for exchange studies in T.U.Delft.*

2014 **Research Scholarship at U.Porto**, *Scholarship for research on Fourier series and transforms in the context of functional analysis.*

Languages and Skills

Expert Portuguese, English. **Intermediate** Spanish, Swedish. **Beginner** French, Mandarin.

Programming Python, C++, LaTeX, Linux, MatLab

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