

José Luís Melo

Curriculum Vitae

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📅 21st February 1985

Professional Experience

- 2018– **Scientist**, *NATO STO CMRE*, La Spezia, Italy.
R&D activities for advanced MCM operations: Navigation for Unmanned Underwater Vehicles
<http://www.cmre.nato.int/>
- 2011–2017 **Researcher**, *INESC TEC, Centre for Robotics and Intelligent Systems*, Porto, Portugal.
Coordinating and collaborating on different project proposals. Secured 1M€ in Funding.
R&D activities in Robotics for Marine Environments;
SW for Embedded Systems; SW interfaces with different sensors (GPS, sonars)
<http://oceansys.fe.up.pt>
- 2015–2016 **Intern**, *UPIN - Technology Transfer Office, University of Porto*, Porto, Portugal.
Intellectual Property portfolio management;
Patent Analytics and Patentability analysis.
<http://www.upin.up.pt/>
- 2015–2015 **Invited Researcher**, *National Institute of Informatics, Honiden Lab*, Tokyo, Japan.
R&D activities in Self-Adaptive Systems for Robotics;
Sensor fusion, Control and Navigation of a Quadcopter.
<http://www.honiden.nii.ac.jp>
- 2009–2010 **Software Engineer**, *CERN*, Geneva, Switzerland.
Developing and maintaining applications to control and monitor the L1 CMS Trigger;
On-call software expert (C, C++, Bash, Python, Java/JavaEE);
Supervising summer students on the execution of their projects.
<http://cms.cern>
- 2008–2008 **Automation Engineer**, *EFACEC Engenharia, S.A.*, Maia, Portugal.
Developing, maintaining and upgrading client-tailored SCADA solutions.
<http://www.efacec.pt>

Teaching

- 2010–2011 **Teaching Assistant**, *Numerical Analysis, FEUP*, ECE Course.
Helping students with coursework and Matlab assignments.
- 2006–2007 **Teaching Assistant**, *Socialization and Learning, FEUP*, ECE Course.
Mentoring and guiding freshmen students in their assignments

Education

- 2010–2016 **PhD in Electrical and Computer Engineering**, *Faculty of Engineering, University of Porto (FEUP)*, Portugal.
Mobile Robotics, Stochastic Processes, Vector Space Methods, Machine Learning.
Sensor fusion, Navigation and Target Tracking of Autonomous Underwater Vehicles.
thesis *Navigation Algorithms for Sensor-limited Autonomous Underwater Vehicles*
Defence in December 2016.

- 2003–2008 **Integrated Master Degree in Electrical and Computer Engineering**, *Faculty of Engineering, University of Porto (FEUP)*, Portugal.
Mathematical Analysis, Electronics, Sensors, Signal Conditioning and Instrumentation, Control Systems, Automation Technologies and Systems.
thesis *Guidance and control of an ASV in AUV tracking operations*. Graded with 19 out of 20; ranked on the top 5 among my peers.
- 2007–2008 **MSc in Robotics**, *University of Southern Denmark*, Odense, Denmark.
Exchange student within the Erasmus Programme Framework;
Industrial Robotics, Embedded Systems, Image Processing, Artificial Intelligence.

Awards, Honours, Service

Academic Service

- December 2013 **Participant at The First Örebro Winter School on Artificial Intelligence and Robotics "Lucia 2013"**, *The Lucia 2013 Winter School covered topics and technologies at the forefront of research in AI and in Robotics*, Örebro, Sweden.
<http://www.aass.oru.se/Agora/Lucia2013/>
- July 2013 **Participant at the First International Summer School on Finite Set Statistics**, *The FISST Summer School covered the theory and applications of multi-object estimation*, Edinburgh, Scotland.
<http://randomsets.eps.hw.ac.uk/SummerSchool/index.php>
- June 2013 **Session Chair at the OCEANS 2013 MTS/IEEE Bergen Conference**, *Session Autonomous Underwater Vehicles*, Bergen, Norway.
- 2012–2013 **Organizing Committee**, *2nd PhD. Students Conference in Electrical and Computer Engineering*, FEUP.
<http://paginas.fe.up.pt/~StudECE2013>
- October 2012 **Session Chair at the OCEANS 2012 MTS/IEEE Hampton Roads Conference**, *Session B7.2 Navigation and Control I*, Hampton Roads, Virginia Beach, USA.
- June 2011 **Participant at the NATO SET-157 Lecture Series**, *Multisensor Fusion: Advanced Methodologies and Applications*, Porto, Portugal.

Awards/Honours

- April 2016 **IEEE OES Grant**, *Awarded a grant to participate in the Student Poster Competition of the MTS/IEEE OCEANS'16 Conference*, Shanghai, China.
2nd Prize Winner of the Student Poster Competition
<http://www.oceanicengineering.org/page.cfm/cat/63/Student-Poster-Competition/>
- September 2014 **IEEE OES Grant**, *Awarded a grant to participate in the Student Poster Competition of the MTS/IEEE OCEANS'14 Conference*, St. John's, Canada.
<http://www.oceanicengineering.org/page.cfm/cat/63/Student-Poster-Competition/>
- February 2011 **PhD Fellowship**, *National Foundation for Science and Technology (FCT)*, Portugal.
Awarded a 3+1 year individual doctoral grant from FCT.
- September 2010 **PhD Fellowship**, *Department of Electrical and Computer Engineering, FEUP*, Portugal.
Awarded a 1 year PhD Fellowship by the Department of Electrical and Computer Engineering at FEUP.

Reviewer

- 2019 **IEEE Transactions on Industrial Electronics**, *IEEE*.
<https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=41>
- 2019 **Journal of Navigation**, *Cambridge University Press*.
<https://www.cambridge.org/core/journals/journal-of-navigation>
- 2018-2019 **IEEE Journal of Oceanic Engineering**, *IEEE*.
<http://www.oceanicengineering.org/page.cfm/cat/13>
- 2018-2019 **Ocean Engineering**, *Elsevier*.
<https://www.journals.elsevier.com/ocean-engineering>
- 2017-2018 **Sensors**, *MDPI*.
<https://www.mdpi.com/journal/sensors>

Computer skills

OS **Linux**, Windows
development **C/C++**, **Java**
productivity **L^AT_EX**, MS Office Suite

Web HTML, JavaEE/Java Servlets, jmdoc
scientific **Matlab**, Simulink
Robotics ROS

Languages

Portuguese **Native**
English **Fluent**

French **Intermediate**

Publications

- [1] Jose Melo and Samantha Dugelay. Auv mapping of underwater targets. In *Proceedings of the MTS/IEEE Conference Oceans 2019*, Seattle, USA, October 2019.
- [2] Samantha Dugelay, David Williams, Thomas Furfaro, Jose Melo, Veronika Yordanova, Christopher Strode, Bart Gips, and Yan Pailhas. Enabling autonomous mine countermeasures for the nato alliance. In *Proceedings of the Underwater Acoustics Conference and Exhibition*, Crete, Greece, June 2019.
- [3] José Melo and Samantha Dugelay. Atr performance for target clustering. In *Proceedings of the Underwater Acoustics Conference and Exhibition*, Crete, Greece, June 2019.
- [4] José Melo and Aníbal Matos. Data-driven terrain based navigation of auvs. *Asian Journal of Control*, (online first):1–13, January 2019. Asian Journal of Control.
- [5] José Melo and Aníbal Matos. Tracking multiple autonomous underwater vehicles. *Autonomous Robots*, 43(1):1–20, January 2019.
- [6] José Melo and Aníbal Matos. Survey on advances on terrain based navigation for autonomous underwater vehicles. *Ocean Engineering*, 139:250–264, July 2017.
- [7] José Melo, Rui Almeida, and Nuno Cruz. Estimation of 2d currents with acoustic navigation beacons. In *Proceedings of the MTS/IEEE Conference Oceans 2017*, Aberdeen, Scotland, June 2017.
- [8] Rui Almeida, José Melo, and Nuno Cruz. Characterization of measurement errors in a lbl positioning system. In *Proceedings of the MTS-IEEE Conference Oceans 2016*, Shanghai, China, April 2016.
- [9] José Melo and Aníbal Matos. Towards lbl positioning systems for multiple vehicles. In *Proceedings of the MTS-IEEE Conference Oceans 2016*, Shanghai, China, April 2016.
- [10] José Melo and Aníbal Matos. A pitch-depth bottom following controller for auvs using eigenstructure assignment. In *Proceedings of the 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, volume 48, Copenhagen, Denmark, August 2015.
- [11] José Melo and Aníbal Matos. A phd filter for tracking multiple auvs. In *Proceedings of the MTS-IEEE Conference Oceans 2014*, St. John's, New Foundland and Labrador, Canada, September 2014.
- [12] José Melo and Aníbal Matos. On the use of particle filters for terrain based navigation of sensor-limited auvs. In *Proceedings of the MTS-IEEE Conference Oceans 2013*, Bergen, Norway, June 2013.
- [13] José Melo and Aníbal Matos. Bottom estimation and following with the mares auv. In *Proceedings of the MTS-IEEE Conference Oceans 2012*, Virginia Beach, USA, October 2012.
- [14] José Melo and Aníbal Matos. Underwater terrain based navigation. In *Proceedings of 1st PhD Conference in Electrical and Computer Engineering*, Porto, Portugal, June 2012.
- [15] José Melo and Aníbal Matos. A bottom-following problem approach using an altimeter. In *Proceedings of the 12th International Conference on Autonomous Robot Systems and Competitions*, Braga, Portugal, April 2012.

- [16] Marc Magrans de Abril, Jose Melo, Carlos Ghabrous Larrea, Josef Hammer, Christian Hartl, and Christos Lazaridis. The architecture of the cms level-1 trigger control and monitoring system using uml. *Journal of Physics: Conference Series*, 331(2), October 2011.
- [17] José Melo and Aníbal Matos. Guidance and control of an asv in auv tracking operations. In *Proceedings of the MTS-IEEE Conference Oceans 2008*, Quebec, Canada, 2008.