

CURRICULUM VITAE



PERSONAL INFORMATION

Name	ROPERO PASTOR, FERNANDO
Address	UNIVERSITY OF ALCALÁ, POLYTECHNIC SCHOOL, DPTO. E-31, ALCALÁ DE HENARES, ESPAÑA
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ORCID	https://orcid.org/0000-0001-5561-7874
Nationality	Spanish
Date of birth	MAY 28, 1992

WORK EXPERIENCE

- Dates February 2019 – July 2019
- Name and address of employer Delft University of Technology, Delft, The Netherlands
- Type of business or sector Delft Center for Systems and Control Department
- Occupation or position held Visiting Researcher
- Main activities and responsibilities Scientific research focused on task and path planning in multi-robot cooperation
- Dates September 2017 – Current
- Name and address of employer University of Alcalá, Alcalá de Henares, Spain
- Type of business or sector Department of Computer Engineering
- Occupation or position held Scientific researcher
- Main activities and responsibilities Focused on autonomous multi-robot cooperation
- Dates July 2016
- Name and address of employer ORBITAL Critical Systems, San Fernando de Henares, Spain
- Type of business or sector Aeronautics / Space / Railways / R & D + I
- Occupation or position held Software architect
- Main activities and responsibilities Design and development of a database system
- Dates September 2015 – September 2017
- Name and address of employer University of Alcalá, Alcalá de Henares, Spain
- Type of business or sector Department of Computer Engineering
- Occupation or position held Postgraduate researcher
- Main activities and responsibilities Scientific research applied in cooperative control and optimization methods

- Dates
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

September 2014 – September 2015
 University of Alcalá, Alcalá de Henares, Spain
 Department of Computer Engineering
 University research technologist
 Technological research in robotics

- Dates
- Name and address of employer
 - Type of business or sector
 - Occupation or position held
- Main activities and responsibilities

June 2013 – October 2014
 Witzemann Española S.A, Polígono Industrial del Henares, Guadalajara, Spain
 Industrial Manufacturing
 Application software developer
 Designer and developer of the database systems

EDUCATION AND TRAINING

- Dates
- Name and type of organization providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded

2016-2020
 University of Alcalá, Alcalá de Henares, Spain

 Space science, technology and engineering and space projects management - PhD thesis: "Algorithms for multi-robot systems on the cooperative exploration and last-mile delivery problems"
 Cum Laude PhD in Space Research and Astrobiology

- Dates
- Name and type of organization providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded

2015-2016
 University of Alcalá, Alcalá de Henares, Spain

 Space science, astrophysics, high-energy physics, space technology and engineering, space project management - Experimental thesis: "An autonomous controller application for exploration unmanned aerial vehicles"
 Master's degree in science and Technology from Space

- Dates
- Name and type of organization providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded

2010–2015
 University of Alcalá, Alcalá de Henares, Spain

 Bachelor's in computer science engineering - Experimental thesis: "Development of a ground control station for autonomous controllers".
 Computer Science Engineer

PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE

SPANISH

OTHER LANGUAGES

- Reading skills
- Writing skills
- Verbal skills

ENGLISH
 INDEPENDENT USER
 INDEPENDENT USER
 INDEPENDENT USER

ORGANIZATIONAL SKILLS AND COMPETENCES

- Co-director of 1 PhD's student
Javier Caballero Testón, "Planning for cooperative multi-robot systems on the exploration scenario", UAH, Current
- Tutor of 1 Master's student
Javier Caballero Testón, "Cooperative reactor for a planning-based autonomous control architecture", UAH, September 2019
- Tutor of 2 Bachelor's students
Sergio Manzano Gonzalez, "Deliberative reactor for an autonomous control architecture", UAH, September 2018
Daniel Menéndez Marcos, "UGV-UAV cooperative simulation in exploration missions with energy constraints", UAH, September 2017
- Organization member of the 6th International Conference on Space Mission Challenges for Information Technology (SMC-IT), 2017.
- Participation on funded research projects:
 - 2020 "Mejora de la gestión de recursos hospitalarios mediante la predicción de la demanda con Aprendizaje Automático y Planificación". Ministerio de Ciencia e Innovación (PID2019-109891RB-I00). Participation of Universidad de Alcalá (Computer Engineering and Nursery and Physiotherapy Departments) and Hospital Universitario Príncipe de Asturias. PI: María D. R-Moreno, PhD and Helena Hernández Martínez, PhD. 2020-2023.
 - 2019 "Sistema de control autónomo colaborativo para vehículos no tripulados". Ayudas para la promoción de empleo joven e implantación de la garantía juvenil en I+D+I. Participation of Ministerio de Economía y Competitividad. PI: María D. R Moreno, PhD. 2019-2021.
 - 2017 "Robotic simulation for the teaching of artificial intelligence", University of Alcalá (UAH2016/00351/001), PI: Dr. David Fernández Barrero, 2017
 - 2017 "Robotics Simulation" University of Alcalá, Principal Researcher: Dr. David Fernández Barrero.
 - 2016 Fall detection through triaxial accelerometer in remote care environment for dependence", University of Acalá (UAH2015/00297/001), Principal Researcher: Dr. David Fernández Barrero
 - 2016 "Detección de defectos de fabricación en perfiles de PVC". Profine Iberia S.A.U. Participation of Profine Iberia and UAH. PI: María D. R-Moreno, PhD; Pablo Muñoz, PhD; David F. Barrero, PhD. 2016-2017.
 - 2015 "Arquitecturas de control autónomo para vehículos no tripulados". Ayudas para la promoción de empleo joven e implantación de la garantía juvenil en I+D+I. Participation of Ministerio de Economía y Competitividad. PI: María D. R Moreno, PhD. 2015-2017.
 - 2014 "Supervisión y planificación en la asistencia de ancianos y discapacitados". Junta de Comunidades de Castilla-La Mancha (PEII-2014-015-A). Participation of University of Alcalá (Computer Engineering, Mathematics, Nursing and Architecture Departments). PI: María D. R-Moreno, PhD. 2014-2015.

TECHNICAL SKILLS AND COMPETENCES

MAIN RESEARCH TOPICS

- Unmanned aerial and ground vehicles engineering.
- Multi-Robot cooperation and coordination.
- Collective intelligence and swarm behaviors in multi-agent systems.
- High-level modelling in mission planning
- Autonomous controllers oriented for robotic cooperation
- Computational geometry algorithms in multi-robot paradigms
- Combinatorial optimization methods

SCIENTIFIC PUBLICATIONS

- Author or co-author in the following journal articles in scientific publications on original investigations:

TERRA: A path planning algorithm for cooperative UGV-UAV exploration. Ropero, F.; Muñoz, P.; and R-Moreno, M., D. *Engineering Applications of Artificial Intelligence*, 78: 260-272. 2 2019.

ARIES: An Autonomous Controller For Multirobot Cooperation. Ropero, F.; Munoz, P.; and R-Moreno, M., D. *IEEE Aerospace and Electronic Systems Magazine*, 34(3): 40-55. 3 2019.

MOBAR: a Hierarchical Action-Oriented Autonomous Control Architecture. Muñoz, P., R Moreno, M.D., Barrero, D.F. et al. *J Intell Robot Syst* 94, 745–760 (2019).

LARES: An AI-based teleassistance system for emergency home monitoring. Ropero , F.; Vaquerizo-Hdez, D.; Muñoz, P.; Barrero, D., F.; and R-Moreno, M., D. *Cognitive Systems Research*, 56: 213-222. 4 2019.

A strategical path planner for UGV-UAV cooperation in Mars Terrains. Ropero, F.; Muñoz, P.; and R-Moreno, M., D. In *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, volume 11311 LNAI, pages 79-91, 2018.

A versatile executive based on T-REX for any robotic domain. Ropero, F.; Muñoz, P.; and R-Moreno, M., D. In *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, volume 11311 LNAI, pages 79-91, 2018.

An advanced teleassistance system to improve life quality in the elderly. Ropero, F.; Vaquerizo, D.; Muñoz, P.; and R-Moreno, M., D. In *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, volume 10350 LNCS, pages 533-542, 2017.

A Virtual Reality Mission Planner for Mars Rovers. Ropero, F.; Munoz, P.; R-Moreno, M., D.; and Barrero, D., F. In *2017 6th International Conference on Space Mission Challenges for Information Technology (SMC-IT)*, volume 2017-Decem, pages 142-146, 2017.

HONOURS AND AWARDS

Second prize at the 8th UAH Technology-Based Business Creation Ideas Contest, for the LARES Robotics Solutions business plan: advanced non-intrusive telecare system, University of Alcalá, Alcalá de Henares, Spain, 2015

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Category B

Alcalá de Henares, December 10th, 2020