MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

CV date	15/10/2023

Part A. PERSONAL INFORMATION

First name	Arturo		
Family name	De la Escalera Hueso		
Gender (*)	Male	Birth date	
Social Security, Passport, ID number			
e-mail	escalera@ing.uc3m.es	URL Web lsi.uc3m.es	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-2618-857X	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	17/12/2018		
Institution	Universidad Carlos III de Madrid		
Department/Center	Ing. De Sistemas y Automática	Escuela Politécnica Superior	
Country	Spain	Teleph. number	+34916249480
Key words	Computer Vision, Autonomous Vehicles, Robotics		

A.2. Previous positions (research activity interuptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
1999-2018	Titular de Universidad /UC3M/ Promotion
1997-1999	Titular Univ. (Interino) /UC3M/ Promotion
1995-1997	Ayudante Esc.Tec. Sup. (Doctor) /UC3M/ Promotion
1993-1995	Ayudante Esc.Tec. Sup. /UC3M/ Promotion
1991-1993	Becario FPI /UPM/ Promotion

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Doctor Ingeniero Industrial	Universidad Politécnica de Madrid (Spain)	1995
Ingeniero Industrial	Universidad Politécnica de Madrid (Spain)	1989

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

Industrial Engineer by the UPM from 1989, joined the Systems Engineering and Automation Division (E.T.S.I. Industriales, UPM) in 1991 when he got an FPI scholarship from the Education Ministry. He defended his doctoral thesis in 1995, receiving the maximum grade. He joined the Universidad Carlos III de Madrid in 1993 as an Associate Professor (1999) and has been a Full Professor since 2018. His main research line is Autonomous Vehicles, emphasising the application of Computer Vision for road environment perception and real-time object recognition. He was the Coordinator of the Computer Vision Section within the Comité Español de Automática (2016-2020).

He has kept in mind the importance of dissemination among the scientific community and, regularly, has attended conferences and published in journals: nearly 60 articles in JCR indexed journals, more than 100 papers in International Conferences and 24 in National

Conferences. He has publications with colleagues from foreign institutions: C. Olaverri (Universität München, Germany), J. Llinas (University of New York at Buffalo, USA), A. Broggi (Università degli Studi di Parma, Italy), U. Nunes (Universidade de Coimbra, Portugal), E. Izquierdo (Queen Mary University of London, UK) and C. Regazzoni (Università di Genova, Italy). He was a Visiting Academic in the Multimedia & Vision Research Group, Queen Mary University London, UK (2014/15).
He has published numerous papers on the applications of computer vision, first to intelligent vehicles for driver assistance systems and now, as perception modules needed for autonomous vehicles. Lately, he has extended computer vision applications to aerial autonomous vehicles. His Google Scholar reflex part of the influence of his research: 6548cites and an H-Index of 41.
He has been working on Spanish National Plan research projects since 1991. He has been a Principal Researcher (PR) in projects funded by the National Plan since 2004. In a summary, he has worked on 27 competitive projects. He has been PR in 8 for total funding of nearly 400.000€. As one consequence of the above merits, he has five positive research evaluations, *sexenios*, recognized by the CNEAI. This experience has taught him how to lead research teams, establish hypotheses, the ability to choose alternative paths to reach a goal, fulfil deadlines, etc. He has worked on 40 technology transference projects for several companies. He has led 10 of them for nearly 450.000€. He has taken part in numerous scientific dissemination activities as Summer Schools as UC3M, Universidad de Cantabria or Semana de la Ciencia. As one consequence of the above merits, he has one *sexenio de transferencia* recognized by the CNEAI.
In 2001, together with other doctors, he founded the research group Laboratorio de Sistemas Inteligentes, lsi.uc3m.es, recognized as such by the UC3M and the Community of Madrid. He is the Head of the Group since 2005 and has supervised sixteen doctoral theses, fifteen from 2008. Some former PhDs work in the same university in other Spanish universities or companies located abroad. He has always been concerned about their postdoctoral training and the beginning of their research careers as doctors and maintaining their collaboration as colleagues.
He is a member of the Editorial Board of the International Journal of Advanced Robotic Systems: Robot Sensors (Intech); Revista Iberoamericana de Automática e Informática Industrial (CEA), Electronics and Sensors (MDPI). He has taken part in several conference international Committees, and he is a habitual reviewer of conferences and journals. He has organized the special sessions about Computer Vision for Robotics and Automation in the 6th Iberian Conference on Pattern Recognition and Image Analysis 2013, Data Fusion in Intelligent Transport Systems in the 17th International Conference on Information Fusion 2014, the Workshop on Autonomous Vehicles in Off-Road Scenarios for the IEEE Intelligent Vehicles Symposium, 2016 and Autonomous Driving and Driver Assistance Systems in the 4th and 5th Iberian Robotics Conference (2017 and 2019). He was Tutorials/Workshops Chair for the 2018 IEEE International Conference on Vehicular Electronics and Safety. He has led two Special Issues for Robotics and Autonomous Systems (Elsevier) about Autonomous Driving & Driver Assistant Systems (2017, 2019).
Since 2010, he has been working in cooperation projects funded by the Spanish Foreign Affairs Ministry, teaching several formation courses for faculties from the Universidad Nacional de Panamá, the Universidad Tecnológica de Panamá and the Universidad de Managua. He has taught several Keynotes in the educational conference Congreso Internacional de modelación y formación en ciencias básicas, Medellín (Colombia) for the years 2010, 2011, 2012. He habitually takes part in the evaluation processes for several Spanish agencies: ACAP, ACUCYL, AEI, ANECA, ANEP, DEVA and abroad: FONDECYT (Chile) and Forskningsradet (Norway).

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(see instructions)*

1. J. Beltran; C. Guindel; **A. de la Escalera**; F. García, 2022, Automatic Extrinsic Calibration Method for LiDAR and Camera Sensor Setups. IEEE Transactions on Intelligent Transportation Systems, Vol: 23 (10)

2. M. J. Gómez-Silva, **A. de la Escalera** and J. M. Armingol (2021) Back-Propagation of the Mahalanobis Distance through a Deep Triplet Learning Model for Person Re-Identification. Integrated Computer-Aided Engineering Vol 28 (3).
3. M. J. Gómez-Silva, **A. de la Escalera**, J. M. Armingol, 2021, Back-Propagation of the Mahalanobis Distance through a Deep Triplet Learning Model for Person Re-Identification, Integrated Computer-Aided Engineering, Vol: 28 (3), pp: 277-294.
4. A. Madridano, A. Al-Kaff, P. Flores, D. Martín, **A. de la Escalera**, 2021, Trajectory Planning for Multi-Robot Systems: Methods and Applications, Expert Systems With Applications, Vol: 173 pp: 114660-114674
5. D. Thekke Kanapram, P. Marin-Plaza, L. Marcenaro, D. Martin, **A de la Escalera**, C. Regazzoni, 2020, Self-Awareness In Intelligent Vehicles: Feature based Dynamic Bayesian models for Abnormality Detection, Robotics and Autonomous Systems Vol:134, 103652-103668.
6. D. Campo, M. Baydoun, P. Marin, D. Martin, L. Mercenaro, **A de la escalera**, C. Regazzoni. 2020. Learning probabilistic awareness models for detecting abnormalities in vehicle motions. IEEE Transactions on Intelligent Transportation Systems. Vol: 21 (3) pp: 1308-1320
7. M.J. Gómez-Silva, E. Izquierdo, **A. de la Escalera**, J.M. Armingol. Transferring Learning from Multi-Person Tracking to Person Re-identification. Integrated Computer-Aided Engineering, Vol 26 (4), 329-344, 2019.
8. P. Marin-Plaza, A. Hussein, D. Martin, **A. de la Escalera**. iCab Use Case for ROS-based Architecture. Robotics and Autonomous Systems. Vol 118, 251-262, 2019
9. F. García, D. Martin, **A. de la Escalera**, J.M. Armingol. 2017. Sensor Fusion Methodology for Vehicle Detection. IEEE Intelligent Transportation Systems Magazine, Vol: 9: 123-133
10. M.J. Gómez, F. García, D. Martín, **A. de la Escalera**, J.M. Armingol, 2015, Intelligent Surveillance System based on Computer Vision and 3D Point Cloud Fusion. Expert Systems With Applications 42: 8156–8171

C.2. Congress

1. I. Cortés, J. Beltrán, **A. de la Escalera**, F. Garcia. IEEE Intelligent Vehicles Symposium, oral presentation, Las Vegas, EEUU, 19 Oct.-13 Nov. 2020
2. M. Rodríguez, A. Al-Kaff, A. Madridano, D. Martin, **A. de La Escalera**. International Conference on Unmanned Aircraft Systems, oral presentation, Athens, Greece, 2020
3. J. Beltrán, I. Cortes, A. Barrera, J. Urdiales, F. García, **A. de la Escalera**. IEEE Intelligent Transp. Systems Conf., oral presentation, 27-30 Oct., Auckland, New Zealand, 2019
4. A. Madridano; A. Al-Kaff; D. Martin; **A. de la Escalera**. IEEE Int. Conference on Vehicular Electronics and Safety, oral presentation, The Cairo, Egypt. September 04-06, 2019
5. J. Beltrán, C. Guindel, F.M. Moreno, D. Cruzado, F. García, **A. de la Escalera**. IEEE Intelligent Transportation Systems Conference, oral presentation, Maui, Hawaii, EEUU, November 4-7, 2018
6. M. J. Gomez-Silva, J.M. Armingol, **A. de la Escalera**. International Conference on Computer Vision Theory and Applications, oral presentation, Funchal, Madeira, Portugal, 27-29 January 2018.
7. A. Al-Kaff, F.M. Moreno, **A. de la Escalera**, J.M. Armingol. IEEE Int. Symposium on Safety, Security and Rescue Robotics, oral presentation, Shanghai, China, October 11-13, 2017
8. A. Kokuti, A. Hussein, **A. De la Escalera**, F. Garcia. International Conference on Intelligent Transportation Systems, oral presentation, Yokohama, Japan, October 16 - 19, 2017
9. P. Marin-Plaza, A. Hussein, D. Martin, **A. de la Escalera**. Third Iberian Robotics Conference, oral presentation, Seville, Spain, 22-24 November 2017
10. A. Kokuti, A. Hussein, P. Marín-Plaza, **A. de la Escalera**, F. García. IEEE Int. Conference on Vehicular Electronics and Safety, oral presentation, Vienna, Austria, June 27-28, 2017

C.3. Research projects

1. PID2021-124335OB-C21. Aprendizaje profundo para vehículos autónomos. Agencia Española de Investigación, Proyectos I+D+i Retos de Investigación. Arturo de la Escalera, UC3M, 1/10/2022 - 30/09/2025, 108.900 €, Principal Researcher
2. S2018/EMT-4362. Seguridad de vehículo para una movilidad inteligente, sostenible, segura e Integradora. Comunidad de Madrid, Programas de Actividades de I+D entre grupos de investigación de la Comunidad de Madrid en tecnologías 2018, José María Armingol, UC3M, 01/01/2019 - 31/12/2022, 97.431 €, Researcher.
3. RTI2018-096036-B-C22. Integración de vehículos autónomos eléctricos en entornos urbanos. Agencia Española de Investigación, Proyectos I+D+i Retos de Investigación. Arturo de la Escalera, UC3M, 1/1/2019 - 31/12/2021, 71.390 €, Principal Researcher.
4. IND2017/TIC-7834. Cooperación de drones de altas capacidades de extinción contra incendios forestales y urbanos. Comunidad de Madrid, Doctorados Industriales, Arturo de la Escalera, UC3M, 1/2/2018 - 31/01/2021, 46.873 €, Principal Researcher.
5. H2020-SEC-2016-2017-1; SEC-08/11/12-FCT-2016. Enhanced Neutralization of explosive Threats Reaching across the Plot. María Henar Miguélez, UC3M, 2017-2019, 200.000€, Researcher.
6. TRA2015-63708-R. Sistema de Ayuda para una Conducción Urbana más Segura. Ministerio de Asuntos Económico y Transformación Digital, Plan Estatal de Investigación Científica y Técnica y de Innovación, Arturo de la Escalera, UC3M, 1/1/2016 - 30/06/2019, 121.000 €, Principal Researcher.
7. S2013/MIT-2713. SEGVAUTO-TRIES-CM. SEGuridad de los vehiculos AUTOmoviles, por un TRansporte inteligente, eficiente y seguro. Comunidad de Madrid, Programas de Actividades de I+D entre grupos de investigación de la Comunidad de Madrid en tecnologías 2013, José María Armingol, UC3M, 01/01/2014 - 31/12/2018, 60.002€, Researcher.
8. RTC-2015-3953-4. Vehículo ultraligero no tripulado desplazable sobre carriles para labores automáticas de inspección, mantenimiento y vigilancia de vía. Ministerio de Asuntos Económico y Transformación Digital, Retos de colaboración. José Mª Armingol, UC3M, 01/04/2015 - 31/12/2017. 252.928 €, Researcher.
9. TRA2011-29454-C03-02, Driver Distraction Detector System, Ministerio de Ciencia e Innovación, Programa Nacional de Proyectos de Investigación Fundamental, Arturo de la Escalera, (UC3M), 1/1/2012 - 30/06/2015, 59.290 €, Principal Researcher.

C.4. Contracts, technological or transfer merits

1. Algoritmo de detección y clasificación de defectos en radiografías. Industria de Turbo Propulsores. Arturo de la Escalera Hueso (UC3M), 15/01/2020 - 30/04/2022, 165.000 €
2. Cities Timanfaya. Centros de Arte, Cultura y Turismo de Lanzarote, José Mª Armingol (UC3M), 19/11/2018 – 31/12/2021, 408.153,23 €
3. Análisis de imágenes áreas de entornos ferroviarios, Sigma-Rail, Arturo de la Escalera Hueso (UC3M), 24/03/2017-24/12/2017, 15.422 €
4. Mejora en sensores de captación de sistema iris en hexacopter y aplicación software: integración lidar en octocopter. Copisa Proyectos y Mantenimientos Industriales SAU. Arturo de la Escalera Hueso (UC3M), 01/03/2017- 31/03/2018, 21.000€
5. Diseño del sistema de navegación y control de un UAV. Copisa Proyectos y Mantenimientos Industriales SAU. Arturo de la Escalera Hueso (UC3M), 01/12/2015-31/07/2016, 27.900 €