MINISTERIO DE CIENCIA E INNOVACIÓN

CURRICULUM VITAE (CVA)

AGENCIA ESTATAL DE INVESTIGACIÓN

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

CV date	23/01/2023

Part A. PERSONAL INFORMATION

First name	María de los Ángeles		
Family name	Malfaz Vázquez		
Gender (*)	Female	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	mmalfaz@ing.uc3m.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-2317-3329	

(*) Mandatory

A.1. Current position

Position	Associate Professor (PTU)		
Initial date	24/07/2018		
Institution	Carlos III University of Madrid		
Department/Center	Systems Engineering and Automation Department	EPS Carlos III de Madrid	
Country	Spain	Teleph. number	617152676
Key words	Social Robots, Decision-making, Human-Robot Interaction		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
01/09/2016-24/07/2018	Profesor Visitante (4+2)/ Carlos III University of Madrid/ Spain
30/10/2014-5 months	***Birth of the third child- Marian Lapuente Malfaz***
01/09/2014-01/09/2016	Profesor Visitante/ Carlos III University of Madrid/ Spain
11/11/2012-5 months	***Birth of the second child- Tomás Lapuente Malfaz***
22/07/2012-01/09/2014	Profesor Visitante Lector/ Carlos III University of Madrid/ Spain
28/04/2010-5 months	***Birth of the first child- Esther Lapuente Malfaz***
01/04/2009-22/07/2012	Profesor Ayudante Doctor/ Carlos III University of Madrid/ Spain
16/02/2009-01/04/2009	Profesor Ayudante Específico/ Carlos III University of Madrid/ Spain
16/02/2004-16/02/2009	Profesor Ayudante/ Carlos III University of Madrid/ Spain
01/04/2002-16/02/2004	Personal Docente e Investigador/ Carlos III University of Madrid/ Spain
01/10/2001-01/04/2002	Research fellow/ La Laguna University/ Spain
15/05/2000-15/08/2000	Internship in the Advanced Control area/CEPSA Tenerife/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Electric Engineering, Electronics and Automation	Carlos III University of Madrid/ Spain	1999
MSc in Control Systems	Imperial College of London/ UK	2001
Physics Science Degree	La Laguna University/ Spain	1999

(Include all the necessary rows)

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

María de los Ángeles Malfaz, **Associate Professor** at the Carlos III University of Madrid since 2018, joined the Department of Systems Engineering and Automation in 2002. She belongs to the RoboticsLab research group, a leading group in robotics in Spain and Europe, led by Dr. Miguel Ángel Salichs and Dr. Carlos Balaguer. The **line of research** started in her doctoral period is *Bio-inspired decision-making systems for autonomous social robots*. This research area marked an important difference in relation to the lines held at that time in robotics. The fundamental idea is the use of emotions, needs and motivations, to inspire new approaches to the traditional control architectures of autonomous robots. This implies a clear **multidisciplinary** character, having to integrate concepts related to biology and psychology. Since then, Dr. Malfaz has been expanding her research lines to **human-robot interaction**, and **social robots for seniors**, without leaving her main research line apart. All these lines are complementary since making social robots for the elderly implies that both the interaction and the decision-making system must be adapted to this type of user, which is very challenging.

Throughout these 20 years dedicated to the aforementioned lines of research, her work has been published in **34 peer-reviewed** articles, all of them published in the last 13 years, and in more than **37 contributions to conferences**.

Moreover, she has participated in **17 competitive research projects**, 2 of them with European funding and most of them directly related to social robotics, with a total funding of more than 3,6M €. In relation to the **transfer of knowledge** to society, Dr. Malfaz has also participated in **8 projects with private companies**, funded with more than 850.000 €, and achieving the development of a **patent** in one of them. It should be noted that among all these projects, she has been **Principal Investigator** in **4** of the national competitive projects and in **2** collaboration projects with private companies (Article 83), both in robotics (with Airbus) and control (with Thales Spain).

Thanks to these projects, the applicant has become increasingly relevant within her research group, led by Dr. Miguel Ángel Salichs, participating in the **management of the group** and the development of the activities carried out within of the same. Therefore, the applicant's experience in preparing proposals and managing European, national, and regional projects should be highlighted. Dr. Malfaz has shown great initiative and research, technological, and group management capacity, which translates into the opening of new lines of research within the group. In addition, she organizes regular working group meetings and RoboticsLab Workshops. All this reflects the applicant's skills in coordination and teamwork. Since 2007, following her research lines, she has directed **5 doctoral theses**. Besides, the applicant has also been involved in **dissemination activities** for several years, such as, the “Science Week” and the “4º de ESo+Empresa” programme to show high school students the work in the laboratory.

In addition, she has participated, and participates, in the **organization of international conferences** such as IROS2018, ICSR 2019 and BICA from 2011 to 2019, as well as the Robocity12 and Robocity13 events. In addition, she is the organizer of Workshops at the ICSR (2015 and 2016), on the application of social robots for assistance to the elderly. This work also extends to reviewing journal articles with JCR and international and national conferences.

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

C.1. Publications *(see instructions)*

1. Maroto-Gómez, M., Marqués-Villaroya, S., Castillo, J. C., Castro-González, Á., & **Malfaz, M**. *Active learning based on computer vision and human–robot interaction for the user profiling and behavior personalization of an autonomous social robot*. Engineering Applications of Artificial Intelligence, 117, 105631. 2023.
2. Aysan Mahmoudi Asl, Jose Miguel Toribio-Guzmán, Henriëtte van der Roest, Álvaro Castro-González, **María Malfaz**, Miguel A. Salichs and Manuel Franco Martin. *The usability and feasibility validation of the social robot MINI in people with dementia and mild cognitive impairment; a study protocol*. BMC Psychiatry 22, 760. 2022.
3. E. Fernández-Rodicio, M. Maroto-Gómez, A. Castro-González, **M. Malfaz**, M.A. Salichs. *Emotion and Mood Blending in Embodied Artificial Agents: Expressing Affective States in the Mini Social Robot.* International Journal of Social Robotics vol:12, 1231–1249. 2022.

4. M. Maroto-Gómez, A. Castro-González, J.C. Castillo, **M. Malfaz** and M.A. Salichs. *An adaptive decision-making system supported on user preference predictions for human–robot interactive communication*. User Modeling and User-Adapted Interaction. April 2022. 1-45. 2022.
5. M. Maroto-Gómez, R. González, A. Castro-González, **M. Malfaz**, M. A. Salichs. *Speeding-Up Action Learning in a Social Robot with Dyna-Q+: A Bioinspired Probabilistic Model Approach*. IEEE Access. vol: 9, pp:98381-98397. 2021.
6. J. J. Gamboa-Montero, F. Alonso-Martín, J. C. Castillo, **M. Malfaz**, M. A. Salichs. *Detecting, locating and recognising human touches in social robots with contact microphones*. Engineering Applications of Artificial Intelligence, vol: 92(103670), pp:1-16, 2020.
7. M.A. Salichs, A. Castro-González (AC), E. Salichs, … & **M. Malfaz** (9/9). *Mini: A New Social Robot for the Elderly*. International Journal of Social Robotics vol:12, pp: 1231–1249. 2020.
8. M. Maroto, A. Castro-González, J.C. Castillo, **M. Malfaz**, M.A. Salichs. *A Bio-inspired Motivational Decision Making System for Social Robots Based on the Perception of the User.* Sensors, vol: 18(8): 2691, pp: 1 - 19. 2018.
9. F. Alonso, A. Castro-González, **M. Malfaz**, J.C. Castillo, M.A. Salichs. *Identification and distance estimation of users and objects during human-robot interaction using Bluetooth Low Energy beacons*. Expert Systems with Applications, vol:86, pp:247-257, 2017.
10. M.A. Salichs, I.P. Encinar, E. Salichs, A. Castro-González, **M. Malfaz**. *Study of Scenarios and Technical Requirements of a Social Assistive Robot for Alzheimer's Disease Patients and Their Caregivers*. International Journal of Social Robotics., vol: 8, pp: 85-102. 2016.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

1. M. Maroto Gómez, S. Marqués, **M. Malfaz**, A. Castro, J.C. Castillo, Salichs, M. *A Preference Learning System for the Autonomous Selection and Personalization of Entertainment Activities during Human-Robot Interaction*. 2022 IEEE International Conference on Development and Learning (ICDL 2022). September 12-15, 2022. London, UK.
2. Alonso-Martín F., **Malfaz M.**, Castro-González Á., Castillo J.C., Salichs M.A. *Online evaluation of text to speech systems for three social robots*. ICSR International Conference on Social Robots 2019. Madrid, 26-29 Noviembre, 2019. Madrid, Spain.
3. E. Salichs, E. Fernández-Rodicio, J.C. Castillo, A. Castro-González, **M. Malfaz**, M.A. Salichs. *A Social Robot Assisting in Cognitive Stimulation Therapy*. In Advances in Practical Applications of Agents, Multi-Agent Systems, and Complexity: The PAAMS Collection. PAAMS 2018, June 20-22, 2018. Toledo, Spain. (IBM-Best demo award)

C.3. Research projects, indicating your personal contribution.

1. Title: SoRoGap - Robots sociales para reducir la brecha digital de las personas mayores. **Ref.:** TED2021-132079B-I00. **Call:** National **Principal Investigator:** María Malfaz Vázquez and José Carlos Castillo. **Funding Entity:** Ministerio de Economía y Competitividad **Type of participation:** *Principal Investigator.* **Start date:** 01/12/2022 **End date:** 30/11/2024. **Total amount:** 230.000 €

2. Title: MENIR - Mejora del nivel de madurez tecnológica del robot mini. **Ref.:** PDC2022-133518-I00. **Call:** National **Principal Investigator:** María Malfaz Vázquez and Miguel Ángel Salichs. **Funding Entity:** Ministerio de Economía y Competitividad **Type of participation:** *Principal Investigator.* **Start date:** 01/01/2019 **End date:** 31/09/2022. **Total amount:** 138.000 €

3. Title: ROSES: Social robots for physical, cognitive and affective stimulation of the elderly. **Ref.:** DPI2014-57684-R. **Call:** National **Principal Investigator:** María Malfaz Vázquez and Miguel Ángel Salichs. **Funding Entity:** Ministerio de Economía y Competitividad **Type of participation:** *Principal Investigator.* **Start date:** 01/01/2019 **End date:** 31/09/2022. **Total amount:** 302.500 €

4. Title: RoboCity2030-DIH-CM. Madrid Robotics Digital Innovation Hub. **Ref:** S2018/NMT-4331. **Call:** Regional. **Principal Investigator:** Carlos Balaguer. **Funding Entity:** Comunidad de Madrid. **Type of participation:** Researcher. **Start date:** 01/01/2019 **End date:** 31/12/2022. **Total amount:** 162.150€

5. Title: BADGER: RoBot for Autonomous unDerGround trenchless opERations, mapping and navigation. **Ref.:** GA-731968-BADGER **Call:** European Commission. **Principal Investigator:** Carlos Balaguer. **Funding Entity:** European Commission Research Executive Agency. **Type of participation:** Researcher. **Start date:** 01/01/2017 **End date:** 30/06/2020. **Total amount:** 744.061,25€

6. Title: ROBSEN: Development of social robots to help older people with cognitive impairment. **Ref.:** DPI2014-57684-R. **Call:** National **Principal Investigator:** Miguel Ángel Salichs. **Funding Entity:** Ministerio de Economía y Competitividad **Type of participation:** Researcher. **Start date:** 01/01/2015 **End date:** 31/12/2018. **Total amount:** 183.000 €

7. Title: RoboCity2030-lll-CM. Robotics applied to improving the quality of life of citizens (phase lll). **Ref:** S2013/MIT-2748. **Call:** Regional. **Principal Investigator:** Carlos Balaguer. **Funding Entity:** Comunidad de Madrid. **Type of participation:** Researcher. **Start date:** 01/10/2014 **End date:** 31/12/2018. **Total amount:** 304.982,14 €

8. Title: MONARCH:Multi-Robot Cognitive Systems Operating in Hospitals. **Ref.:** 2012/00635/004 **Call:** European Commission. **Principal Investigator:** Miguel Ángel Salichs. **Funding Entity:** European Commission Research Executive Agency. **Type of participation:** Researcher. **Start date:** 01/02/2013 **End date:** 31/01/2016. **Total amount:** 717.667,81 €

9. Title: Social robot applications. **Ref:** DPI2011-26980 **Call:** National **Principal Investigator:** Miguel Ángel Salichs. **Funding Entity:** Ministerio de Ciencia e Innovación. **Type of participation:** Researcher. **Start date:** 01/01/2012 **End date:** 31/12/2015. **Total amount:** 233.530 €

10. Title: Service Robots for Improving the Quality of Life of Citizens in Metropolitan Areas (Phase II): ROBOCITY2030-II. **Ref:** S2009/DPI-1559. **Call:** Regional. **Principal Investigator:** Carlos Balaguer. **Funding Entity:** Comunidad de Madrid. **Type of participation:** Researcher. **Start date:** 01/01/2010 **End date:** 31/12/2013. **Total amount:** 302.759 €

C.4. Contracts, technological or transfer merits.

1. Title: Social robot to help the elderly. **Principal Investigator:** Miguel Angel Salichs **Funding Entity:** ARQUIMEA MEDICAL S.L.U. **Start date:** 08/01/2019 **End date:** 03/02/2021 **Total amount:** 150.000€

2. Title: Control of a locomotion axis of a Rover vehicle for exploration on Mars. **Principal Investigator:** MaríaMalfaz Vázquez; Concepción Monje Micharet **Funding Entity:** THALES ALENIA SPACE ESPAÑA, S.A. **Start date:** 22/06/2016 **End date:** 22/12/2016 **Total amount:** 5.800 €

3. Title: Technical Specification of a course of Basic Knowledge of Programming of MHCN. **Principal Investigator:** MaríaMalfaz Vázquez; Dolores Blanco Rojas **Funding Entity:** AIRBUS OPERATIONS, S.L. **Start date:** 29/04/2016 **End date:** 29/03/2016 **Total amount:** 9.412 €

4. Title: ENERGOS **Principal Investigator:** Miguel Angel Salichs **Funding Entity:** Diagnostiqa Consultoría Técnica S.L. **Start date:** 01/10/2009 **End date:** 30/06/2012 **Total amount:** 41.499 €.

5. Title: CÁTEDRA PEUGEOT to promote research in the area of Systems Engineering and Automation. **Principal Investigator:** Miguel A. Salichs and Carlos Balaguer **Funding Entity:** Peugeot-Citroen PSA **Fecha inicio:** 16/02/1998 **End date:** 31/12/2014 **Total amount:** 641.881€

Patent: **Title:** Robot for the inspection of wind turbine blades. **Inventors/Authors/Breeders:** Ramón Barber Castaño; Mª Ángeles Malfaz Vázquez; Miguel Ángel Salichs Sánchez-Caballero **Owner entity:** Universidad Carlos III de Madrid. **Application number:** P201331467 **Priority country:** Spain **Registration date:** 04/10/2013. **Grant date**: 15/01/2016. **Patent number**: ES2533277