

Virginia Ruiz Garate

Associate Professor in Assistive Robotics

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Experience

- Jan. 2021 – Present **Associate Professor in Assistive Robotics/Wallscourt Fellow in Intelligent Assistive Robotics**, Bristol Robotics Laboratory/University of the West of England (UWE), United Kingdom.
- Assistive Robotics Theme Leader at the Bristol Robotics Laboratory
 - Co-leader of the Robotics Engineering And Computing for Healthcare (**REACH**) research group (£14000/year)
 - Robotics Programme Cluster Coordinator for Open day, Offer holder day & Induction
 - EDM (Engineering, Design and Mathematics department) representative for the Faculty of Environment and Technology RKE (Research and Knowledge Exchange) Research Culture Working Group.
 - Module leader of the MSc Assistive Robotics module.
 - Business Liaison Associate for NHS/NBT
 - UWE representative in the **UK-RAS** Network Early Career Forum
 - UWE lead for the **FitBees** project (UKRI-Innovate UK - Healthy Ageing Challenge - Designed for Ageing, No. 10025358).
- Jan. 2017 – Dec. 2020 **PostDoc researcher**, Human-Robot Interfaces and Physical Interaction Research Line (HRII), Italian Institute of Technology (IIT), Genova, Italy. Projects involved:
- **SOPHIA** (EU Horizon 2020 No. 871237)
 - **ErgoLean** (ERC Starting Grant; Principal Investigator: Arash Ajoudani)
 - **SOMA** (EU Horizon 2020 No. 645599).
- July 2011– Dec. 2011 **Project engineer**, TASS international, Wiesbaden, Germany.
- Developing software for the integrated safety problems in the automotive area.
- Feb. 2011 – June 2011 **Research assistant**, Morelab laboratory, DeustoTech, Spain.
- Assist in the “Internet of things” projects in sensor integration and electronics.
- July 2010 – Aug. 2010 **Research assistant (Internship)**, Keio University, Japan.
- Research subject: “Study of singularity avoidance methods and disturbance influence in flexible spacecraft controlled by CMG”.

Education

- Feb. 2012 – June 2016 **Research assistant / PhD Student**, Center for Research in Energy and Mechatronics (CEREM), Université catholique de Louvain (UCL), Belgium.
- Thesis: “Bio-inspired motor primitives for controlling leg exoskeletons”.
 - Research and development in the EU **CYBERLEGs** project (FP7-ICT-287894).
- June 2015 – Nov. 2015 - Period abroad at The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy
- Sep. 2008 – June 2010 **EMARO (European Master in Advanced Robotics)**, Ecole Centrale de Nantes, France /Politechnika Warszawska, Poland.
- Thesis: “Inverse dynamic analysis of human gait - Investigation for robotics application”.
- Sep. 2006 – Sep. 2008 **Engineering in Automation and Electronics**, Escuela Técnica Superior de Ingeniería (UPV/EHU), Spain.
- Project: “Prototype of mobile service robot for aiding people with restricted mobility”.
- Sep. 2002 – Dec. 2005 **Industrial Technical Engineering specialized in Industrial Electronics**, Escuela Universitaria de Ingeniería Técnica Industrial (UPV/EHU), Spain.

Publications

The complete list of my publications can be found at my Google Scholar profile

Editorial Activity, Workshops, and invited Talks

- 27 Oct. 2022
Kyoto, Japan (Online) **Invited Talk:** “*Bio-inspiration in gait assistance: achieving adaptive behaviours*”, IROS 2022 Workshop on “*Assistive Robotic Systems for Human Balancing and Walking: Emerging Trends and Perspectives*”.
- 06 Oct. 2022 - Present **Associate Editor** of Mechatronics, Science Direct, Elsevier.
- 23 Sep. 2022
Chennai, India (Online) **Invited Keynote** on “*Assistive Robots’ Taxonomy : a system-based classification*”, Third International Conference on Robotics, Intelligent Automation and Control Technologies (RIACT 2022).
- 26 Aug. 2022
Aberystwyth, Wales, U.K **Invited Keynote** on “*Assistive Robots in unconstrained environments*” UK-RAS Conference
- 14 June 2022 - Present **Project Reviewer** for the Engineering and Physical Sciences Research Council (EPSRC) of UK Research and Innovation (UKRI).
- 23-24 June 2022
Bristol, U.K. **Workshop Organizer:** “Past and Future of Assistive Technologies”, University of the West of England, Bristol Robotics Laboratory.
- 16 June 2022
Bristol, U.K **Invited Talk:** “*Assistive Robots’ Taxonomy : a system-based classification*”, NNUF Hot Robotics Symposium.
- 23 June 2019/31 May 2021,
Freiburg, Germany/Virtual **Workshop Organizer:** “Emerging Paradigms for Robotic Manipulation: from the lab to the productive world.” 1st Edition - *Robotics Science and Systems Conference (RSS) 2019*. 2nd Edition - *Int. Conference on Robotics and Automation (ICRA 2021)*”.
- 12 March / 10 Sep. 2021,
Mérida, México (Virtual) **Invited Talk:** “Robots de asistencia: de exoesqueletos a robots sociales”, *AAAIMX Women’s Month / 2nd National Symposium on Bioengineering and Artificial Intelligence (SINABIA 2021)*, Instituto Tecnológico de Mérida
- 23 June 2019,
Freiburg, Germany. **Associate Editor** for 30th *IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2021)*.
- 10 Dec. 2020
Virtual **Workshop Organizer:** “Human factors in the design and control of robots: What are we missing?” *Italian Conference on Robotics and Intelligent Machines (I-RIM) 3D Workshop*, 2020
- 15 Sep. 2020 - Present **Review Editor on the Editorial Board** of Field Robotics (specialty section of Frontiers in Robotics and AI)
- 06/2021 **Special Issue Organizer and Associate Editor:** “Emerging Paradigms for Robotic Manipulation: from the Lab to the Productive World”, *IEEE Robotics and Automation Magazine (RAM)*, 2021.
- 2012 – Present Reviewer for several international journals and conferences such as RA-L, ICRA, IROS, ICORR, BioRob, CASE, TII, TNSRE, T-RO, Frontiers in Neurorobotics, and Frontiers in Computational Neuroscience.

Teaching and Supervision

- PhD Supervision
- Sep. 2022-Present (UWE): Isaac Jordan. “*Non-Invasive Analysis of EEG Signals for the Control of Upper-Limb Prosthetics*”
 - Sep. 2021-Present (UWE): Emanuel Nunez Sardinha. “*The Pupil System: Augmented Reality System for Gaze-control of Devices for Tetraplegid*”
 - 2019 – 2020 (IIT): Co-Supervising Soheil Gholami. “*A methodology for improving usability and ergonomics of teleoperation interface*”.

- MSc supervision
- 2021-22 (UWE): Co-Supervising 7 Master thesis from the MSc in Robotics and Health Technology: “Upper Limb Rehabilitation for Stroke Survivors Using Franka Robotic Arms”, “Socially Assistive Robot to aid Learning in Dyslexic Children”, “Automated Detection of Delirium using Human-robot Interaction and Transformers for Action Recognition on Thermal Images”, “A Non-Invasive Analysis of EEG Signals for the Control of Upper-Limb Prosthetics”, “4D printing of soft fingers for robotic prosthetic hands”, “Learning from Demonstration for Automatic Tea Preparation for Service Robots”
 - 2020-21 (UWE): Co-Supervising 6 Master thesis from the MSc in Robotics and Health Technology. “Intelligent data-fusion for indoor localization for assistive robots”, “Intelligent Data Fusion to support real-time accessible feedback for shared autonomy in wheelchairs”, “Multimodal interaction with a social robot using biofeedback to support therapy”, “Intelligent Motion Sensing to aid Stroke Rehabilitation”, “Stroke Rehabilitation: A Literature Review”, “Stroke rehabilitation and recovery using functional and exercise-related activity”.
 - 2017-18 (IIT): “Study brain interfaces to decode user intention for robotic grasping control”.
- BEng supervision
- 2021-22 (UWE): Co-Supervision of “Classifying surface electromyography signals for the control of a prosthetic hand”
- Internships supervision
- June – July 2022: Co-Supervise 4 summer interns working on diverse topics of Assistive Technologies
 - June – July 2021: Co-Supervise 3 summer interns working on the topics of Biomechanical Analysis and Machine Learning for data obtained from physically assistive robots
- Teaching
- Feb 2021 –Present: “**Assistive Robotics**” for MSc students, UWE and University of Bristol.
 - Practical lessons with Pepper robot (11 groups of 4-6 students)
 - Organizing lecture sessions (~60 students).
 - Marking and feedback reports.
 - 2014 – 2015: First year civil engineering: **LFSAB1501 Project 1**. UCL, Belgium (in French)
 - Guide students during the construction and programming of their first Lego robot. Follow their progress through regular reports.
 - More than 8-10 groups of 5-6 students each, during two semesters.
 - 2014-2015: Master course **LMECA2732: Introduction to robotics, Laboratoire NAO**. UCL, Belgium (in English).
 - Laboratory groups on their first approach to program robot NAO.
 - Total of 10 groups of 2 students each, during two semesters.
- Invited Lectures
- 24 May 2022: Invited lecture to the students of Industrial Automation & Robotics on “Assistive Robotics: an introduction” within the Department of Mechanical Engineering at **The National Institute of Engineering, Mysuru, India**
 - 29 March 2022: Invited lecture within the Msc “BioRobotics” module “Biosystems and Biorobotics” of University of Bristol on “Bio-inspiration for assistive robots”
 - 02 March 2022 Invited lecture to the Università degli Studi di Perugia on “Assistive Robotics: an introduction” within the Msc “Ingegneria Informatica e Robotica” module “Tecnologie per sistemi robotici”

Skills

- Computer skills
- Good knowledge of Matlab, Ubuntu, Microsoft Office
 - Medium knowledge of LateX, ROS, LabView, C++, Inkscape

- Basic notions of MPLAB, CATIA, ADAMS, Pro-Engineer
Languages Spanish (mother tongue), English (fluent), Italian (medium), French (medium)

Honours and awards

- 2022-2024 **Project lead for UWE** (£227,126) as partner of the collaborative Fitbees Project (£1,843,330 awarded under the Innovate UK Competition: Healthy Ageing Challenge - Designed for Ageing)
- 2022-2023 **Vice Chancellor's Challenge Fund** for 2022-23. £24.960 award to co-lead a project on "4D printing of soft hands for smart actuation and sensing of robotic prosthetic hands" and £24,426.50 to co-lead a project on "Enhancing self-directed arm exercise practice using GripAble gaming device integrated with wearable (accelerometer and Lycra arm Sleeve) technologies in chronic stroke survivors"
- 2021-2022 **Vice Chancellor's Early Career Researcher Development Award** for 2021-22. £14.910 award to develop a study on: "Adaptive home robotic assistance for people with stroke using the CHIRON robot".
- 2020 **Marie Skłodowska-Curie Seal of Excellence** on the H2020-MSCA-IF-2020 call.
- 2009-2010 Basque Country scholarship to carry studies of specialization in a foreign country. Awarded during the EMARO master for the interest and relevance of the carried studies for the Basque Country.
- 2007-2008 Basque Country collaboration scholarship to develop studies under the Automatic Control and Systems Engineering laboratory of the Escuela Técnica Superior de Ingeniería, Spain.

Other competences and interests

- Additional certificates
- **Fellowship of the Higher Education Academy (FHEA) certificate:** UK Professional Standards Framework for teaching and supporting learning in higher education.
 - **Solidworks** CPD 24 hours bespoke training.
 - **SD2905.1x: Human Spaceflight:** an introduction. EdX online course offered by KTH Royal Institute of Technology. March 16, 2017.
- Competences
- Team spirit and ability to coordinate with international partners.
 - Good communication skills and adaptability to multicultural environments.
 - Very good capacity to self-organize and elaborate short/long term schedules.