

PERSONAL INFORMATION

Sara Arlati



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Sex F | Date of birth 16/12/1988 | Nationality Italian

Biomedical Engineer

WORK EXPERIENCE

November 2019 to present

Researcher

Italian National Research Council (CNR) - Institute of Intelligent Industrial Technologies and Systems for Advanced Manufacturing (STIIMA), formerly CNR-ITIA.

Work within Smart and Human Centered Living Environments Group, mainly on projects involving cognitive and motor rehabilitation and active ageing.

- **Scientific Manager** of the project PDT2-1 "Rientr@ - Virtual environments to facilitate the return to work" funded by the Italian Institute for Insurance against Accident at Work (funded by INAIL).
- **Responsible for the Operative Unit** in the "Young Researchers" project "A comprehensive preventive program for dementia tailored on the neuropsychological profile of persons with Mild Cognitive Impairment: cognitive stimulation, physical intervention and healthy nutrition, a randomized controlled trial" funded by the Ministry of Health.

Business or sector Research.

December 2013 – November 2019

Research Fellow

Italian National Research Council (CNR) - Institute of Intelligent Industrial Technologies and Systems for Advanced Manufacturing (STIIMA), formerly CNR-ITIA.

Enterprise Engineering and Virtual Applications Group (EVA).

Business or sector Research.

July 2013 – December 2013

Internship

Wintek s.r.l. – Monza – Italy

- Design and development of signal analysis and processing systems with LabView.
- Noise and vibration recording and post-processing.

Business or sector Engineering / System design.

EDUCATION AND TRAINING

November 2015 – present

Bioengineering PhD program

Politecnico di Milano – Milano - Italy

- *PhD Thesis*: Virtual reality-based cognitive training of elderly with Mild Cognitive Impairment.

October 2010 – April 2013

Master's Degree - Biomedical Engineering

Politecnico di Milano – Milano - Italy

- *Master Thesis*: Design and building of a new neonatal ventilator for total liquid ventilation.
- *Grade*: 110/110

October 2010 – February 2011

Erasmus Program

Radboud University Nijmegen – Nijmegen - Netherlands

Faculty of Human Movement Science.

▪ *Projects:*

- Does a curved movement performed around a joint generates a lower velocity compared with a straight movement between two targets?
- Normal walking and walking with an orthosis comparison in healthy subjects.
- How is gait in a post-stroke subject with an AFO or ActiGait influenced by visual deprivation?

October 2007 – September 2010

Bachelor's Degree - Biomedical Engineering

Politecnico di Milano – Milano - Italy

- *Thesis:* Design and building of a deoxygenator for in-vitro tests.
- *Grade:* 106/110

settembre 2002 – giugno 2007

Scientific High School Degree

Liceo Scientifico Tecnologico A. Einstein – Vimercate (MB) - Italy

- *Grade:* 100/100

PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

- English: Level C1 (TOEFL iBT: 101/120)
- Spanish: Level A2

Social and communication skills

- I volunteered in the association *SOS Compiti* (SOS Homework) as assistant teacher for children in the secondary school.

Job-related skills

- Knowledge of systems for movement analysis (VICON Motion Capture).
- Experience in designing and developing measurement systems.

Computer skills

- Good command of Microsoft Office tools and Windows Operating System,
- Good knowledge of programming languages (c, c#, Matlab) and rendering engines (Ogre3D, Unity3D),
- Good command of LabView,
- Discrete command of CFD software (Ansys, Comsol Multiphysics).

OTHER ASSIGNMENTS

Coaching activities

- **VR4Rehab project** (Interreg NWE):
 - Technical support (coaching) to NL Hackathon participants, Sint Maartenskliniek, Nijmegen (NL), 20-22/04/2018;
 - Technical support (coaching) to UK Hackathon participants, Royal Free London NHS Trust e Teesside University, Londra (UK), 4-5/07/2018;
 - Presentation “Virtual Reality for Rehabilitation” and technical support (coaching) to BE Hackaton, EuroVR, Bruges (BE), 25-26/10/2018;
 - Technical support (Support team) to NL Game Jams participants, Sint Maartenskliniek, Nijmegen (NL), 29-30/11/2018.

Teaching assignments

- Seminar on “Virtual and Augmented reality applications in Manufacturing” within the academic course Mechatronics and Robotics, Politecnico di Milano (LC). 18/10/2019.
- ITS course teacher (Industria 4.0-Tecnico Superiore per Smart City & Clean Energy Management), CNR, Milan (MI). 10/09/2020.
- Teacher of the course: Educazione Continua in Medicina (Continuous Education in Medicine, ECM). National Institute for Insurance against Accidents at Work (INAIL) – Budrio Prosthesis Center (BO). 15/07/2018.

International conference organization

- Member of the Organizational Secretariat of the EuroVR 2015 Conference. 15-16/10/2015, Lecco (LC), Italy.

PUBLICATIONS

H-index

- Scopus: 6 (Author ID: [56528272700](#))
- ISI WoS: 4 (Researcher ID: [P-8502-2018](#))

Journal

- Roveda, L., Savani, L., [Arlati, S.](#), Dinon, T., Legnani, G., Molinari Tosatti, L., Design of an Active Back-Support Exoskeleton with Adaptable Backbone-Based Kinematics (2020), International Journal of Industrial Ergonomics , 79, 102991..
- [Arlati, S.](#), Colombo, V., Spoladore, D., Greci, L., Pedroli, E., Serino, S., Cipresso, P., Goulene, K., Stramba-Badiale, M., Riva, G., Gaggioli, A., Ferrigno, G., Sacco, M. (2019). A social virtual reality-based application for the physical and cognitive training of the elderly at home. Sensors, 19(2), 261.
- Pedroli, E., Cipresso, P., Greci, L., [Arlati, S.](#), Boilini, L., Stefanelli, L., Goulene, K., Sacco, M., Stramba-Badiale, M., Gaggioli, A., Riva, G. (2019). An Immersive Motor Protocol for Frailty Rehabilitation. Frontiers in neurology, 10.
- [Arlati, S.](#), Spoladore, D., Mottura, S., Zangiacomi, A., Ferrigno, G., Sacchetti, R., Sacco, M. (2019). Analysis for the design of a novel integrated framework for the return to work of wheelchair users. Work - A Journal of Prevention, Assessment & Rehabilitation.
- [Arlati, S.](#), Colombo, V., Ferrigno, G., Sacchetti, R., & Sacco, M. (2019). Virtual reality-based wheelchair simulators: A scoping review. Assistive Technology, 1-12.
- Spoladore, D., [Arlati, S.](#), Nolich, M., Carciotti, S., Sacco, M. (2018). RoomFort: An Ontology-Based Comfort Management Application for Hotels. Electronics, Special Issue on: Innovative Technologies and Services for Smart Cities, 7(12), 345.
- Mrakic-Sposta, S., Di Santo, S.G., Franchini, F., [Arlati, S.](#), Zangiacomi, A., Greci, L., Moretti, S., Marzorati, M., Rizzo, G., Sacco, M., Vezzoli, A., (2018). Effects of combined physical and cognitive virtual reality-based training on cognitive impairment and oxidative stress in MCI patients: a pilot study. Frontiers in Ageing Neuroscience, 10.
- Pedroli, E., Greci, L., Colombo, D., Serino, S., Cipresso, P., [Arlati, S.](#), Mondellini, M., Boilini, L., Giussani, V., Goulene, K., Agostoni, M., Sacco, M., Stramba-Badiale, M., Riva, G., Gaggioli, A., (2018). Characteristics and Usability of a System Combining Cognitive and Physical Therapy in a Virtual Environment: Positive Bike. Sensors, Special Issue on "New Trends in Psychophysiology and Mental Health", 18(7), 2343.
- Gaggioli, A., Greci, L., [Arlati, S.](#), Stramba-Badiale, M., Pedroli, E., Colombo, D., Cipresso, P., & Riva, G. (2017). "Positive Bike"- An Immersive Biking Experience for Combined Physical and Cognitive Training of Elderly Patients. Annual Review of Cybertherapy and Telemedicine, 15, 196-199.
- Spoladore, D., [Arlati, S.](#), & Sacco, M. (2017). Semantic and Virtual Reality-Enhanced Configuration of Domestic Environments: The Smart Home Simulator. Mobile Information Systems.
- Mottura S., Fontana L., [Arlati S.](#), Redaelli C., Zangiacomi A., Sacco M. (2015). A virtual reality system for strengthening awareness and participation in rehabilitation for post-stroke patients. Journal on Multimodal User Interfaces, 9(4), 341-351.

Submitted articles

- [Arlati, S.](#), Di Santo, S.G., Franchini, F., Mondellini, M., Filiputti, B., Luchi, M., Ratto, F., Ferrigno, G., Sacco, M., Greci, L. Immersive Virtual Reality for Cognitive Training in Elderly with MCI: A Feasibility Study. Journal of Alzheimer's Disease. [Under Review]
- [Arlati, S.](#), Keijsers, N., Ferrigno, G., Sacco, M. Immersive Virtual Reality for Cognitive Training in Elderly with MCI: A Feasibility Study. Journal of NeuroEngineering and Rehabilitation. [Under Review]

Book Chapter

- Mottura S., Fontana L., Arlati S., Redaelli C., Zangiacomi A., Sacco M., “A virtual reality system for strengthening awareness and participation in rehabilitation for post-stroke patients”, *Journal on Multimodal User Interfaces*, July 2015.

Conference papers

- Arlati, S., Keijsers, N., Ferrigno, G., Sacco, M., A protocol for the comparison of reaching gesture kinematics in physical versus immersive virtual reality (2020) IEEE MeMeA: 15th Edition of IEEE International Symposium on Medical Measurements and Applications. Virtual Conference, June 1- July 1, 2020.
- Spoladore, D., Arlati, S., Nolich, M., Carciotti, S., Rinaldi, A., Celotti, D., Guglia, P. Ontologies' Definition for Modeling the Cabin Comfort on Cruise Ships. (2018) NAV 2018: 19th International Conference on Ship & Maritime Research. IOS Press.
- Arlati, S., Spoladore, D., Baldassini, D., Sacco, M., & Greci, L. (2018). VirtualCruiseTour: An AR/VR Application to Promote Shore Excursions on Cruise Ships. In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 133-147). Springer, Cham.
- Mondellini, M., Arlati, S., Greci, L., Ferrigno, G., & Sacco, M. (2018). Sense of Presence and Cybersickness While Cycling in Virtual Environments: Their Contribution to Subjective Experience. In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 3-20). Springer, Cham.
- Pizzagalli, S., Spoladore, D., Arlati, S., Sacco, M., & Greci, L. (2018). HIC: An interactive and ubiquitous home controller system for the smart home. In 2018 IEEE 6th International Conference on Serious Games and Applications for Health (SeGAH). IEEE.
- Mondellini, M., Arlati, S., Pizzagalli, S., Greci, L., Sacco, M., & Ferrigno, G. (2018). Assessment of the usability of an immersive virtual supermarket for the cognitive rehabilitation of elderly patients: A pilot study on young adults. In 2018 IEEE 6th International Conference on Serious Games and Applications for Health (SeGAH). IEEE.
- Arlati, S., Greci, L., Mondellini, M., Zangiacomi, A., di Santo, S. G., Franchini, F., Marzorati, M., Mrakic-Spota, S. & Vezzoli, A., (2017) A virtual reality-based physical and cognitive training system aimed at preventing symptoms of dementia, 7th EAI International Conference on Wireless Mobile Communication and Healthcare - "Transforming healthcare through innovations in mobile and wireless technologies".
- Baldassini, D., Colombo, V., Spoladore, D., Arlati, S., & Sacco, M., “Customization of domestic environment and physical training supported by Virtual Reality and Semantic Technologies: a use-case.” 2017 IEEE 3rd International Forum on Research and Technologies for Society and Industry Leveraging a better tomorrow (RTSI).
- Arlati, S., Zangiacomi, A., Greci, L., di Santo, S. G., Franchini, F., & Sacco, M. (2017, June). “Virtual Environments for Cognitive and Physical Training in Elderly with Mild Cognitive Impairment: A Pilot Study.” In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 86-106). Springer, Cham.
- Arlati, S., Spoladore, D., Mottura, S., Zangiacomi, A., Ferrigno, G., Sacchetti, R., & Sacco, M. (2017, June). “Architecture of a Virtual Reality and Semantics-Based Framework for the Return to Work of Wheelchair Users.” In International Conference on Augmented Reality, Virtual Reality and Computer Graphics (pp. 74-85). Springer, Cham.
- Modoni GE, Spoladore D, Arlati S, Greci L, “The Smart Home Simulator: a Semantic Mixed-Reality application for domestic environments configuration”, XIII EuroVR Conference, 2016 November 22-24, Athens.
- Mastropietro A, Arlati S, Mrakic-Spota S, Fontana L, Franchin C, Maolosio M, Pittaccio S, Gramigna C, Molteni F, Sacco M, Rizzo G. “Quantitative EEG and Virtual Reality to Support Post-Stroke Rehabilitation at Home”, *4th International KES - Conference on Innovation in Medicine and Healthcare*, Tenerife, Spain, 15-17 June 2016 (Accepted).
- Mottura S., Arlati S., Fontana L., “A prototype of an automatically assisted and person-focused rehabilitation system for post-stroke patients at home”, *XII EuroVR Conference* (2015), Lecco, Italy.
- Mottura S., Arlati S., Fontana L., Sacco M., “Enhancing awareness and personification by virtual reality and multimedia means in post-stroke patients during rehabilitation”, *5th IEEE Cognitive InfoCommunication Conference* (2014), Vietri sul Mare, Italy.
- Bonfanti M., Bagnoli P., Arlati S., Cammi A., Costantino ML, “Computational model of CO2 removal

- in a prototype for neonatal Total Liquid Ventilation”, *IV GNB National Congress* (2014), Pavia, Italy.
- Abstract in journal**
- Arlati, S., Colombo, V., Malosio, M., Mottura, S., Pizzagalli, S., Prini, A., Biffi, E., Genova, C., Reni, G., Sacco, M. A Simulator to Promote the Return to Work of Wheelchair Users. (2019) AAATE 2019 – Bologna, Italy.
 - Spoladore, D., Negri, L., Fossati, M., Arlati, S., Sacco, M., A Semantic Decision Support System to foster Return to Work of Novice Wheelchair Users. AAATE 2019 – Bologna, Italy.
 - Bagnoli P., Arlati S., Bonfanti M., Cammi A., Costantino M.L., “Computational model for gas transfer optimization in a prototype for neonatal Total Liquid Ventilation”. (2013) *The International Journal of Artificial Organs*.
- Poster**
- Mrakic-Sposta, S., Di Santo, S.G., Franchini, F., Vezzoli, A., Arlati, S., Zangiacomi, A., Greci, L., Leone, A., Caroppo, A., Jesunathan, N., Moretti, S., Marzorati, M., Rizzo, G., Sacco, M., Musicco, M., Goji - An advanced virtual environment for supporting training of physical and cognitive activities for preventing the occurrence of dementia in normally living elderly with minor cognitive disorders. (2019) Convegno finale progetti invecchiamento, June 11th, 2019, Rome, Italy.
 - Gaggioli, A., Greci, L., Arlati, S., Stramba-Badiale, M., Pedrolì, E., Colombo, D., Cipresso, P., & Riva, G. (2017, June). “Positive Bike”- An Immersive Biking Experience for Combined Physical and Cognitive Training of Elderly Patients, 22nd Annual CyberPsychology, CyberTherapy & Social Networking Conference (CYPSY22).
 - Arlati, S., Spoladore, D., Mottura, S., Zangiacomi, A., Ferrigno, G. & Sacchetti, R., “Design of a Virtual Reality-based Framework for Supporting the Work Reintegration of Wheelchair Users”, XIII EuroVR Conference, 2016 November 22-24, Athens.

