Sara Arlati

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💬 Skype sara_arlati

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.

Main research interests: eXtended reality for health, motor and cognitive rehabilitation; human-centered design and user-experience.

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

December 2020

PhD in Bioengineering
Politecnico di Milano – Milano - Italy
▪ *PhD Thesis:* Virtual reality-based cognitive training of elderly with Mild Cognitive Impairment.
▪ *Visiting researcher* at Sint Maartenskliniek – Nijmegen – Netherlands (6 months)

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

Radbout University Nijmegen – Nijmegen - Netherlands
Faculty of Human Movement Science.

October 2007 – September 2010

Bachelor's Degree - Biomedical Engineering

Politecnico di Milano – Milano - Italy

- *Thesis*: Design and building of a deoxigenator 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

Job-related skills
- Human-centered design
Knowledge of systems for movement analysis (VICON Motion Capture).
- Experience in designing and developing measurement systems.

Computer skills
- Microsoft Office tools and Windows Operating System,
- Programming languages (c, c#) and rendering engines (Unity),
- Matlab
- LabView,
- CFD software (Ansys, Comsol Multhiphysics).

OTHER ASSIGNEMENTS

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
- RehabTech Master. Politecnico di Milano (LC); lecture and showcase of VR/AR technologies for rehabilitation. 17/06/2021 - 27/02/2021
- Seminar on "Virtual and Augmented reality applications in Manufacturing" within the academic course Mechatronics and Robotics, Politecnico di Milano (LC). 2019-2021.
- ITS course (Industria 4.0-Tecnico Superiore per Smart City & Clean Energy Management), CNR, Milan (MI). 10/09/2020.
- Educazione Continua in Medicina (Continous Education in Medicine, ECM). National Institute for Insurance against Accidents at Work (INAIL) – Budrio Prostheses Center (BO). 15/07/2018.

International conference organization
- Application Program Chair at EuroXR 2021 Conference. 24-26/11/2021, Milano (MI), Italy.
- Member of the Organizational Secretariat of the EuroVR 2015 Conference. 15-16/10/2015, Lecco (LC), Italy.

PUBLICATIONS

- Scopus Author ID: 56528272700
- ISI WoS Researcher ID: P-8502-2018

Journal

- <u>Arlati, S.</u>, Keijsers, N., Paolini, G., Ferrigno, G., & Sacco, M. (2021). Kinematics of aimed movements in ecological immersive virtual reality: a comparative study with real world. Virtual Reality, 1-17.

- <u>Arlati, S.</u>, Di Santo, S. G., Franchini, F., Mondellini, M., Filiputti, B., Luchi, M., Ratto, F., Ferrigno, G., Sacco, M. & Greci, L. (2021). Acceptance and usability of immersive virtual reality in older adults with objective and subjective cognitive decline. Journal of Alzheimer's Disease, 80(3), 1025-1038.

- Genova, C., Biffi, E., <u>Arlati, S.</u>, Redaelli, D. F., Prini, A., Malosio, M., Prini, A., Sacco, M. & Reni, G. (2021). A simulator for both manual and powered wheelchairs in immersive virtual reality CAVE. Virtual Reality, 1-17.

- Pedroli, E., Cipresso, P., Greci, L., <u>Arlati, S.</u>, Mahroo, A., Mancuso, V., ... & Gaggioli, A. (2020). A new application for the motor rehabilitation at home: structure and usability of Bal-App. IEEE Transactions on Emerging Topics in Computing.

- Roveda, L., Savani, L., Arlati, S., Dinon, T., Legnani, G., & Tosatti, L. M. (2020). Design methodology of an active back-support exoskeleton with adaptable backbone-based kinematics. International Journal of Industrial Ergonomics, 79, 102991.

- <u>Arlati, S.</u>, 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., <u>Arlati, S.</u>, 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.

- <u>Arlati, S.</u>, 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.

- <u>Arlati, S.</u>, Colombo, V., Ferrigno, G., Sacchetti, R., & Sacco, M. (2019). Virtual reality-based wheelchair simulators: A scoping review. Assistive Technology, 1-12.

- Spoladore, D., <u>Arlati, S.</u>, 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., <u>Arlati, S.</u>, 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., <u>Arlati, S.</u>, 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., <u>Arlati, S.</u>, 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., <u>Arlati, S.</u>, & Sacco, M. (2017). Semantic and Virtual Reality-Enhanced Configuration of Domestic Environments: The Smart Home Simulator. Mobile Information Systems.

- Mottura S., Fontana L., <u>Arlati S.</u>, 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.

Book Chapter

- Spoladore, D., <u>Arlati, S.</u>, Colombo, V., Modoni, G., & Sacco, M. (2021). A Semantic-Enabled Smart Home for AAL and Continuity of Care. In IoT in Healthcare and Ambient Assisted Living (pp. 343-371). Springer, Singapore.

- Mottura S., Fontana L., <u>Arlati S.</u>, 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.
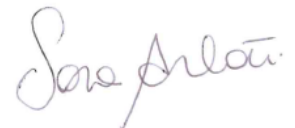
Conference papers

- 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-Sposta, 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-Sposta 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 CO_2 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., Jesunathasan, 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., Pedroli, 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.

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