

Agata Marta Soccini

PhD in Computer Science, Expert in XR (Virtual, Augmented, Mixed Realities)

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Areas of research, work, skills

I have been studying and working in the Virtual Reality field for more than fifteen years. My interest in mixed realities is driven by the match of the technological challenges with the scientific, artistic and overall philosophical discovery, providing users with convincing and astonishing experiences.

I have a strong international experience, having spent years in the USA as well as in Asia and in Europe, that gives me a global insight of the technological trends, and mostly on the research and development practices in different world areas.

My research interests include embodiment in virtual reality, virtual rehabilitation and accessible immersive technologies; computer graphics production pipelines, artificial intelligence and generative arts; user experience, human-computer, human-agent and human-robot interaction in spatial computing and immersive environments. I also had the opportunity to apply my research to projects in the fields of movie production and digital arts, virtual rehabilitation and space exploration.

Over the years I covered roles of growing responsibility and management, leading groups of junior researchers, graduate students, developers and technologists working on research projects. I am currently leading the Virtual Reality lab at the Human Science and Technology center of the University of Torino.

Current Positions

- Researcher, Assistant Professor (RTD-A)
Computer Science Department
Head of the Virtual Reality Lab at Human Science and Technology Center
Università degli Studi di Torino, Italy
- Adjunct Professor
Master School - Scuola Master e Formazione Permanente, Politecnico di Torino, Italy
- Board Member
 - View Conference and View Fest
 - Siggraph London

Education

2019 **PhD Cum Laude** in Computer Science, University of Torino, Italy

2010 Diploma in Digital Arts, Gnomon School of Visual Effects, Hollywood, CA, USA

2009 **MSc in Computer Science** – Virtual Reality and Multimedia, University of Torino

2005 **BSc in Computer Science** – CS and Business Management, University of Milano

2003 Exchange Student, University of Sorbonne - Pierre et Marie Curie, Paris, France

Further Education

2022 School on Digital Transformation for Small Medium Enterprises, SDA Bocconi, Milano, IT
2017 School on Computer Vision, The Hebrew University of Jerusalem, IL
2016 School “European Innovation Academy”, Politecnico di Torino, Torino, IT
2014 Workshop on Project Management and Big Data, SDA Bocconi, Milano, IT
2013 School “The Lean Startup”, University of Kent, Canterbury, UK
2011 Jun-Nov Training on 3D techniques, Gnomon School of Visual Effects, Hollywood, USA
2011 HDRI and 3D Scenarios, Gnomon School of Visual Effects, Hollywood, USA

Languages

Fluent Italian, French, English.
Basic Japanese.

Academic and Research Experience

- Since February 2022
Assistant Professor (RTD-A)
Computer Science Department, Università degli Studi di Torino, Italy
Visiting the National Institute of Informatics in Tokyo, Japan (see grants)
Visiting EVENT Lab in Barcelona, Spain (see grants)
- Sept 2019 - Jan 2022
Post-doc Researcher (Assegno di Ricerca)
on Multidisciplinary applications of Virtual Reality
Computer Science Department, Università degli Studi di Torino, Italy
- Oct 2015 - Sept 2019
PhD Student in Computer Science
Computer Science Department, Università degli Studi di Torino, Italy
Visiting for 3 semesters the National Institute of Informatics, Tokyo, Japan (see grants)
- Feb 2015 - Sept 2015
Research Fellow on Human Computer Interaction in spatial computing (Borsa di Ricerca)
Computer Science Department, Università degli Studi di Torino, Italy
- Dec 2013 – Jan 2015
Research Fellow on Virtual Reality applied to Space Exploration (Borsa di Ricerca)
Università degli Studi di Torino and Thales Alenia Space
Sept 2012- Dec 2013
- Jan 2013 - Dec 2013
Research Fellow on Energy Consumption Reduction stochastic studies (Project contract)
Energy Department, Politecnico di Milano, Italy
- Nov 2008 – Oct 2009
MSc Thesis on Virtual Reality for Space Exploration.
Università degli Studi di Torino and Thales Alenia Space
- Dec 2004 – Dec 2005
BSc Thesis on Bioinformatics
Università degli Studi di Milano and ST Microelectronics

Teaching Experience

Since 2019-20

Adj.Professor, then Asst. Professor

Computer Graphics (24h)

Computer Science Masters' Degree - Images, Vision, Virtual Reality (LM-18)

Computer Science Department, Università degli Studi di Torino

Since 2020-21

Adj. Professor

Virtual, Augmented, Extended Reality (24h)

CIM 4.0 Academy

Scuola Master e Formazione Permanente, Politecnico di Torino

From 2019-20 to 21-22

Tutor

Web Technologies (40h)

Bachelor Degree in Economics and Management -

Corporate Information and Communication Management (L-18)

SAA School of Management, Università degli Studi di Torino

Students Supervision

Current PhD Students in Computer Science:

From 2022, Alessandro Clocchiatti, current member of the HST VR laboratory in Torino and former intern at NII in Tokyo under my supervision, Expected to visit EVENT Lab in Barcelona starting from February 2024.

From 2023, Vittorio Fiscale, current member of the HST VR laboratory in Torino and former intern at NII in Tokyo under my supervision.

Graduate Students in Computer Science (MSc Thesis)

2021: Simone Cuccurullo, Andrea Forino

2022: Alessandro Clocchiatti (Currently HST VR Lab Member as PhD Student)

Nicolò Fumero (Currently HST VR Lab Member as Research Fellow)

Vittorio Murtas, Andrea Nasi

2023: Sara Placenti,

Vittorio Fiscale (Currently HST VR Lab Member as PhD Student)

Fulvio Chiesa (Currently HST VR Lab Member as Research Fellow)

Current: Luigi Maria Spaggiari, Chiara Moggio, Flavia Zangari, Veronica Gori

Graduate Students in Communication, ICT and Media (MSc Thesis)

2022: Alessandro Parizia, Gianluca Parizia

2023: Riccardo Bergonzi

Undergraduate Students in Computer Science (BSc Thesis)

2021: Andrea D'Angelo (Currently HST VR Lab Member as Research Fellow)

2022: Matteo Mossa (Currently HST VR Lab Member as Teaching Assistant)

2023: Stefano Trambusti, Fabio Leonardi, Emanuele Parusso, Gabriele Banchio, Peter Nazarov

Research Fellows in Computer Science (Borsa di Ricerca)

2022 May-Jul Alessandro Clocchiatti

Feb 23 - Jul 23 Nicolò Fumero

Sept 23 - June 24 Nicolò Fumero

Sept 23 - June 24 Fulvio Chiesa

Nov 23 - March 24 Andrea D'Angelo

Funds Management

2023

- Chief of Agreement and Scientific Coordinator
Scientific Collaboration with I-See srl
“Immersive Training in the field of advanced radiotherapy”
17340€
- Chief of Agreement and Scientific Coordinator
Scientific Collaboration with Cooperativa Crescere Insieme
“Inclusive technologies for fragile users”
17740€
- Chief of Agreement and Scientific Coordinator
Scientific Collaboration with Cooperativa Crescere Insieme
Design and development of immersive applications for fragile users
21460€
- Second grant on project LAMU:
I was part of the team that was granted 30k€ by the University of Torino upon a competitive application named “Proof of Value” to carry on and develop the project named LAMU. The project consists in bringing art and beauty to juvenile prison inmates through virtual reality.

2022

- First grant on project LAMU:
I was part of the same team that was granted 15k€ to start the same “Proof of Value” project: LAMU. In this case too, the funds were granted by the University of Torino upon a competitive application.

Awards and Personal Grants

- 2024
I won an Erasmus grant for visiting EVENT Lab in Barcelona, Spain (around 1500€)

- 2023
I won the MOU Personal Grant for visiting NII in Japan (around 3500\$)
- 2022
I received the “Paul Harris” fellowship by Rotary International for my contribution to international dissemination.
- 2020
My PhD Thesis was awarded one of the best ten presented at ACM Siggraph 2020, the worldwide top scientific and industrial conference in the field.
- 2017-2018-2019
For 3 consecutive years, I won the MOU Personal Grant for visiting NII in Japan (around 30k\$).
- 2015-2016
For two consecutive years, I was nominated one of the 10 best Italian “Scientific disseminators under 35” by a scientific committee at “Accademia delle Scienze” in Torino. (Premio Giovedì Scienza)
- 2016
I won the audience award in the same contest.
(Premio Giovedì Scienza - Premio del pubblico)
- 2010
I won the Talents Program award from CRT Foundation (Master dei Talenti), that included a scholarship for Gnomon School of Visual Effects and a personal grant for living in California (around 50k\$).
- 2003
Erasmus Student Exchange Grant

International Relationships

Professor Tetsunari Inamura.

National Institute of Informatics and Tamagawa University, Tokyo, Japan

2017-18-19 I visited for one semester per year

2020-21 For a semester I supervised Alessandro Clocchiatti,

Masters’ student from University of Torino, during his internship at NII

2022-23 For a semester I supervised Vittorio Fiscale,

Masters’ student from University of Torino, during his internship at NII

2023 I visited NII for one month to establish future collaborations

Professor Mel Slater.

EVENT Lab, Universitat de Barcelona, Spain

2023 I visited twice, each time for a week, and started working together

2024 Alessandro Clocchiatti PhD student, will be visiting for a semester

I will be visiting in March 2024 for two weeks

Invited Talks at Scientific Events, Research Centers and Universities

- 2024 Keynote Speaker at XRiM Workshop 2024, held at IEEE AIxVR conference
University of South California, Los Angeles, CA, USA
- 2023 Panelist at View Conference 2023, Torino, Italy
Seminar at the National Institute of Informatics in Tokyo, Japan
- 2022 Webinar at Ministero dell'Istruzione, Rome, Italy
Seminar at VRVIS Center for Virtual Reality and Visualization, Vienna, Austria
- 2021 Panelist at IEEE AIVR 2021, Taichung, Taiwan
- 2020 Seminar at Aalto University in Helsinki, Finland
Invited Speaker at Mindtrek Conference 2020, Tampere, Finland
Seminar at the Department of Architecture, Politecnico di Milano, Italy
Seminar at the Competence Center CIM 4.0, Torino, Italy
- 2019 Seminar at the Philosophy Department at University of Milano, Italy
Invited Speaker at World Usability Day, Torino, Italy
- 2017 Lecture at Strelka Institute of Media and Design in Moscow, Russia
Lecture at United Nation Research Center on Crime and Justice

Service in the Community

Journal Guest Editor:

- 2023 MDPI Electronics Special Session on Extended Reality for Museums

Reviewers for Journals:

- 2018-23 Springer Virtual Reality
IEEE Transactions on Multimedia
ACM Journal of Computing and Cultural Heritage
MDPI Electronics
MDPI Healthcare

International Conferences Program Committees:

- 2024 AAAI 2024, IEEE AIxVR 2024, EVA London 2024
2023 EuroXR 2023, EVA London 2023
2022 IEEE AIVR, ACM VRST, EuroXR, EVA London
2021 IEEE AIVR, EuroXR, BCS EVA London
2020 IEEE AIVR, EuroXR, BSC EVA London
2019 Euro VR, BSC EVA London

2018 EuroVR, BSC EVA London

Presenter at International Scientific Conferences::

2022 IEEE AIVR 2022
2021 IEEE AIVR 2021
2020 IEEE AIVR 2020, EuroVR 2020, ACM Siggraph Asia 2020, ACM SIGGRAPH 2020
2019 IEEE VR 2019
2018 RSJ 2018
2017 IEEE VR 2017, BSC EVA 2017
2016 BSC EVA 2016, ACM CSCW 2016
2015 IEEE VR 2015, EuroVR 2015
2014 EuroVR 2014, ICAT-EGVE 2014

Non-speaking attendee at International Scientific Conferences:

2019 ACM Siggraph Asia 2019, VRST 2019
2010 ACM Siggraph 2010

Reviewer for International Scientific Conferences:

2018-24 IEEE VR, ACM SIGCHI, AAAI, VRST, ISMAR

Expert Evaluator:

I have served several times as an Expert Evaluator for Fondazione CRT, as a Talent Program Alumni, as well as for the Competence Center CIM 4.0.

Organizing Committees:

2023 “Jet Lag” Virtual Reality Exhibit Organization Chair at HST VR Lab, Torino, Italy
2015-2021 Organizing Committee Chair at View Conference, Torino, Italy
2014 Organizing Committee Member at View Conference, Torino, Italy

Workshops Organization:

2021-24 I co-organized the yearly workshop XRiM with partners from Japan and Taiwan.
The proceedings have been published on the IEEE Digital Library.

Board of Directors and committees Membership:

2023 Work Table participant on defining the digital future of Italian museums, ICOM (International Council of Museums), Rome, Italy
From 2023 on Board Member, Siggraph London, UK
From 2019 on Board Member, View Conference, Torino, Italy

Work Experience in the industry: Movie Industry and Visual Arts

Beside my scientific experience, I had the chance to work in production on several interesting projects in the movie and contemporary art industries, mainly in Hollywood and London.

The most challenging and intense project was “Belligerent Eyes”, that took place in Italy instead, hosted and funded by Fondazione Prada. I was invited to join as a Visual Artist and Researcher to investigate the methods of mixed realities in the field, as well as experimental neurosciences, in visual production processes. The most successful outcome was the short movie ‘Metalogue - the trailer’, premiered as an installation in Fondazione Prada in 2016, then exhibited at GAM in Torino by Carolyn Christov-Bakargiev in 2017.

- May-Sept 2016, Resident Visual Artist, Fondazione Prada, Venice, Italy
- Jan-Mar 2013, 3D Generalist Technical Director. Client: Samsung. Agency: Ekstasy prd, London, UK
- May 2011, VFX Supervisor on set, American Film Institute, Hollywood, CA, USA
- Nov 2010 - Apr 2011, 3D Generalist specialized in particle systems and dynamics. Client: Mr.Gore Verbinski, Agency: Pixel Liberation Front, Venice, Los Angeles, CA, USA

Media Coverage and Invited Talks at Public Events

2023 Invited Speaker at MAXXI museum, Rome, Italy

Invited Speaker by Unione Industriali Cremona, Italy

2022 Invited Speaker by Rotary International, Crema, Italy

2021 Invited Speaker by Soroptimist International, Crema, Italy

2020 Interview by Loescher Editor, Torino, Italy

Invited Speaker at the event “I Mondi di Carta”, Crema, Italy

In several cases, my projects were featured in Italian major newspapers, as well as international press in the field. I hereby report a selection of links.

Corriere della Sera:

https://torino.corriere.it/cronaca/19_novembre_16/ricercatrice-che-sposta-confini-realta-virtuale-aiutare-malati-80fb1480-08aa-11ea-bebc-dc68b9227425.shtml

La Stampa:

<https://www.lastampa.it/torino/2016/03/11/news/la-ricercatrice-che-crea-l-ambiente-e-il-suolo-di-marte-1.36575734>

Loescher Editors:

<https://orientamento.loescher.it/news/ricercatrice-in-realta-virtuale-8698>

Research Breakdown

Current Position (from February 2022 on):

As an Assistant Professor, I keep on teaching the Computer Graphics classes at the Computer Science Department of University of Torino, keeping the basics and the approach, but also updating the program every year according to the new technological trends. I am also teaching “VR, AR, XR” classes as an Adjunct Professor at the Masters’ School of Politecnico di Torino, held at the Competence Center CIM 4.0, that allows me to grow a network with the local industrial panorama.

As a researcher, I started leading the Virtual Reality Laboratory at the Human Science and Technology center at University of Torino, with a deeply multidisciplinary approach that reflects the nature of the center. The number of lab members is constantly growing, together with the funds from collaborations with the industry. The laboratory currently counts 5 research members (2 Phd Students, 3 Research Fellows with scholarships, 1 Teaching Assistant with scholarship) plus several undergraduate and graduate students.

The main research project I am working on is named VR4GREEN, funded by my RTDA PON position, and is related to the investigation of human attitude towards environmental issues. We use virtual reality with the goal of raising awareness and motivating users towards better habits by showing them the consequences of their actions in the (virtual) environment. The simulation takes place in the city center of Torino, that is where our laboratory is.

We started some collaborations with small medium enterprises that greatly fit our previous research interests, as they are in the medical and aerospace field. One project focuses on users with autism spectrum disorder, giving them virtual approaches to face moving to new places, such as new homes or specific centers. Other projects focus on learning and training in virtual environments, in particular one is on medical training for advanced radiotherapy, while another one is on the training of pilots. On top of that we started a project named LAMU, related to bringing art and beauty to juvenile prison inmates through virtual reality. The project was not founded through industrial collaborations, but granted by the University of Torino, with 15k€ first and 30k€ on a second round.

Beside these new projects, I have been keeping on working on virtual embodiment with my colleagues from Japan, Professor Inamura, and recently started working on the same topic also with Professor Slater at Universitat de Barcelona. I visited both and will visit again this year.

Supervisor: Prof. Federica Cena

Publications:

- Journal of Robotics and Mechatronics (#1 in the attached list of publications)
- Brain Sciences (#2 in the attached list of publications)
- ACM HAI Italy 2023 (#8 in the attached list of publications)
- IEEE AIxVR 2024 (#6 in the attached list of publications)
- AIVR 2022 (#12 in the attached list of publications)
- AIVR 2021
- Helmeto 2023
- Springer Communications in Computer and Information Science series 2024
- ACM CHI Italy 2023

Post-Doc (from September 2019 to January 2022):

As an Adjunct Professor, I have been teaching the Computer Graphics class at the Computer Science Dpt at University of Torino. I mainly followed the approach I learned at Gnomon School in Los Angeles, and focused on coding techniques that were peculiar to the computer science approach. As a post-doc researcher, I set up a multidisciplinary XR lab and involved several students in my research projects in partnership with international Universities and Research Centers. I was managing a group of 2 Bachelor and 4 Master's students, working agile and having weekly meetings.

One of the ongoing projects focused on VR applications dedicated to the development of skills of neurodiverse users in everyday tasks. With the local health unit (ASL) in Torino, we developed a training system for individuals with autism in an immersive intelligent airport scenario.

With the Medicine department of University of Parma, I introduced Virtual and Augmented Reality in the experimental patterns of the neuroscientific investigation, focusing on the benefits that XR brings to neuroscience, and mostly on applying the discovered principles in the design and implementation of XR applications.

My very good relationship with my Japanese tutor and colleagues at the National Institute of Informatics in Tokyo let me keep a constant dialogue on the Sense of Embodiment and the use of VR for medical rehabilitation. That was the focus of my PhD studies in Japan, as well as the topic of the studies of two of the students I was supervising.

Two of my students were working on visual effects in the movie industry, instead, developing an automated rigging system for non-anthropomorphic digital characters.

Supervisor: Prof. Federica Cena

Publications:

- IEEE AIVR 2021 (#7 in the attached list of publications)
- IEEE AIVR 2020 (#10 in the attached list of publications)
- EuroVR 2020 (#11 in the attached list of publications)
- Siggraph Asia 2020 (#5 in the attached list of publications)

PhD from October 2015 to September 2019):

For three years, starting from 2017, I visited the VR and Robotics Lab of the National Institute of Informatics in Tokyo.

With my research group, I designed some neurocognitive experiments to evaluate the sense of embodiment in the virtual environment, our main goal being an evaluation of the influence of the movements of the digital body on the movements of the real one, with particular attention to the movements of the hands and fingers. We collected both subjective and objective data, and the cross-analysis was used to support my hypothesis on embodiment in my PhD thesis, that was mainly formulated as the Embodied Alien Motion Theory and the Induced Movements Effect.

A specific setup of the same system was tested by my supervisor, Professor Inamura, as a post-stroke rehabilitation system at Tohoku University Hospital.

Publications:

- IEEE VR 2019 (#4 in the attached list of publications)

- RSJ 2018

Before starting the collaboration with NII, my early PhD research focused on several applicative aspects of Virtual Reality, including the relationship between VR and History of Art, and VR and Computer Vision.

Publications:

- EVA London - Electronics and Visual Arts 2016
- EVA London - Electronics and Visual Arts 2017
- IEEEVR 2017 (#9 in the attached list of publications)

I was invited by Fondazione Prada in Venice, Italy, to join the project 'Belligerent Eyes' as a Visual Artist and Researcher. I took part, as a researcher in the field of images, in some studies and experiments on embodiment, aesthetics and empathy, led by Professor Vittorio Gallese and his team, who discovered the mirror neurons. We set the basis for a project that we are currently developing together.

Supervisors: Prof. Marco Grangetto, Prof. Tetsunari Inamura

Previous Research on Human Computer Interaction and Spatial Computing (from January to September 2015):

During the few months between my work on space exploration and the beginning of my PhD, I took part in a living lab experiment on human factors, usability and ergonomics in medical laboratories. I designed and implemented the multimodal alarm system and led the experiment on the field.

Supervisor: Prof. Federica Cena

Publications:

- CSCW 2016
- IJMHCI Journal (#3 in the attached list of publications)

Previous Research on VR for Space Exploration (from December 2013 to January 2015)

I did the largest part of my pre-PhD research at the Technology Research Lab at Thales Alenia Space Italia, in a research group mainly focused on Virtual Reality and Artificial Intelligence applied to Space Exploration, my main topics being HCI and interaction design in VR and collaborative system engineering.

As part of the project STEPS, I did the design and development of VR prototyping systems of planetary terrains, especially Mars and the Victoria Crater.

As part of the project STEPS2 I made a VR system for physical analyses evaluation in the pre-launch phases of ESA's experimental re-entry vehicle IXV, that was designed, engineered and manufactured on site.

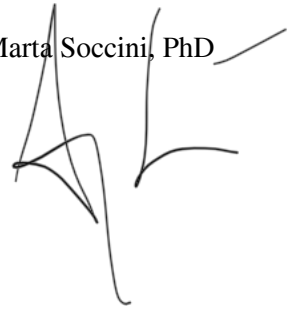
Supervisor: Prof.Nello Balossino, Dr.Valter Basso

Publications:

- EuroVR 2014
- IEEE VR 2015
- EuroVR 2015
- AIDAA 2015

Milano, January 2024

Agata Marta Soccini, PhD

A handwritten signature in black ink, consisting of stylized, overlapping loops and curves, positioned to the right of the printed name.