

## ● WORK EXPERIENCE

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### RESEARCHER AND VIRTUAL REALITY DEVELOPER

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#### Current Positions

Post-Doc Fellow at Cosync Lab.  
Braintrends srl Virtual Reality Developer

#### Research Activity

**[2018-current]** La Sapienza University, Rome, Italy. Supervisors: Prof. Viviana Betti.

ERC Starting grant: Project "Handmade" examines the resilience of the internal model of the hand to extreme body manipulations and, through a combination of behavioral, cinematic, functional neuroimaging approaches (fMRI and MEG) and virtual reality, aims to gain a greater understanding of how synergistic body activity and the environment model behavior and neural activity.

#### **[2019]** Visiting Researcher at Technopole, Sierre, Machine learning department

During this experience abroad I spent 3 months learning how to use machine learning to implement a gesture recognition system based on electromyography within a virtual reality environment.

**[2018]** Braintrends srl, Rome, Italy. Project **CHRA4.0** -Horizon 2020 - PON 2014/2020. The aim of the project is to create an innovative production line in terms of production processes, data management and predictive maintenance techniques supported by the "human-to-machine" and machine-to-machine "dyadic" collaboration based on 4.0 industry, enabling technologies such as the combined and interconnected use of smart glass, smart glove and collaborative robots.

**[2017]** La Sapienza University, Rome, Italy. Supervisors: Professor Salvatore Maria Aglioti and Prof. Viviana Betti. MOTO (the embodied reMOte TOwer) project is a Horizon 2020 project in the framework of the SESAR Research and Innovation Action (RIA). The main aim of the project was to identify the key multimodal stimuli required on remote tower platforms to enhance the sense of presence experienced by air traffic controllers.

#### **[2015]** Post-lauream internship

La Sapienza University, Rome, Italy. Supervisors: Professor Salvatore Maria Aglioti and dr. Ilaria Bufalari. Immersive Virtual Reality and Embodiment in the study of Anorexia nervosa.

La Sapienza University, Rome, Italy. Supervisor: Professor Enrico di Pace. Binocular rivalry and EMG on sensorimotor integration.

#### **Master internship (2014- 2015)**

La Sapienza University and IRCCS Fondazione Santa Lucia, Rome, Italy. Supervisor: Prof. Salvatore Maria Aglioti and Dr Gaetano Tieri. Master thesis in skin temperature modulations underlying the feeling of ownership over a virtual hand. Thesis : "Inclusion of the hand of an avatar on the body schema of an observer and changes in body temperature. A combined study of telethermography and immersive virtual reality."

## ● EDUCATION AND TRAINING

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Rome, Italy

### PHD IN NEUROSCIENCE – Sapienza University

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#### Education :

##### 2013-2015

Master Degree in Neuroscience and Psychological Rehabilitation, 110/110 cum Laude, La Sapienza University, Rome, Italy.

##### 2010-2013

Bachelor Degree in Psychological Science and Techniques for Analysis and Clinical Evaluation of Cognitive Processes, 108/110, La Sapienza University, Rome, Italy.

##### 2005-2010

Diploma Liceo Classico (High School), 78/100. T.Tasso, Rome, Italy

Ottimo | Towards real world neuroscience: the impact of virtual and augmented reality techniques

## ● JOB-RELATED SKILLS

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### Job-related skills

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**Operative Systems:** Windows, Linux.

Good expertise in the use of Microsoft Office™ and OpenOffice tools.

**Grafic & Audio/Video Editing:** 3DStudioMax, Makehuman, Blender , Mixamo Fuse, FaceGen, BodyReshaper, Adobe Photos hop, Praat, Ezvid, Avidemux, Premiere, Autopano video pro.

**Virtual Reality:** Hardware: Oculus Rift, Rifts S, Oculus Quest , Oculus GO and HTC Vlve Head Mounted Displays.  
Software: Unity3d and Xvr.

**Photogrammetry:** Visual SFM, Meshlab.

**Augmented Reality:** Unity 3d, Coursera course on augmented reality for mobile phones using Vuforia. Good knowledge of the state of the art in Smartglasses and SmartGloves products with technical specifications.

**Programming:** Good knowledge of C#, Intermediate knowledge of Python (online course) , and basic knowledge of html.

**Research Skills:** EMG, EEG, ECG, GSR montage, maintenance and analysis. Telethermography data collection and analysis using Flir thermocamera and ThermacamResearcher .  
Stimuli presentation with E-prime and Psychopy.  
Statistical Analysis: Statistica , Matlab and R.

Development of experimental paradigms in psychology and neuroscience.  
Development of highly immersive and complex virtual reality scenarios.

## ● PUBLICATIONS

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### Publications

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**Under Review- How multisensory integration and perceptual load impact on performance, workload and presence in virtual reality.**

Matteo Marucci, Gianluca Di Flumeri , Gianluca Borghini , Nicolina Sciaraffa , Michele Scandola, Enea Francesco Pavone, Fabio Babiloni, Viviana Betti, Pietro Aricò.

**Human-machine interaction assessment by neurophysiological measures: a study on professional air traffic controllers.**

Pietro Aricò, Maxime Reynal, Jean-Paul Imbert, Christophe Hurter, Gianluca Borghini, Gianluca Di Flumeri, Nicolina Sciaraffa, Antonio Di Florio, Michela Terenzi, Ana Ferreira, Simone Pozzi, Viviana Betti, Matteo Marucci, Enea Pavone, Alexandru C Telea, Fabio Babiloni. 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

**Investigating multimodal augmentations contribution to remote control tower contexts for air traffic management.**

Maxime Reynal, Pietro Aricò, Jean Paul Imbert, Christophe Hurter, Gianluca Borghini, Gianluca Di Flumeri, Nicolina Sciaraffa, Antonio Di Florio, Michela Terenzi, Ana Ferreira, Simone Pozzi, Viviana Betti, Matteo Marucci, Fabio Babiloni. 3rd International Conference on Human Computer Interaction Theory and Applications, HUCAPP 2019-Part of the 14th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications, VISIGRAPP 2019

**How neurophysiological measures can be used to enhance the evaluation of remote tower solutions.**

Aricò, P., Reynal, M., Di Flumeri, G., Borghini, G., Sciaraffa, N., Imbert, J. P., ... & Betti, V. (2019). How neurophysiological measures can be used to enhance the evaluation of remote tower solutions. *Frontiers in Human Neuroscience*, 13.

**Involving Hearing, Haptics and Kinesthetics into Non-visual Interaction Concepts for an Augmented Remote Tower Environment.**

Hurter, C., Borghini, G., Di Flumeri, G., Sciaraffa, N., Di Florio, A., Terenzi, M., ... & Babiloni, F. (2020). Involving Hearing, Haptics and Kinesthetics into Non-visual Interaction Concepts for an Augmented Remote Tower Environment. In *Computer Vision, Imaging and Computer Graphics Theory and Applications: 14th International Joint Conference, VISIGRAPP 2019, Prague, Czech Republic, February 25-27, 2019, Revised Selected Papers* (Vol. 1182, p. 73). Springer Nature.

**Characterizing Body Image Distortion and Bodily Self-Plasticity in Anorexia Nervosa via Visuo-Tactile Stimulation in Virtual Reality.**

Provenzano, L., Porciello, G., Ciccarone, S., Lenggenhager, B., Tieri, G., Marucci, M., ... & Bufalari, I. (2020). Characterizing Body Image Distortion and Bodily Self-Plasticity in Anorexia Nervosa via Visuo-Tactile Stimulation in Virtual Reality. *Journal of clinical medicine*, 9(1), 98.

## ● CONFERENCE PRESENTATION

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### Conference Presentation

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**2018:** Towards immersive and multisensory Remote Tower Operations: An explorative human-in-the-loop study Ferreira, A.; Dokic, J. De Piano, R., Pozzi, S., Terenzi, M. (Deep Blue S.r.l.) Betti, V., Pavone, E., Marucci, M., Aricò, P., Borghini, G, Di Flumeri, G., Sciaraffa, N., Balbiloni, F. ("La Sapienza"- University of Rome) Hurter, C., Benhacène, R., Clercq, C., Reynal, M. (ENAC- Ecole Nationale de l'Aviation Civile) Telea, A., Kruiger, H. (Rug-University of Groningen). Transport Research Area (TRA).

## ● POSTERS

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### Posters

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**2015:** Skin temperature modulations underlying the feeling of ownership over a virtual hand. Tieri G., Pavone E.F, Gioia A., Scandola M., Marucci M., Aglioti S.M. proceedings: XXIII Congress of the Italian Society of Psychophysiology.

**2017:** Towards immersive and multisensory Remote Operations: a Virtual reality and EEG study  
M. Marucci, V. Betti, P. Aricò, G. Borghini, G. Di Flumeri, N. Sciaraffa, F. Babiloni, E.F. Pavone SIPF 2017.

**2017:** The plastic bodily self in Anorexia: virtual reality and multisensory stimulation paradigms. Giuseppina Porciello, Bigna Lenggenhager, Gaetano Tieri, Sofia Ciccarone, Luca Provenzano, Matteo Marucci, Federico Dazzi, Camillo Loredio, Iaria Bufalari . Federation of the European Societies of Neuropsychology (FESN).

**2017:** Porciello G., Provenzano L., Ciccarone S., Tieri G., Marucci M., Dazzi F., Loredio C., Lenggenhager B., Violani C., Bufalari I. Implicit and explicit indicators of bodily self-plasticity in Anorexia Nervosa.

**2017:** Porciello G., Lenggenhager B.P, Tieri G., Ciccarone S., Provenzano L., Marucci M., Dazzi F., Loredio C., Bufalari I.M . The plastic bodily self in Anorexia: virtual reality and multisensory stimulation paradigms. M: Main author P: Presenting author. Conference of the Federation of the European Societies of Neuropsychology (FESN). Maastricht (Olanda), 3-15 Settembre 2017. Congresso Nazionale - Sezione di Psicologia Dinamica e Clinica.

**2018:** Ciccarone S., Provenzano L., Porciello G., Tieri G., Marucci M., Dazzi F., Loredio C., Lenggenhager B., Bufalari I. Characterising Body Image Distortion and its Plasticity in Anorexia Nervosa. Workshop "Concepts, Actions, and Objects".

**2018:** Provenzano L., Ciccarone S., Porciello G., Tieri G., Marucci M., Dazzi F., Loredio C., Lenggenhager B., Bufalari I. Characterizing Body Image Distortion and its Plasticity in Anorexia Nervosa. "4th international conference of the European Society for Cognitive and Affective Neuroscience (ESCAN)".

## ● GRANTS AND AWARDS

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### Avvio alla ricerca 2019

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### Joint research projects for the mobility of PhD students 2019

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### Avvio alla ricerca 2020

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## ● LANGUAGE SKILLS

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Mother tongue(s): ITALIAN

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	C1	C1	B2	B2	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

## ● DRIVING LICENCE

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Driving Licence: **A2**

Driving Licence: **B**

## ● CONFORMITÀ AI FINI DELLA PUBBLICAZIONE

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### **Protezione dati personali e conformità ai fini della pubblicazione**

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Il presente Curriculum è redatto in conformità a quanto prescritto dall'art. 4 del Codice in materia di protezione dei dati personali e dall'art. 26 del D. Lgs. 14 marzo 2013, n. 33, al fine della pubblicazione e per la destinazione "ai fini della pubblicazione".