#### **General Informations:**

name:	Valerio
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current position:	Research Fellow at the Institute of Cognitive Sciences and Technologies, National Research Council of Italy, ISTC-CNR, via San Martino della Battaglia 44, 00185 Roma, Italy.

#### **Curriculum vitae et studiorum:**

- 1993/1994: High School Diploma (50/60), liceo scientifico Farnesina, Rome, ITALY
- 1999/2000: student in Psychology (entry), Università di Roma "Sapienza".
- 09/03/2006: master's degree in Psychology, (110/110 with honors) , Università di Roma "Sapienza"
- from 01/02/2007 to 31/01/2017: temporary research fellow with grant contract (assegno di ricerca) at Institute of Cognitive Sciences and Technologies, National Research Council of Italy, ISTC-CNR, Via S. Martino della Battaglia 44, 00185, Roma, Italy.
- from 01/02/2017 to 26/12/2018: temporary research fellow with fixed-term contract (contratto a tempo determinato) in the same research institute.

-contratto TD per Ricercatore III° livello, protocollo ISTC-CNR n. 0000202 del 25/01/2017, con riferimento a bando n. ISTC-33-2016-RM Art.23, pubblicato sulla G.U. n. 88 del 08/11/2016 -lettera di assunzione protocollo ISTC-CNR n. 0000128 del 18/01/2017, ai sensi dell'art 23. del DPR 171/91.

• from 27/12/2018: research fellow (permanent position) in the same research institute.

### **Research projects:**

"ECAgents: Embodied and Communicating Agents", coordinator Stefano Nolfi website: <u>www.ecagents.org</u> (project funded by European Union)

"Swarmanoid" coordinator Marco Dorigo website: <u>www.swarmanoid.org</u> (project funded by European Union)

"IM-CLeVeR" coordinator Gianluca Baldassarre website: <u>http://www.im-clever.eu/</u> (project funded by European Union)

"GOAL-Robots" coordinator Gianluca Baldassarre website: <u>http://www.goal-robots.eu/</u> (project funded by European Union)

"+me: motivating children with autism spectrum disorders to communicate and socially interact through interactive soft wearable devices" coordinator Gianluca Baldassarre website: <u>www.plusme.it</u> (project funded by Regione Lazio) "PlusMe: Transitional Wearable Companions for the therapy with children with Autism Spectrum Disorders" coordinator: Gianluca Baldassarre website: <u>www.plusme-h2020.eu</u> (project funded by European Union)

"IM-TWIN: from Intrinsic Motivations to Transitional Wearable INtelligent companions for autism spectrum disorder" coordinator: Gianluca Baldassarre (project funded by European Union)

## **Publications:**

- Sperati, V. (2006), "A collective robotic environment, for studying the evolution of spatial cognition" (in Italian), graduation thesis, Facoltà di Psicologia, Università di Roma "Sapienza", tutor prof. Orazio Miglino, cotutor prof. Alessandro Londei.
- Sperati, V. & Baldassarre, G. (2006), "Using entropy as index to evolve a couple of simulated robots capable of auto-organising behaviors" (in Italian), in "Scienze Cognitive e Robotica", proceedings of "III° Convegno Nazionale dell'AISC", Erga Eds., pages 147-152.
- Sperati, V. , Trianni, V., Nolfi, S. (2008), *"Evolving coordinated group behaviours through maximisation of mean mutual information"*, Swarm Intelligence, Volume 2, Number 2-4, pages 73-95, Springer New York.
- Gigliotta, O., Sperati, V., Nolfi, S. (2009). "*Robotics Attack!*" (in italian), in "Modelli, sistemi e applicazioni di Vita Artificiale e Computazione Evolutiva WIVACE 2009", proceedings of VI italian workshop of Artificial Life and Evolutionary Computation, , pages 109-115, FEU, Napoli.
- Sperati, V., , Trianni, V., Nolfi, S. (2010). "*Evolution of self-organised path formation in a swarm of robots*", in proceedings of 7<sup>th</sup> International Conference on Swarm Intelligence (ANTS 2010), volume 6234/2010 of Lecture Notes in Computer Science LNCS, pages 155-166, M. Dorigo et al. editors, Springer Verlag, Berlin, Germany.

- Sperati, V., Trianni, V., Nolfi, S. (2011). "*Self-Organised Path Formation in a Swarm of Robots*", Swarm Intelligence, Volume 5, Issue 2 (2011), pages 97-119, Springer New York.
- Dorigo, M. etal (2013), "Swarmanoid: a novel concept for the study of heterogeneous robotic swarms", in IEEE Robotics and Automation Magazine numero 4 pag 60—71 volume 20.
- Tommasino, P. etal (2012), "McKibben Muscle Learning Equilibrium Postures", in 4<sup>th</sup> IEEE International Conference on Biomedical Robotics and Biomechatronics, BioRob 2012, pages 1229-1234.
- Marraffa, R. etal (2012), "A Bio-Inspired Attention Model of Anticipation in *Gaze Contingency Experiments with Infants*", IEEE International Conference on Development and Learning and Epigenetic Robotics, ICDL
- Sperati, V., Trianni, V., Nolfi, S. (2014). "*Mutual Information as a task-independent utility function for evolutionary robotics*", M. Prokopenko (ed.), Guided Self-Organization:Inception, Springer
- Sperati, V., Baldassarre, G. (2014). *"Learning where to look with movement-based intrinsic motivations: a bio-inspired model"*, IEEE International Conference on Development and Learning and Epigenetic Robotics, ICDL
- Ozcan, B., Sperati, V., Caligiore, D., Baldassarre, G. (2014) "*Motivating children with autism to communicate and interact socially through the +me wearable device*", Nea-Science, year 1, vol. 5, pag. 59--65, XI° AISC Conference, Roma
- Ozcan, B. Sperati, V., Moretta, T., Scaffaro, S., Medda, A., Baldassarre, G. (2015) "+me Project: final prototype for the experimentation with children with autism" (Poster), Nea-Science, year 2 vol. 9, pag. 213--215, XII° AISC Conference.
- Meola, V., Caligiore, D., Sperati, V., Zollo, L., Ciancio, A., Taffoni, F., Guglielmelli, E., Baldassarre, G. (2015) "Interplay of rhythmic and discrete manipulation movements during development: a policy-search reinforcementlearning robot model", in IEEE Transaction on Autonomous Mental Development, DOI <u>10.1109/TAMD.2015.2494460</u>
- Sperati, V., Ozcan, B. *"Un dispositivo che aiuta a comunicare ed interagire"* in D.A. per la ricerca e l'innovazione, n. 44 (2016), www.daonline.info

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- Ozcan, B., Caligiore, D., Sperati, V. Moretta, T. Baldassarre, G. "Transitional Wearable Companions: A Novel Concept of Soft Interactive Social Robots to Improve Social Skills in Children with Autism Spectrum Disorder", vol 8, issue 4, pp 471--481 (2016) International Journal of Social Robotics. DOI 10.1007/s12369-016-0373-8.
- Sperati, V., Ozcan, B. "*The experimental device +me (version 1.0)*", Technical report (2016), DOI:10.13140/RG.2.1.3201.8166
- Sperati, V., Baldassarre, G. "A bio-inspired model learning visual goals and attention skills through contingencies and intrinsic motivations", (2017) IEEE Transactions on Cognitive and Developmental Systems, vol 10, issue 2, pp 326-344, DOI 10.1109/TCDS.2017.2772908
- Sperati, V. et al. "*Acceptability of the Transitional Wearable Companion +me in Typical Children: a Pilot Study*" (2019), Frontiers in Psychology 10:125 DOI 10.3389/fpsyg.2019.00125
- Sperati, V., et al. "Acceptability of the Transitional Wearable Companion +me in Children with Autism Spectrum Disorder: a Comparative Pilot Study" (2020), Frontiers in Psychology 11:951. DOI: 10.3389/fpsyg.2020.00951
- Ozcan, B. and Sperati, V. "Lokahi: the Wearable Body Pillow to Foster an Intimate Interaction Between Two Users through their Heartbeat Awareness" (2020), poster extended abstract to appear in Proceedings of HCII 2020 - Late Breaking Posters, Springer CCIS Proceedings, 22<sup>nd</sup> International Conference on Human-Computer Interaction, 19-24 July, Copenaghen, Denmark

# **Exhibitions:**

- MakerFaire 2014, European Edition, Roma (Italy): presented first prototype of "+me" device
- MakerFaire 2015, European Edition, Roma (Italy): presented third prototype of "+me" device
- Supernova 2015, Brescia (Italy): presented third prototype of "+me" device
- MakerFaire 2016, European Edition, Roma (Italy): presented fourth prototype of "+me" device.

- MakerFaire 2018, European Edition, Roma (Italy): presented first results of "+me" device experimentation on typical developed children.
- MakerFaire 2019, European Edition, Roma (Italy): presented pilot study of "+me" device experimentation on children with Autism Spectrum Disorder and Language Developmental Disorder.

## Awards:

- Start Cup Lazio 2015: menzione speciale "Social Innovation"; premio speciale "StartUp Initiative" (conferito da Banca Intesa San Paolo) al progetto "+me"
- Global Elevate Awards 2016: "Runner-Up" award in category "Healthcare" for project "+me".

# Visiting Experiences:

- From 26/11/2007 to 30/11/2007: Viktoria Institute (Gothebourg, SWEDEN)
- From 08/02/2008 to 02/06/2008: CSIRO, ICT Centre (Sydney, AUSTRALIA), with supervision of Dr. Mikhail Prokopenko

# **Teaching Experiences:**

• From 18/01/2012 to 21/04/2012: course "Physical Computing Elements" (28 hours), at Istituto Quasar (Rome, ITALY).

# **Computer / Hardware skills:**

- operating system: Linux, Windows, Android
- programming language: C++, PureData, Processing
- applications: Matlab, LaTeX, R, Inkscape, Fritzing
- hardware: good experience with Arduino boards

- electronics: good expertise, good skills in prototyping (developer of "+me" control board, developer of "Lokahi" contro board)
- 3D printing: basic expertise in printing and modeling (Thinkercad software)

## Language:

- Italian (mother tongue)
- English (good knowledge of spoken/written language)

In compliance with the Italian legislative Decree no. 196/2003 and European regulation Art. 13 GDPR 679/2016, I hereby authorize you to use and process my personal details contained in this document (Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base all'art. 13 del D. Lgs. 196/2003 e all'art. 13 GDPR 679/2016).

Valerio Sperati Roma 31/10/2020