

General Informations:

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current position: -research fellow at Institute of Cognitive Sciences and Technologies, National Research Council of Italy, ISTC-CNR (www.istc.cnr.it/), via Giandomenico Romagnosi 18A, 00196 Roma, Italy
-www.istc.cnr.it/en/people/valerio-sperati

Google Scholar: <https://scholar.google.com/citations?hl=en&user=BmHIyzQAAAAJ>

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 honours), 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 to date: research fellow (permanent position) in the same research institute.

Research projects:

- “ECAgents: Embodied and Communicating Agents”
coordinator Stefano Nolfi
website: www.ecagents.org
(project funded by European Union)
- “Swarmanoid”
coordinator Marco Dorigo
website: www.swarmanoid.org
(project funded by European Union)
- “IM-CleVeR”
coordinator Gianluca Baldassarre
website: <http://www.im-clever.eu/>
(project funded by European Union)
- "GOAL-Robots"
coordinator Gianluca Baldassarre
website: <http://www.goal-robots.eu/>
(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: www.istc.cnr.it/en/content/me
(project funded by Regione Lazio)

- "PlusMe: Transitional Wearable Companions for the therapy with children with Autism Spectrum Disorders"
coordinator: Gianluca Baldassarre
website: www.plusme-h2020.eu
(project funded by European Union)
- "IM-TWIN: from Intrinsic Motivations to Transitional Wearable INtelligent companions for autism spectrum disorder"
coordinator: Gianluca Baldassarre
website: www.im-twin.eu
(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 behaviours*" (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 7th 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. et al (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. et al (2012), “McKibben Muscle Learning Equilibrium Postures”, in 4th IEEE International Conference on Biomedical Robotics and Biomechatronics, BioRob 2012, pages 1229-1234.
- Marraffa, R. et al (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^o 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^o AISC Conference.

- Meola, V., Caligiore, D., Sperati, V., Zollo, L., Ciano, A., Taffoni, F., Guglielmelli, E., Baldassarre, G. (2015) "*Interplay of rhythmic and discrete manipulation movements during development: a policy-search reinforcement-learning robot model*", in IEEE Transaction on Autonomous Mental Development, DOI [10.1109/TAMD.2015.2494460](https://doi.org/10.1109/TAMD.2015.2494460)
- 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
- 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.3389/fpsyg.2020.00951)
- Ozcan, V., Sperati, V. "*Lokhai: the wearable body pillow to foster an intimate interaction between two users through their heartbeat awareness*" (2020), International Conference on Human-Computer Interaction, HCI International 2020 – Late Breaking Posters. HCII 2020. Communications in Computer and Information Science, vol. 1294. Springer, Cham. DOI:[10.1007/978-3-030-60703-6_54](https://doi.org/10.1007/978-3-030-60703-6_54)
- Özcan, B., Sperati, V., Giocondo, F., Baldassarre, G. (2021). "*X-8: An Experimental Interactive Toy to Support Turn-Taking Games in Children with*

- Autism Spectrum Disorders*". In: Stephanidis, C., Antona, M., Ntoa, S. (eds) HCI International 2021 - Posters. HCII 2021. Communications in Computer and Information Science, vol 1419. Springer, Cham. https://doi.org/10.1007/978-3-030-78635-9_32
- Flora Giocondo, Noemi Faedda, Gioia Cavalli, Valerio Sperati, Beste Ozcan, Federica Giovannone, Carla Sogos, Vincenzo Guidetti, and Gianluca Baldassarre. (2022). "*Leveraging curiosity to encourage social interactions in children with Autism Spectrum Disorder: preliminary results using the interactive toy PlusMe*". In Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI EA '22). Association for Computing Machinery, New York, NY, USA, Article 273, 1–7. <https://doi.org/10.1145/3491101.3519716>
 - Beste Ozcan, Valerio Sperati, Flora Giocondo, Massimiliano Schembri, and Gianluca Baldassarre. (2022). "*Interactive soft toys to support social engagement through sensory-motor plays in early intervention of kids with special needs*". In Interaction Design and Children (IDC '22). Association for Computing Machinery, New York, NY, USA, 625–628. <https://doi.org/10.1145/3501712.3535274>
 - Montedori, F., Mattei, F.R., Özcan, B., Schembri, M., Sperati, V., Baldassarre, G. (2022). "*A Novel System Based on a Smart Toy Responding to Child's Facial Expressions: Potential Use in Early Treatment of Autism Spectrum Disorders*". In: Stephanidis, C., Antona, M., Ntoa, S., Salvendy, G. (eds) HCI International 2022 – Late Breaking Posters. HCII 2022. Communications in Computer and Information Science, vol 1654. Springer, Cham. https://doi.org/10.1007/978-3-031-19679-9_24
 - Beste Ozcan, Valerio Sperati, Flora Giocondo, Massimiliano Schembri, and Gianluca Baldassarre. (2023). "*Multi-sensory Wearable Bio-feedback Pillow to Enhance Genuine Feeling of Intimate Connection*". In Proceedings of the Seventeenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI '23). Association for Computing Machinery, New York, NY, USA, Article 44, 1–6. <https://doi.org/10.1145/3569009.3573114>
 - F. Giocondo, N. Faedda, G. Cavalli, M. Schembri, F. Montedori, F. Giovannone, C. Sogos, V. Guidetti, V. Sperati, B. Özcan, G. Baldassarre. (2023). "*Supporting turn-taking activities: a pilot study using a smart toy with children with a diagnosis of neurodevelopmental disorders*". In Proceedings of the 22nd ACM Conference Interaction Design and Children,

IDC '23 (Chicago, Illinois, USA, June 19-23 2023), section "Work in Progress", pages 464-469, DOI: <https://doi.org/10.1145/3585088.3593863>

- V. Sperati, B. Özcan, F. Giovannone, M. Schembri, N. Faedda, C. Sogos, V. Guidetti, G. Baldassarre (2024). "*A tangible, toy-based platform to evaluate the child's social interaction in turn-taking game: a prospective on monitoring neurodevelopmental disorders*".
In Proceedings of the 23rd ACM Conference Interaction Design and Children, IDC '24 (Delft, Netherlands, June 17-20 2024), section "Work in Progress", pages 650-654,
DOI: <https://doi.org/10.1145/3628516.3659368>
- C. Sardella, C. Di Marco, M. Porcelli, J. Miozzi, V. Sperati, B. Özcan, M. De Luca, A. Pecora, M. Schembri, G. Baldassarre, R. Santilli (2024). "*The use of Transitional Wearable Companion toys to promote children's emotional intelligence: the Emotion-Lab program*".
In Proceedings of the 23rd ACM Conference Interaction Design and Children, IDC '24 (Delft, Netherlands, June 17-20 2024), section "Work in Progress", pages 660-664,
DOI: <https://doi.org/10.1145/3628516.3659370>
- G. Bartolomei, B. Ozcan, G. Granato, G. Baldassarre, V. Sperati (2025). "*Echo: an AI-based toy to encourage symbolic play in children with Autism Spectrum Condition*".
In Proceedings of 19th International Conference on Tangible, Embedded and Embodied Interaction - TEI '25 (Bordeaux, France, March 04-07, 2025), article no. 85, pag 1-6,
DOI: <https://doi.org/10.1145/3689050.3705987>
- V. Sperati, B. Özcan, F. Giovannone, M. Schembri, G. Granato, N. Faedda, C. Sogos, V. Guidetti, G. Baldassarre (2025). "*A tangible, toy-based platform to evaluate the child's social interaction in turn-taking games: promising preliminary results on neurodivergent twins*".
To appear in the proceedings of the 24th ACM conference Interaction Design and Children, IDC '25 (Reykjavik, Iceland, June 23-26, 2025), section *Work in Progress*,
DOI: <https://doi.org/10.1145/3713043.3731487>

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 the fourth prototype of the "+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.
- MakerFaire 2022, European Edition, Roma (Italy): presented prototypes of *Transitional Wearable Companions* toys.

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" control board)
- 3D printing: basic expertise in printing and modelling (Thinkercad software)

Language:

Italian (mother tongue)

English (good knowledge of spoken/written language)

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Valerio Sperati
Roma 30/05/2025

