



# Mirko Gelsomini

PhD · Software Engineer · Full Stack Developer · UX Researcher

☎ +39 3463204470 | 📍 Milan, September 26, 1988 | ✉ phd.mirko.gelsomini@gmail.com | 🔗 mirko.gelsomini.info | 🏠 Milan (Italy)

*I'm a passionate and curious developer looking for innovative and functional ideas to bring to a project.  
My research explores how technology can be designed and developed to empower people with special needs in education.  
I am willing to contribute to teams and projects and ensure successful delivery of breakthrough solutions.*

## Education

### B.Sc. in Engineering of Computing Systems

2008 - 2011

POLITECNICO DI MILANO

Milan (ITA)

- Thesis: Development of a massively multiplayer online role-playing game (MMORPG) based on GPS to promote physical activity

### M.Sc. in Engineering of Computing Systems

2012 - 2013

POLITECNICO DI MILANO

Milan (ITA)

- Graduation Grade: 110/110 with Honors
- Thesis: Designing, developing and evaluating touch-less motion based games for educational and therapeutic purposes

### Ph.D. in Information Technology

2014 - 2018

POLITECNICO DI MILANO

Milan (ITA)

- Graduation Grade: Laude
- Thesis: Empowering Interactive Technologies for Children with Neuro-Developmental Disorder and their Caregivers
- Main tasks:
  - Contributed to the design, development and evaluation of Robots' hardware and software to engage neurodiverse people in playful learning experiences. Collaborated in the Polisocial Project "Krog - Kinect Robot Interaction for Gaming"
  - Contributed to the design, development and evaluation of Wearable Immersive Virtual Reality experiences to enhance people's cognitive abilities. Collaborated in the European Project "TWB - Therapeutic Services based on Wearable Virtual Reality and Bio-sensors" (EC Program EIT Digital)
  - Contributed to the design, development and evaluation of Touch-based applications to stimulate people's visuo-motor abilities
  - Contributed to the design, development and evaluation of the hardware and software platform of the European Project "P3S - Playful Supervised Smart Spaces for children's learning" in a team of software engineers and designers from Philips, STMicroelectronics, TIM, Imec.
  - Developed the multimedia deployment engine of the Policultura platform, currently used by thousands of children and schools around Italy

### Master in Business and Strategic Management

2016 - 2017

HARVARD UNIVERSITY

Cambridge (MA, USA)

- Graduation Grade: A (GPA:4)
- Courses (5 CFU each) in Extensive Studies: Innovation, Entrepreneurship, and Business Transformation; Marketing Management; Mergers, Acquisitions, and Restructurings; Negotiation and Organizational Conflict Resolution; Strategic Management
- Learning outcomes: ability to align the basic direction and goals of an organization; analyze an environment's social, political, technological, economic, and global factors; evaluate industry and market structure; and assess organizational strengths and weaknesses; understand the essentials of business management in a global economy, such as corporate responsibility and ethics, organizational efficiency, and decision-making frameworks for competing strategic priorities; leverage knowledge in corporate sustainability strategy, human resource management, strategic resource allocation, crisis management, and marketing management.

# Research Experience Abroad

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## M.Sc. Visiting Research Fellow

2013

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta (GA, USA)

- Collaborated with researchers from MIT and Georgia Institute of Technology to design, develop and evaluate touch-less motion based games for educational and therapeutic purposes

## Ph.D. Visiting Research Fellow

2016-2018

MASSACHUSETTS INSTITUTE OF TECHNOLOGY - MEDIA LAB

Cambridge (MA, USA)

- Contributed to the design, development and evaluation of Robots' hardware and software to engage neurodiverse people in playful learning experiences
- Developed and evaluated Machine Learning approaches to increase people's engagement and sustain conversation with a robot
- Collaborated in a team of software engineers, designers, linguists from Yale, Tufts and Google

# Work Experience

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## PostDoc in Foresight Technologies

Oct 2018 - Today

ENI S.p.A.

Milan (ITA)

- Contribution to the research of foresight technologies developing an A.I. tool to analyze current and future technological trends, automatically building foresighters network graphs and pre-empting the tech market.

## PostDoc in Information Technology

Jan 2018 - Oct 2018

POLITECNICO DI MILANO

Milan (ITA)

- Contribution to the design, development and evaluation of multi-sensory environments for playful learning and inclusion in educational settings in the Polisocial Project "LUDOMI". Currently studying method to create AI-based adaptive and auto-generative contents to provide people with personalized educational multi-modal experiences. Leading a multi-departmental team of 20 students and researchers composed by software and mechanical engineers, designers, educators and psychologists.
- Contribution to the design and development of the hardware and software platform of E-toys, digitally-enhanced connected physical toys from which to collect data about play experiences. Performed a pilot study with over 200 children to label children's interactions on e-toys and train the toy platform. Collaborating with engineers and designers from Reply and Brightscape in the European Project "PLET - Product Life Cycle Management for e-Toys" (EC Program EIT Digital 2018).

## Teaching

2014 - Today

POLITECNICO DI MILANO

Milan (ITA)

- Teaching Assistant in the courses of:
  - **"Advanced User Interfaces"** (5 CFU, Computer Science): Teaching and tutoring students with the development of interactive products using Arduino, Raspberry, Microsoft Kinect SDK, A-Frame VR Framework [A.A.: 14/15, 15/16, 16/17, 17/18, 18/19]
  - **"Hypermedia Applications - Web Technologies"** (5 CFU, Computer Science): Teaching HTML5, CSS3, JavaScript, JQuery, PHP, SQL, Google API & Marketing Tools, Youtube API, Facebook API, Search Engine Optimization (SEO), Website Usability [A.A.: 14/15, 15/16, 16/17, 17/18, 18/19]
  - **"Online Informatics"** (5 CFU, Computer Science Online): Technological project design and development, Web Usability [A.A.: 17/18, 18/19]
  - **"Interaction Design Studio"** (6 CFU, Design School - Comm. Design): Tutoring the design and development of interactive products. Teaching User Experience Development and Arduino Programming. [A.A.: 16/17, 17/18]
- Adjunct Professor in the courses of:
  - **"Digital Interactive Technologies for Physical Interfaces"** (3/18 CFU, Design School - Product Design): Teaching AI and Arduino programming for designers. Tutoring the design and development of Braun's and Midea's concepts. [A.A.: 18/19]
  - **"Design for Kids and Toys"** (E-learning Master in Kids and Toys, Design School): Teaching Technology in Connected Toys for Kids' play, learning and inclusion. [A.A.: 18/19]

## Councilor in Innovation and Social Policies

May 2015 - May 2019

MUNICIPALITY OF CORNAREDO, METROPOLITAN CITY OF MILAN

Milan (ITA)

- Development of regulations to encourage Disability Awareness and Accessibility
- Supervisor of the Technology Innovation branch and discussion of relevant topics in the Municipal Council

# Languages

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**Italian:** Mother tongue    **English:** Advanced (C.E.F.: C2)

## Software Skills

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### ★★★ Proficient

<b>WEB</b>	HTML5, CSS3, JavaScript, Php, JQuery, Wordpress
<b>NATIVE &amp; Frameworks</b>	C#, ROS
<b>API &amp; SDK</b>	Google, Youtube, Microsoft Kinect
<b>OS &amp; SOFTWARES</b>	Windows OS, MS Office, Adobe Creative Suite (Certification in 2011: Adobe After Effects, Adobe Fireworks, Adobe Illustrator, Adobe Photoshop)

### ★★☆ Skilled

<b>WEB</b>	Sql, Joomla
<b>NATIVE &amp; Frameworks</b>	C++, Java, Python, Node Webkit
<b>API &amp; SDK</b>	Facebook, Twitter, Phonegap, IBM Watson, OpenSmile
<b>OS &amp; SOFTWARES</b>	Linux, Unity, Adobe InDesign, Blender, Sketchup

### ★☆☆ Work in progress

<b>WEB</b>	AngularJS, NodeJS
<b>NATIVE &amp; Frameworks</b>	Android, Objective C
<b>API &amp; SDK</b>	LinkedIn, Dropbox
<b>OS &amp; SOFTWARES</b>	Apple OS, Cinema 4D, 3D Studio Max, Maya

## Honors & Awards

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- 2019 - Best Poster Award at ACM IUI 2019 International Conference on Intelligent User Interfaces - Paper: "Geniel: An auto-generative intelligent interface to empower learning in a multisensory environment"
- 2018 - Winner of 3rd Place at the Student Research Competition from ACM CHI 2018 International Conference on Human Factors in Computing Systems - . Paper: "Reflex: Learning Beyond the Screen in a Simple, Fun, and Affordable Way"
- 2018 - Best Video Nomination, "Golden Mouse" Award at ACM CHI 2018 International Conference on Human Factors in Computing Systems. Video Paper: Puffy, a Friendly Inflatable Social Robot. Alessandro Ubaldi, Mirko Gelsomini, Marzia Degiorgi, Giulia Leonardi, Simone Penati, Noëlie Ramuzat, Jacopo Silvestri, and Franca Garzotto.
- 2017 - Winner of "La Torretta" Award from Banca di Credito Cooperativo. The prize is given every year to those people or organizations who have distinguished themselves for their skills, projects and achievements: women and men who, in the fields of culture, work, sport and volunteering, have valorised the resources and energy in Lombardy.
- 2017 - Best Video at ACM/IEEE HRI 2017 International Conference on Human Robot Interaction. Video Paper: "Engaging Children as Storytellers: Backchanneling Models for Robots"
- 2016 - Best Short Paper at NewFriends 2017 Conference of Social Robots in Therapy and Education. Paper: "Attentive Robot Listener Engages Children in Language Learning"
- 2016 - Winner at Microsoft Student Research Competition from ACM Assets 2016 Conference on Computers and Accessibility. Paper: "An Affordable Virtual Reality Learning Framework for Children with Neuro-Developmental Disorder"
- 2016 - Best Full Paper at IEEE RO-MAN 2016 International Symposium on Robot and Human Interactive Communication. Paper: "A huggable, mobile robot for developmental disorders", Andrea Bonarini, Franca Garzotto, Mirko Gelsomini, Francesco Clasadonte, Massimiliano Romero
- 2015 - Roberto Rocca Doctoral Fellowship. The fellowships gives supports top Politecnico PhD's who wish to come to Massachusetts Institute of Technology for a 12 month research stay as visiting PhD students
- 2014 - Best Short Paper at ACM AVI 2014 International Conference on Advanced Visual Interfaces. Paper: "Motion-based Touchless Interaction for ASD Children", Franca Garzotto, Mirko Gelsomini, Luigi Oliveto, Matteo Valoriani
- 2013 - Scholarship for Master Thesis Abroad, Politecnico di Milano (ITA)
- 2013 - Scholarship for Merit, Politecnico di Milano (ITA)
- 2013 - Winner, Contest: "Westmar", Westmar Student Lofts (USA)
- 2012 - Scholarship for Merit, Politecnico di Milano (ITA)
- 2010 - Winner, GreenLife Ecologic Portal, Chamber of Commerce (ITA)
- 2009 - Winner, "Carta Regionale dei Servizi" Award, Lombardy Region (ITA)
- 2003-2006 - 4 Scholarships for Merit, Municipality of Cornaredo, Milan (ITA)

## Projects

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Projects Portfolio available upon request, for a short description visit [mirko.gelsomini.info](http://mirko.gelsomini.info)

# Publications

The up-to-date list is available on [Google Scholar](#) or on [mirko.gelsomini.info/pubs](http://mirko.gelsomini.info/pubs) - h-index: 10, i10-index: 10

- [1] Bartoli, L., Corradi, C., Garzotto, F., Valoriani, M., **Gelsomini, M.**, "Exploring motion-based touchless games for autistic children's learning," in *Proceedings of the 12th International Conference on Interaction Design and Children*, ACM, 2013, pp. 102–111.
- [2] Bartoli, L., Garzotto, F., **Gelsomini, M.**, Oliveto, L., Valoriani, M., "Designing and evaluating touchless playful interaction for ASD children," in *Proceedings of the 2014 conference on Interaction design and children*, ACM, 2014, pp. 17–26.
- [3] Bonarini, A., Garzotto, F., **Gelsomini, M.**, Valoriani, M., "Integrating human-robot and motion-based touchless interaction for children with intellectual disability," in *Proceedings of the 2014 International Working Conference on Advanced Visual Interfaces*, ACM, 2014, pp. 341–342, ISBN: 978-1-4503-2775-6. doi: 10.1145/2598153.2600054. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=2598153.2600054>.
- [4] Franca, G., Mirko, G., Roberto, M., Luigi, O., Matteo, V., Garzotto, F., **Gelsomini, M.**, Mangano, R., Oliveto, L., Valoriani, M., "From desktop to touchless interfaces: A model based approach," in *Proceedings of the 2014 International Working Conference on Advanced Visual Interfaces*, ACM, 2014, pp. 261–264, ISBN: 978-1-4503-2775-6. doi: 10.1145/2598153.2598194. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=2598153.2598194>.
- [5] Garzotto, F., **Gelsomini, M.**, Oliveto, L., Valoriani, M., Franca, G., Mirko, G., Luigi, O., Matteo, V., "Motion-based touchless interaction for ASD children: A case study," in *Proceedings of the 2014 International Working Conference on Advanced Visual Interfaces*, ACM, 2014, pp. 117–120, ISBN: 978-1-4503-2775-6. doi: 10.1145/2598153.2598197. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=2598153.2598197>.
- [6] Garzotto, F., Valoriani, M., Bartoli, L., **Gelsomini, M.**, "Touchless motion-based interaction for therapy of autistic children," in *Virtual, Augmented Reality and Serious Games for Healthcare*, vol. 1, Springer Berlin Heidelberg, 2014, pp. 471–494.
- [7] Agosta, G., Borghese, L., Brandolese, C., Clasadonte, F., Fornaciari, W., Garzotto, F., **Gelsomini, M.**, Grotto, M., Frà, C., Noferi, D., "Playful supervised smart spaces (p3s)—a framework for designing, implementing and deploying multisensory play experiences for children with special needs," in *2015 Euromicro Conference on Digital System Design*, IEEE, 2015, pp. 158–164.
- [8] Bhattacharya, A., **Gelsomini, M.**, Pérez-Fuster, P., Abowd, G. D., Rozga, A., "Designing motion-based activities to engage students with autism in classroom settings," *Proceedings of the 14th International Conference on Interaction Design and Children - IDC '15*, pp. 69–78, 2015, ISSN: 1524-4040. doi: 10.1145/2771839.2771847. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=2771839.2771847>.
- [9] Bonarini, A., Clasadonte, F., Garzotto, F., **Gelsomini, M.**, "Blending robots and full-body interaction with large screens for children with intellectual disability," in *Proceedings of the 14th International Conference on Interaction Design and Children - {IDC} '15*, {ACM} Press, 2015, pp. 351–354. doi: 10.1145/2771839.2771914. [Online]. Available: <https://doi.org/10.1145/2771839.2771914>.
- [10] Garzotto, F., **Gelsomini, M.**, "Playful learning in smart spaces for children with intellectual disability," in *PALX Learner and Players experience. Workshop co-located with CHIItaly*, 2015.
- [11] Bonarini, A., Clasadonte, F., Garzotto, F., **Gelsomini, M.**, Romero, M., "Playful interaction with teo, a mobile robot for children with neurodevelopmental disorders," in *Proceedings of the 7th International Conference on Software Development and Technologies for Enhancing Accessibility and Fighting Info-exclusion - {DSAI} 2016*, {ACM} Press, 2016. doi: 10.1145/3019943.3019976. [Online]. Available: <https://doi.org/10.1145/3019943.3019976>.
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- [13] Colombo, S., Garzotto, F., **Gelsomini, M.**, Melli, M., Clasadonte, F., "Dolphin sam: A smart pet for children with intellectual disability," *Proceedings of the Workshop on Advanced Visual Interfaces AVI*, vol. 07-10-June, pp. 352–353, 2016. doi: 10.1145/2909132.2926090.
- [14] Garzotto, F., **Gelsomini, M.**, "Integrating virtual worlds and mobile robots in game based treatment for autistic children," no. 2012, pp. 69–84, 2016. doi: 10.4018/978-1-4666-9740-9.ch005. [Online]. Available: <http://services.igi-global.com/resolvedoi/resolve.aspx?doi=10.4018/978-1-4666-9740-9.ch005>.
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- [16] Garzotto, F., **Gelsomini, M.**, Pappalardo, A., Sanna, C., "Using brain signals in adaptive smart spaces for disabled children," in *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, ACM, 2016, pp. 1684–1690, ISBN: 978-1-4503-4082-3. doi: 10.1145/2851581.2892533. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=2851581.2892533>.
- [17] Garzotto, F., **Gelsomini, M.**, Pappalardo, A., Sanna, C., Stella, E., Zanella, M., "Monitoring and adaptation in smart spaces for disabled children," in *Proceedings of the International Working Conference on Advanced Visual Interfaces*, New York, New York, USA: ACM Press, 2016, pp. 224–227, ISBN: 978-1-4503-4131-8. doi: 10.1145/2909132.2909283. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=2909132.2909283>.
- [18] **Gelsomini, M.**, "An affordable virtual reality learning framework for children with neuro-developmental disorder," *Proceedings of the 18th International ACM SIGACCESS Conference on Computers and Accessibility - ASSETS '16*, pp. 343–344, 2016, ISSN: 1198-0052. doi: 10.1145/2982142.2982143. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=2982142.2982143>.
- [19] **Gelsomini, M.**, Garzotto, F., Montesano, D., Occhiuto, D., "Wildcard: A wearable virtual reality storytelling tool for children with intellectual developmental disability," *Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS*, vol. 2016-Octob, pp. 5188–5191, 2016, ISSN: 1557170X. doi: 10.1109/EMBS.2016.7591896.

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- [22] Degiorgi, M., Garzotto, F., **Gelsomini, M.**, Leonardi, G., Penati, S., Ramuzat, N., Silvestri, J., Clasadonte, F., Kinoe, Y., "Puffy—an inflatable robotic companion for pre-schoolers," in *Robot and Human Interactive Communication (RO-MAN)*, 2017 26th IEEE International Symposium on, IEEE, 2017, pp. 35–41.
- [23] Fails, J. A., Pera, M. S., Garzotto, F., **Gelsomini, M.**, "KidRec: Children & recommender systems: Workshop co-located with ACM conference on recommender systems (RecSys 2017)," in *Proceedings of the Eleventh ACM Conference on Recommender Systems*, ACM, 2017, pp. 376–377, ISBN: 978-1-4503-4652-8. doi: 10.1145/3109859.3109956. [Online]. Available: <http://dl.acm.org/citation.cfm?doid=3109859.3109956>.
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## Supervised Master Students

- 2014 - Tavellin Luca: "Uno strumento per sviluppo di storie multimediali con interazione full body"
- 2014 - Fiorini Alessandra, Mariggìo Francesco: "Interazione bambino, robot e grande schermo in un gioco multimediale"
- 2014 - Mattioli Luca: "Un sistema basato sul riconoscimento visivo per il supporto alla valutazione neuromotoria"
- 2015 - Guzzo Fabio: "Smart space animation. L'artefatto visivo a supporto della terapia psicomotoria per l'autismo infantile"
- 2015 - Oliboni Luca: "Storytelling interattivo in ambiente intelligente per bambini con disabilità cognitive"
- 2015 - Lomazzi Andrea: "Blocchi logici smart nel trattamento di bambini con disabilità cognitiva"
- 2015 - Montesano Daniele, Occhiuto Daniele: "Wildcard : realtà virtuale wearable per bambini con disabilità intellettiva"
- 2016 - Melli Mattia, Colombo Simone: "Dolphin Sam: a smart pet for children with intellectual disability"
- 2016 - Tolomeo Stefano: "Teo2 : un robot mobile emozionale per bambini con disabilità intellettive"
- 2017 - Matarazzo Vito, Messina Nicolò: "Wearable Immersive Virtual Reality for People with Neurodevelopmental Disorders"
- 2017 - Pagano Filippo: "Guidelines. Un portale per la raccolta di linee guida per lo sviluppo di software per bambini con disabilità"
- 2017 - Calabretta Fabio: "Reflex: a mirrored camera app for individuals with neurodevelopmental disorders"
- 2017 - Rougnant Alexis: "WAYZ : a touch-ready application to assess and improve visual perception skills in children with special needs"
- 2017 - Lovisa Michael: "Multi-sensory environments adaptation for the relaxation of children with neurodevelopmental disorders"
- 2018 - Fisicaro Davide, Pozzi Francesco: "ELE : a conversational smart toy for persons with special needs"
- 2018 - Giummarra Gianmarco, Ferrigno Salvatore: "Ele : a companion robot as a conversational enabler for children"
- 2018 - Rotondaro Annalisa: "Ahù, uno smart space mobile per il gioco, l'apprendimento e l'inclusione dei bambini"
- 2018 - Penati Simone, Di Francesco Giuseppe: "Puffy. Study on the affective potential and therapist interface for an inflatable mobile interactive companion for children with neurodevelopmental disorders"
- 2019 - Cosentino Giulia: "User Experience Design and Development of Magika: an Inclusive Multisensory Environment"
- 2019 - Bonadies Barbara: "Magika: User Design Manual"
- 2019 - Leonardi Giulia: "GENIEL: Empowering Learning in a Multisensory Environment"

*I expressly authorize the use of my personal and professional information listed in my curriculum.*