# **DAVIDE BOTTARI**

CURRICULUM VITAE (Last update: Nov 2023)

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# Education

December 2008:

Ph.D. degree in Cognitive Science. Supervisor Prof. Francesco Pavani. Thesis "Visual Abilities in Profound Deafness: A Window into the Mechanisms of Multisensory Perception"

### September 2007- September 2008:

Visiting post-graduate student at the methodological Unit INSERM 821 Lyon, France (supervision Prof. Marie-Hélène Giard). Training in Electrophysiological techniques

### October 2005- October 2008:

PhD Student at School of Cognitive Science and Education University of Trento, Italy. Supervisor Prof. Francesco Pavani

### March 2002-2003:

Post-graduate training in Clinical and Experimental Neuropsychology at Fondazione Maugeri, Castel Goffredo (MN) and at the Centre of Cognitive Neuroscience of Cesena, Italy

# February 2002:

Master equivalent degree in General and Experimental Psychology, University of Bologna (110/110 with honors)

## <u>July 1996:</u>

Italian equivalent to 'A level'. Istituto Tricolore Reggio Emilia (60/60)

## Academic Positions and professional habilitations

## <u>Feb 2022 – now:</u>

Research Collaborator in Cognitive Neuroscience at IMT School for Advanced Studies Lucca, Italy

## February 2017-Jan 2022:

Assistant Professor (RTDa position, Ricercatore) in Cognitive Neuroscience at IMT School for Advanced Studies Lucca, Italy. During this period, I conducted research with the SEED group and teaching activities for PhD students. The research activity pertained to the study of perception and experience-dependent plasticity in adults and children with typical and atypical development. Moreover, I have been responsible for the realization of the Multidisciplinary Labs of IMT, which include EEG, eye-tracking and psychophysics equipment.

## <u>April 2017:</u>

Italian habilitation for the Associate professorship in 11/E1 – General psychology, psychobiology and psychometrics. (Academic Recruitment Field 11/E - Psychology, according to the national classification).

# November 2010-January 2017:

Post-doc at Biological Psychology and Neuropsychology (BPN), University of Hamburg, Germany, supervision Prof. Brigitte Röder, ERC-advanced Grant: Critical Brain Changes. The main aim of the project was the study of sensitive periods of sensory functions. During the project, I have been the main responsible for the realization of two EEG and psychophysics labs at the LV Prasad Eye Institute in Hyderabad India. I also conducted teaching for Master students at the University of Hamburg.

### November 2008-October 2010:

Post-doc at the Department of Cognitive Science and Education and Center for Mind and the Brain (CIMEC) at the University of Trento, Italy. Project: Neural plasticity of visual processing in deaf individual using EEG and fMRI methods (1.11.2008-31.10.2009 Assegno di Ricerca)

September 2003:

Qualification to the profession of Psychologist

### Main academic roles

## Feb-2020-Jan-2022:

A representative for researcher and member of the Academic Senate of the IMT School for Advanced Studies

## <u>2020-2022</u>:

Member of the PhD School program in Artificial Intelligence (joint program IMT School for Advanced Studies Lucca and Scuola Superiore S.Anna, Pisa)

## **Research interests**

Since the beginning of my training as a scientist, my research interests have been focusing on the organization, functioning and plasticity of the sensory systems across the life span, in typical and atypical populations. By studying children and adults, with typical development, or after experiencing a diverging sensory trajectory (sensory deprivation, sensory restoration and brain damage), and the effects of training, I have been interested in exploring mechanisms underlying functional and structural development, representations, recovery, and constraints of sensory functions and higher cognitive functions. All these approaches rely on the understanding of sensory and cognitive systems development and functioning in a multisensory framework.

I have been mainly investigating the functioning of the visual and the auditory systems and their interactions at different levels in the processing hierarchy (from low to higher levels), but I also contributed to the investigation of the tactile system. Moreover, I studied higher cognitive functions (attention and language) to investigate their adaptations to altered developmental trajectories.

The research I conduct is at the interface between cognitive neuroscience, cognitive psychology, developmental psychology, and biological engineering – applying multiple methods such as electrical neuroimaging (EEG), machine learning approaches (encoding and decoding), computational neuroscience (auditory), functional and structural magnetic resonance imaging (fMRI) and psychophysics to elucidate complex dynamics between the brain and the environment.

Current main projects include:

- Sensitive periods for the development of the neural tracking (neural synchronization) to speech signals studying individuals who experienced a delay in auditory onset (cochlear implanted individuals; MIUR-PRIN Grant, Italian Government, 2017, Responsabile di Unità; collaboration with Meyer Hospital Florence and with Ospedale Burlo Garofalo Trieste)
- Natural speech signals (auditory and visual) processing and development (collaboration with Prof. Debener, University of Oldeburg, Germany)
- Functional adaptations in Cerebral Visual Impairment (collaboration with Prof. Lotfi Merabet, Harvard)
- Structural brain changes in case of congenital and late-onset blind people (a large consortium of labs across the world for structural MRI data sharing; coordination Prof. Ricciardi IMT School)

- Functional organization of visual, auditory and multisensory cortices in blind and deaf individuals (coordinated by Prof. Ricciardi IMT School and Prof. Garbarini University of Trento)
- Adaptations of visual functions and attentional systems in case of permanent auditory deprivation
- Short-term plasticity of visual and audiovisual processing using short-term monocular deprivation as a model (collaboration with Prof. Marc Ernst, University of Ulm Germany)
- Short-term plasticity of the visual system following pharmaceutical treatments or temporary sensory deprivation (collaboration with the Psychiatry department of the University of Zurich)
- Functional changes in sight-recovery (individuals treated for Congenital Bilateral Dense Cataracts; collaboration with Prof. Brigitte Roder, University of Hamburg, and with Dott. Caputo, Meyer Hospital Florence)
- Electrophysiological signature autism disorder in infants (collaboration with Stella Maris Pisa)

# **Research Group**

SEED @ IMT School for Advanced Studies Lucca (https://momilab.imtlucca.it/research/seed). I coordinate the research group denominated Sensory Experience Dependence and Plasticity Group (SEED). The research group comprises 2 research collaborators (assegno di ricerca), 6 PhD students. The SEED group pursues: (1) basic and translational research; (2) training for PhD students and young researchers; (3) interaction with local entities such as the National Associations for Blindness to promote collaborations between academia and society

# Main collaborations

The Blind Brain Consortium (a data-sharing initiative comprising many labs around the world) Brigitte Roder (University of Hamburg, Germany) Francesco Pavani (University of Trento, Italy) Stefan Debener (University of Oldenburg, Germany) Marc Ernst (University of Ulm, Germany) Francesca Garbarini (Università di Torino) Benedetta Bianchi (Meyer Hospital, Florence, Italy) Lotfi Merabet, (Harvard Medical School, USA) Milan Scheidegger (University of Zurich, Switzerland) Eva Orzan (Pediatric Hospital Burlo Garofalo Trieste) Elena Nava (Milan Bicocca University)

# **Publications (peer reviewed)**

 Federici, A., Bernardi, G., Senna, I., Fantoni, M., Ernst, M. O., Ricciardi, E., & Bottari, D. (2023). Crossmodal plasticity following short-term monocular deprivation. NeuroImage, 274, 120141.

- 2. Ossandón, J. P., Stange, L., Gudi-Mindermann, H., Rimmele, J. M., Sourav, S., Bottari, D., ... & Röder, B. (2023). The development of oscillatory and aperiodic resting state activity is linked to a sensitive period in humans. **NeuroImage**, *275*, 120171.
- Federici, A., Bennett, C. R., Bauer, C. M., Manley, C. E., Ricciardi, E., Bottari, D., & Merabet, L. B. (2023). Altered neural oscillations underlying visuospatial processing in cerebral visual impairment. Brain Communications, 5(5), fcad232.
- 4. Berto, M., Ricciardi, E., Pietrini, P., Weisz, N., & Bottari, D. (2023). Distinguishing fine structure and summary representation of sound textures from neural activity. **Eneuro**, *10*(10).
- 5. Setti, F., Handjaras, G., Bottari, D., Leo, A., Diano, M., Bruno, V., ... & Ricciardi, E. (2023). A modality independent proto-organization of human multisensory areas. **Nature Human Behaviour**
- 6. Pavani, F., Bottari, D., (2022). Neuroplasticity following cochlear implants. The Temporal Lobe, Chapter 5. **Handbook of Clinical Neurology**, 187, 89-108
- 7. Villwock, A., Bottari, D., & Röder, B. (2022). Event-related potential correlates of visuo-tactile motion processing in congenitally deaf humans. **Neuropsychologia**, 108209.
- Stroh, A. L., Grin, K., Rösler, F., Bottari, D., Ossandón, J., Rossion, B., & Röder, B. (2022).
   Developmental experiences alter the temporal processing characteristics of the visual cortex: Evidence from deaf and hearing native signers. European Journal of Neuroscience.
- Martinelli, A., Bianchi, B., Fratini, C., Handjaras, G., Fantoni, M., Trabalzini, F., Polizzi, S., Caputo, R, & Bottari, D. (2021). Delayed Auditory Brainstem Responses (ABR) in children after sightrecovery. Neuropsychologia, 108089
- 10. Berto, M., Ricciardi, E., Pietrini, P., & Bottari, D. (2021). Interactions between auditory statistics processing and visual experience emerge only in late development. **iScience**, 103383
- Bennett, C. R., Bauer, C. M., Bex, P. J., Bottari\*, D., & Merabet\*, L. B. (2021). Visual search performance in cerebral visual impairment is associated with altered alpha band oscillations. Neuropsychologia, 161, 108011. \*Shared authorship.
- Bednaya E., Pavani F., Ricciardi E., Pietrini, P. Bottari D. (2021) Oscillatory signatures of Repetition Suppression and Novelty Detection reveal altered induced visual responses in early deafness. Cortex 142, 138-153
- 13. Bottari, D., Berto, M, (2021) Three factors to characterize plastic potential transitions in the visual system **Neuroscience & Biobehavioral Reviews** 126, 444-446
- Pant, R., Guerreiro, MJS., Ley, P., Bottari, D., Shareef, I., Kekunnaya, R., Röder, B. (2021). The Size-Weight Illusion is unimpaired in individuals with a history of congenital visual deprivation.
  Scientific Report 11 (1), 1-13
- 15. Bottari, D., Bednaya, E., Dormal, G., Villwock, A., Dzhelyova, M., Grin, K., ... & Röder, B. (2020). EEG frequency-tagging demonstrates increased left hemispheric involvement and crossmodal plasticity for face processing in congenitally deaf signers. **NeuroImage**, 117315.
- Sourav, S., Bottari, D., Shareef, I., Kekunnaya, R., & Röder, B. (2020). An electrophysiological biomarker for the classification of cataract-reversal patients: A case-control study.
   EClinicalMedicine (The Lancet), 27

- Rajendran SS, Bottari D, Shareef I, Pitchaimuthu K, Sourav S, Troje N, Kekunnaya R, and Röder B (2020) Biological action identification does not require early visual input for development.
   eNeuro
- Ricciardi E, Bottari D, Ptito M, Röder B, Pietrini1 P (2020) The sensory-deprived brain as a unique tool to understand brain development and function. Neuroscience & Biobehavioral Reviews 108, 78-82
- 19. Kabilan P, Suddha S, Bottari D, Seema B, Idris S, Ramesh K, Röder B (2019) Color vision in sight recovery individuals **Restorative Neurology and Neuroscience**, vol. 37, no. 6, pp. 583-590, 2019
- 20. Sourav S, Kekunnaya R, Shareef I, Banerjee S, Bottari D , Röder B (2019) A Protracted Sensitive Period Regulates the Development of Cross-Modal Sound–Shape Associations in Humans Psychological science
- 21. E Nava, D Bottari. Esperienze atipiche nel corso dello sviluppo (2019). Il Mulino
- Sourav S, Bottari D, Kekunnaya R, Röder B (2018) Evidence of a retinotopic organization of early visual cortex but impaired extrastriate processing in sight recovery individuals. Journal of Vision 18 (3), 22-22
- Bottari D, Kekunnaya R, Hense M, Troje NF, Sourav S, Röder B (2018) Motion processing after sight restoration: No competition between visual recovery and auditory compensation; NeuroImage 167, 284-296
- 24. Sürig R, Bottari D, Röder B (2017) Transfer of Audio-Visual Temporal Training to Temporal and Spatial Audio-Visual Tasks; **Multisensory Research**. 31,6:556-578
- Bottari D, Troje NF, Ley P, Hense M, Kekunnaya R & Röder (2016) Sight restoration after congenital blindness does not reinstate alpha oscillatory activity in humans. Scientific Reports April 2016;
- 26. Bottari D, Troje NF, Ley P, Hense M, Kekunnaya R & Röder (2015) The neural development of the biological motion processing system does not rely on early visual input. **Cortex** July 2015
- 27. Nava E, Bottari D, Villwock A, Fengler I, Büchner A, Lenarz T & Röder B. (2014) Audio-tactile integration in congenitally and late deaf cochlear implant users **PLoS ONE**. 2014 Jun 11;9(6):
- Hänel-Faulhaber B, Skotara N, Kügow M, Salden U, Bottari D & Röder B.(2014) ERP correlates of German Sign Language processing in deaf native signers. BMC Neuroscience. 2014 May 10;15:62.
- 29. Bottari D., Heimler B., Caclin A., Dalmolin A., Giard M.H. & Pavani, F., (2014) Visual change detection recruits auditory cortices in early deafness **NeuroImage**
- 30. Röder, B., Ley, P., Shenoy, BH, Kekunnaya, R. & Bottari D. (2013). Sensitive periods for the functional specialization of the neural system for human face processing. Proceedings of the National Academy of Sciences of the United States of America (PNAS), 201309963
- 31. Garrapa, L., Bottari, D., Grimaldi, M., Pavani, F. Calabrese, A., De Benedetto, M, Processing of/i/and/u/in Italian cochlear-implant children: a behavioral and neurophysiologic study. INTERSPEECH, 2272-2276
- 32. Ley, P., Bottari, D. Shenoy, B.H., Kekunnaya, R. & Röder, B (2013) Partial Recovery of visual-spatial remapping of touch after restoring vision in a congenitally blind man. **Neuropsychologia**

- 33. Pavani, F., & Bottari, D. (2012). Visual abilities in individuals with profound deafness: a critical review. In M. M. Murray & M. Wallace (Eds.), Frontiers in the Neural Bases of Multisensory Processes. Boca Raton, FL, USA: CRC Press
- 34. Bottari, D., Valsecchi, M. & Pavani, F., (2012). Prominent reflexive eye-movement orienting associated with deafness. **Cognitive Neuroscience**
- 35. Bottari, D., Caclin A., Giard, M.H. & Pavani F., (2011) Changes in early cortical visual processing predict enhanced reactivity in deaf individuals. **Plos ONE**
- 36. Bottari, D., Nava, E., Ley, P., & Pavani, F. (2010). Enhanced reactivity of profound deaf in detection and discrimination task. **Restorative Neurology and Neuroscience**, 28, 167-79.
- 37. Nava, E., Bottari, D., Bonfioli, F., Beltrame, M.A., & Pavani, F. (2009). Spatial hearing with a single cochlear implant: a study in prelingually deafened adult. **Hearing Research**, 255, 91-98.
- Nava, E., Bottari, D., Portioli, G., Bonfioli, F., Beltrame, M.A., Formigoni, P., & Pavani, F. (2009). Hearing again with two ears: Recovery of spatial hearing after bilateral cochlear implantation. Neuropsychologia, 47, 928-32.
- Bottari, D., Turatto, M., Bonfioli, F., Abbadessa, C., Selmi, S., Beltrame, M.A., & Pavani, F. (2008).
   Change blindness in profound deaf individuals and cochlear implant recipients. Brain Research, 1242, 209-218.
- 40. Nava, E., Bottari, D., Zampini, M., & Pavani, F. (2008). Visual temporal order judgment in profoundly deaf individuals. **Experimental Brain Research**, 190, 179-188.
- 41. Frassinetti F., Bolognini N., Bottari D., Bonora A., Làdavas E. (2005) Audiovisual integration in patients with visual deficit. **Journal of Cognitive Neuroscience** 17 (9), 1442-1452.

## Preprints

- Lettieri, G., Handjaras, G., Cappello, E. M., Setti, F., Bottari, D., Bruno, V., ... & Cecchetti, L. (2023). Abstract, modality-specific and experience-dependent coding of affect in the human brain. bioRxiv, 2023-08.
- Bednaya, E., Mirkovic, B., Berto, M., Ricciardi, E., Martinelli, A., Federici, A., Debener, S., & Bottari D. (2022). Early visual cortex tracks speech envelope in the absence of visual input. bioRxiv.
- Martinelli, A., Handjaras, G., Betta, M., Leo, A., Cecchetti, L., Pietrini, P., ... & Bottari, D. (2021). Auditory features modelling reveals sound envelope representation in striate cortex. bioRxiv, 2020-04.

### Invited seminars and oral presentations (short selection)

- June 2023 IMRF meeting Brussels (Belgium), talk at a symposium
- June 2023 IOP meeting Geneva (Switzerland), talk at a symposium
- May 2022 ICON meeting Helsinki (Sweden), talk at a symposium
- July 2022 IMRF meeting Ulm (Germany), talk at a symposium
- March 2021 CNS meeting San Francisco, USA (Virtual)

- March 2019 Louvain (Belgium). Invited talk at the Universitè Catholique de Louvain
- May 2019 Turin (Italy). Invited talk at University of Turin
- Jan 2019 Abu Dhabi (United Arab Emirates). Invited talk at New York University Abu Dhabi
- June 2018 Toronto (Canada). Talk at the symposium entitled Recovery from sight; International Multisensory Research Forum (IMRF)
- March 2018 Genova (Italy). Invited talk at Italian Institute of Technology (IIT)
- July 2016 Hyderabad (India) Invited talk at the IERG ARVO
- June 2015 Pisa (Italy) Bottari D, Troje NF, Ley P, Kekunnaya R, Röder B (2015). Oral presentation at International Multisensroy Research Forum
- September 2015 Liepzig (Germany), invited talk to the international conference of Mismatch Negativity (MMN)
- Prague 2013 (Czech Republic), invited talk at a symposium at the FENS meeting

## Contribution to conferences (for brevity here reported only talks and posters presented in 2022)

- Martina Berto, Emiliano Ricciardi, Pietro Pietrini, Davide Bottari. Interactions between auditory statistics processing and visual experience emerge only in late development (talk) IMRF 2022, Ulm
- Alessandra Federici, Marta Fantoni, Evgenia Bednaya. Francesco Pavani, Alice Martinelli, Emiliano Ricciardi, Elena Nava, Eva Orzan, Benedetta Bianchi, Davide Bottari. Neural tracking of speech envelope is delayed in cochlear implanted children (poster) SIPF 2022 Udine.
- Martina Berto, Emiliano Ricciardi, Pietro Pietrini, Davide Bottari. Cortical Response to Changes of Auditory Statistics: Local and Global representations (poster). ICON 2022 Helinski.
- Marta Fantoni, Alessandra Enrica Chiara Federici, Ivan Campogonara, Emiliano Ricciardi, Alice Martinelli, Elena Nava, Evgenia Bednaya, Davide Bottari. Decoding acoustic and visual features of continuous speech from EEG in children and adults (poster). ICON 2022 Helinski, IMRF 2022 Ulm and SIPF 2022 Udine.
- Alessandra Federici, Christopher R. Bennett, Corinna M. Bauer, Emiliano Ricciardi, Peter J. Bex, Lotfi Merabet, Davide Bottari. Impaired evoked and induced neural oscillations during visual search in cerebral visual impairment (poster). ICON 2022 Helinski and SIPF 2022 Udine.
- Alessandra Federici, Giulio Bernardi, Irene Senna, Marta Fantoni, Marc Ernst, Emiliano Ricciardi, Davide Bottari. Altered induced oscillatory activity by temporary monocular deprivation: distinct neural signatures for visual and audio-visual processing (poster). ICON 2022 Helinski and IMRF 2022 Ulm.
- Evgenia Bednaya, Bojana Mirkovic, Martina Berto, Emiliano Ricciardi, Martinelli Alice, Alessandra Federici, Stefan Debener, Davide Bottari. Neural speech tracking in the absence of visual input: Dark listening (poster). ICON 2022 Helinski and IMRF 2022 Ulm

## **Funded Projects**

Ongoing grants Ricerca corrente Hospital Burlo Garofalo Trieste (co-investigator), 60k Covid Grant University of Trento 2020 (co-investigator), 60k MIUR-PRIN Grant, Italian Government, 2017 (PI, responsabile di Unità), 120K; thanks to this grant I received the two-year renewal of the RTD-a contract at IMT School.

## **Completed** grants

Erasmus + teaching grant, 2017 MIUR-PRIN Grant, Italian Government, 2008 (co- investigator), 50K PAT-CRS-Funds, University of Trento, 2008 (co-investigator), 50k MIUR-PRIN Grant, Italian Government, 2006 (co- investigator), 41K

## **Editorial activity**

Academic editor for Neural Plasticity Journal and Frontiers in Psychology. Guest Editor for Neuroscience & Biobehavioral Reviews Ad hoc reviewer for scientific journals including Neuroimage, Cerebral Cortex, Current Biology, Communication Biology, Scientific Reports, Brain Research, Journal of Neuroscience, Journal of Psychophysiology, Plos One, Restorative Neurology and Neuroscience, Psychological Science, Neuropsychologia, Experimental Brain Research, and others.

### Workshop - Symposia organization

- The Blind Brain Workshop IMT School for Advanced Studies Lucca, 11-13 October 2018; Committee member, main organizer (120 attendees).
- Symposium organizer and speaker at the SIPF (Italian Society of Psychophysiology and Cognitive Neuroscience) November 2018. Symposium title: "Permanent or temporary sensory deprivation and functional development"
- Workshop on Nystagmus and Eye Movement Workshop 23-25 November 2016 L.V. Prasad eye Institute, Hyderabad India, main organizer.

# Workshop/Summer Schools participation

CuttingEEG 2021 Aix-en-Provence; Eye and Brain 2016 the University of Hamburg and LV Prasad Eye Institute. Workshop on Early Experience and Sensitive Periods in Development (Ettore Majorana Foundation) 2016. Workshop on sLORETA software, University of Hamburg 2015. Multisensory Perception Workshop, Munich 2013. FieldTrip 2012 workshop, University Clinic Hamburg-Eppendorf

## Awards

2009 - Best PhD Thesis University of Trento award.

2009 - Best PhD Thesis award in Cognitive Science, Italian association of PhD schools in Cognitive Sciences.

2007 - Nava, E., Bottari, D., Zampini, M., Pavani, F., 'Comparable visual temporal-orderjudgment abilities in profoundly deaf and normal-hearing individuals' PhD student award at International Multisensory Research Forum

2007 - Bottari D., Turatto M., Pavani F., 'Change Blindness in Profound deaf and Cochelar Implant patients',
Poster selected for oral presentation at the European workshop of Cognitive Neuroscience, Bressanone
2006 - Winner of Young researcher award, Italian Association of Psychology

## **Teaching and supervision**

- 2018-now: Course at the PhD Program in Neuroscience at IMT School for Advanced Studies Lucca, "Neural basis of Perception and experience-dependent plasticity" (48 h; PhD students)
- 2018-now: Courses at the PhD Program in Neuroscience at IMT School for Advanced Studies Lucca, "Introduction to Psychophysics" (12 h; PhD students)
- 2021-now: Course at the first level Master Scienze uditive dell'età evolutiva (translation: Auditory science of development) University of Perugia (Italy; Università degli Studi di Perugia Dipartimento Medicina e Chirurgia), "Psicologia della percezione" (17 hours + tutoring; master students)
- **PhD Advisor** (currently 6 PhD students, 2 already graduated Alice Martinelli and Evgenia Bednaya) and co-advisor (1) at the IMT School for Advanced Studies Lucca
- 2017: Erasmus + funds, teacher at the University of Hamburg of a course on Electrophysiology and Electrical Neuroimaging (8h)
- 2010-2016: Modules of the introduction to Cognitive Neuroscience Course at the University of Hamburg (master students)

Co-supervision of 4 PhD Research Projects, BPN University of Hamburg (with Brigitte Roder) Supervision of 2 international internships at the BPN University of Hamburg Organizer of methodological workshops within the BPN lab Formal Supervision of 2 bachelor and 1 master thesis, BPN University of Hamburg Informal Supervision of 2 bachelor and 1 master thesis, CIMEC, University of Trento

### **PhD Examiner**

2022 Université Catholique de Louvain (UCL), Belgium 2020 University of Bologna, spring session, Italy

### **Events organized**

"Il Cervello al Buio straordinarie esperienze con i sensi" (translation: the brain in the dark, extraordinary experiences with the senses) Lucca 2021 event for the Bright Night of the IMT School for Advanced Studies. Event for the public. Main organizer.

https://www.youtube.com/watch?v=lSfnupmIhhM

## Consultant activities for companies or public institutions

Tutor for pediatric Hospital Burlo Garofalo Trieste, within project "A.BA.CO - Abbattimento delle barriere comunicative a scuola" (translation: removing communicative barriers at school; project financed by the Presidenza del Cosiglio dei Ministri)

# Formal agreements as PI

I am PI and referent for 2 formal agreements with public institutions:

- Pediatric Hospital Meyer Florence (Approved by IMT Academic Senate in November 2021)

- Pediatric Hospital Burlo Garofalo Trieste (Approved by IMT Academic Senate in December 2021)

I contributed of the formal agreement between IMT School for Advanced Study Lucca and IRIFOR Toscana, the research branch of the Unione Italiana Ciechi e ipovedenti (UIC) signed in 2017.