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Fabrizio Leo

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WORK EXPERIENCE

04/05/2023 – 15/07/2023 Pisa, Italy
INTERNSHIP WEARABLE ROBOTICS SRL

analysis of kinematic and clinical data of 24 stroke patients who did a rehabilitation training using the exoscheletron ALEx designed for the rehabilitation of the upper limbs.

01/05/2020 – 30/06/2022 Genoa, Italy
VISITING SCIENTIST ISTITUTO ITALIANO DI TECNOLOGIA

design, implementation and execution of studies using an haptic device (iCube) to measure tactile and spatial skills in healthy and visually impaired persons - statistical analyses - scientific papers writing

01/04/2014 – 31/03/2020 Genoa, Italy
POSTDOC ISTITUTO ITALIANO DI TECNOLOGIA

design, implementation and execution of studies using a pin-array matrix (BlindPAD) designed to show graphical information to visually impaired persons - statistical analyses - scientific papers writing

01/09/2012 – 15/03/2014 Magdeburg, Germany
POSTDOC OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG

design, implementation and execution of psychophysical and neuroimaging (fMRI) studies to investigate multisensory perception in healthy persons - statistical analyses - scientific papers writing

14/06/2010 – 31/08/2012 Tubinga, Germany
POSTDOC MAX PLANCK INSTITUTE FOR BIOLOGICAL CYBERNETICS

design, implementation and execution of psychophysical and neuroimaging (fMRI) studies to investigate multisensory perception in healthy persons - statistical analyses - scientific papers writing

01/04/2009 – 31/05/2010 London, United Kingdom
HONORARY RESEARCH ASSOCIATE UNIVERSITY COLLEGE LONDON

design, implementation and execution of psychophysical studies to investigate perception in healthy persons - statistical analyses - scientific papers writing

01/02/2006 – 16/10/2009 Cesena, Italy
RESEARCH GRANT UNIVERSITÀ DI BOLOGNA – CENTRO STUDI E RICERCHE IN NEUROSCIENZE COGNITIVE

2005 – 2006 Livorno, Italy
WEB WRITER ASSOCIAZIONE COMUNICAREA

psychological articles of general interest (www.area57.it)

EDUCATION AND TRAINING

12/2022 – 07/2023 Italy

CERTIFICATE OF HIGHER TECHNICAL SPECIALIZATION AS A DESIGN, DEVELOPMENT, TESTING, AND MAINTENANCE SOFTWARE TECHNICIAN Associazione Itinera Formazione ETS

HTML · PHP · JavaScript · Java · C++ · Web App · Web Development · Marketing · SQL

Field of study Software and applications development and analysis | **Final grade** 95/100

10/2022 – 01/2023

GOOGLE DATA ANALYTICS Coursera

Excel, R, Tableau, Data cleaning, Data analysis, Data visualization

01/2022 – 01/09/2022

2° LEVEL MASTER IN "MACHINE LEARNING AND BIG DATA FOR PRECISION MEDICINE AND BIOMEDICAL RESEARCH" Università di Padova

Final grade Excellent |

Thesis Classification and prediction of cancer type using somatic mutation profiles and machine learning approaches

03/2020 – 06/2020

IBM DATA SCIENCE IBM on Coursera

Python, SQL, Machine learning, Data preparation, Data cleaning, Data analysis, Data visualization

01/2006 – 27/04/2009

PHD IN GENERAL AND CLINICAL PSYCHOLOGY Università di Bologna

Final grade Excellent | **Thesis** The role of the superior colliculus in spatial orienting

04/03/2005 – 27/05/2005

MASTER IN "INFORMATION TECHNOLOGY LAW" CSIG (Centro Studi Informatica Giuridica)

Copyright on the net, Computer crimes, Open source, Cybersecurity

2003 – 2004

COURSE IN "EVALUATION AND DEVELOPMENT OF HUMAN RESOURCES" Università di Firenze

personnel selection, aptitude tests, individual and group interview

1997 – 2003

DEGREE AND GENERAL AND EXPERIMENTAL PSYCHOLOGY Università di Firenze

Final grade 110/110 cum laude

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	C2	C1	C1	C2

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

DIGITAL SKILLS

Operative Systems

Windows | Android

Programming languages

Matlab | R | – C, C++ , JAVASCRIPT, CSS3, HTML5, PYTHON, PHP | Psychtoolbox | Python

Graphical software

GIMP 2 | Adobe (Adobe Photoshop, Adobe Lightroom, Adobe Premiere, Adobe Bridge, Adobe)

Social networks

Whatsapp | Social media/social Networks

Other software

SPM8 | Software Statistica 8.0 per Windows (StatSoft Inc., Tulsa, USA) | Conoscenza di software per la gestione di riferimenti bibliografici (Mendeley)

Office Tools

Libreoffice package | Microsoft Office package: Microsoft Word, Excel, PowerPoint, Access

ADDITIONAL INFORMATION

PUBLICATIONS

Early blindness modulates haptic object recognition – 2022
Journal paper

Frontiers in Human Neuroscience

Combined spatial and frequency encoding for electrotactile feedback of myoelectric signals – 2022
Journal paper

Experimental Brain Research

Mental rotation skill shapes haptic exploration strategies – 2022
Journal paper

IEEE Transactions on Haptics

Non informative vision improves spatial tactile discrimination on the shoulder but does not influence detection sensitivity
– 2020
Journal paper

Experimental Brain Research

Temporal Asynchrony but Not Total Energy Nor Duration Improves the Judgment of Numerosity in Electrotactile Stimulation
– 2020
Journal paper

Frontiers in Bioengineering and Biotechnology

Enhancing general spatial skills of young visually impaired people with a programmable distance discrimination training: a case control study
– 2019
Journal paper

Journal of NeuroEngineering and Rehabilitation

Improving spatial working memory in blind and sighted youngsters using programmable tactile displays
– 2018
Journal paper

SAGE Open Medicine

Updated tactile feedback with a pin array matrix helps blind people to reduce self-location errors – 2018
Journal paper

Micromachines

The effect of programmable tactile displays on spatial learning skills in children and adolescents of different visual disability
– 2017
Journal paper

IEEE Transactions on Neural Systems and Rehabilitation Engineering

Conditioned sounds enhance visual processing – 2014
Journal paper

PLOS One

Looming sounds enhance orientation sensitivity for visual stimuli on the same side as such sounds – 2011
Journal paper

Experimental Brain Research

Independent mechanisms for ventriloquism and multisensory integration as revealed by theta-burst stimulation
– 2010
Journal paper

European Journal of Neuroscience

Temporo-nasal asymmetry in multisensory integration mediated by the superior colliculus – 2008
Journal paper

Brain Research

Cross-modal localization in hemianopia: new insights on multisensory integration – 2008
Journal paper

Brain

Multisensory integration for orienting responses in humans requires the activation of the superior colliculus
– 2008
Journal paper

Experimental Brain Research

Multisensory-mediated auditory localization – 2007
Journal paper

Perception

The contribution of prefrontal cortex to global perception – 2007
Journal paper

Experimental Brain Research

Maps as ability amplifiers: using graphical tactile displays to enhance spatial skills in people who are visually impaired

– 2020
Book chapter

In: Haptic Interfaces for Accessibility, Health, and Enhanced Quality of Life. Springer, Cham

A refreshable tactile display effectively supports cognitive mapping followed by orientation and mobility tasks. A comparative multi-modal study involving blind and low-vision participants

– 2019
Conference paper

In: 2019 Workshop on Multimedia for Accessible Human computer Interface,October 25,2019,Nice,France

Blind persons get improved sense of orientation and mobility in large outdoor spaces by means of a tactile pin-array matrix

– 2019
Conference paper

In: CHI'19 Workshop on Hacking Blind Navigation, May 04, 2019, Glasgow, Scotland

Tactile symbol discrimination on a small pin-array display – 2018
Conference paper

In: 2018 Workshop on Multimedia for Accessible Human Computer Interface,October 22,2018,Seoul,Korea

Study of static tactile detection threshold via pneumatically driven polydimethylsiloxane membrane

– 2014
Conference paper

Proc. of Workshop TacTT2014 (held conjunction of ACM ITS2014), Dresden, Germany

NETWORKS AND MEMBERSHIPS

Società Italiana di Neuropsicologia (SINP)

CONFERENCES AND SEMINARS

05/03/2019 – Genoa, Italy
Innovation in Rehabilitation Technologies **talk** "Blind persons get improved sense of orientation and mobility in large outdoor spaces by means of a tactile pin-array matrix"

19/09/2018 – 21/09/2018 – Lausanne, Switzerland
Limitless! Augmentation of Brain Function **poster** "Towards autonomous rehabilitation: repeated tactile feedback can improve the construction of cognitive maps prior to exploration in visually impaired persons"

27/03/2017 – San Francisco, USA
Cognitive Neuroscience Society Annual Meeting (CNS 2017) **poster** "Improving visuo-spatial abilities in blind youngsters using programmable tactile displays"

08/10/2016 – Torino, Italy
XXV Congresso Nazionale AIRIPA **talk** "BlindPAD: proposta di uno strumento per incrementare le abilità visuo-spaziali nei non vedenti"

06/06/2016 – Paris, France
The European Workshop on Imagery and Cognition (EWIC 2016) **poster** "Recalling graphical traits with programmable tactile displays improves spatial abilities in young visually impaired persons"

24/10/2015 – Genoa, Italy
Festival della Scienza **talk** "Tecnologia a supporto della disabilità"

31/08/2015 – 02/09/2015 – Arenzano, Italy
RIC – IIT Workshop on Robotic and Interactive Technologies for Neuroscience and Neurorehabilitation **poster** "On evaluating usability of a touch-based tablet for blind and severely visually impaired children"

04/07/2013 – Magdeburg, Germany
Masterkolloquium Klinische und Kognitive Neurowissenschaft talk "Insights on the role of the superior colliculus in human multisensory integration"

06/2013 – Jerusalem, Israel
International Multisensory Research Forum 2013 (IMRF) poster "Temporal expectancy selectively enhances audiovisual target detection"

18/11/2011 – 19/11/2011 – Bologna, Italy
SINP Annual Meeting talk "Monetary conditioning influences audio-visual integration by increasing sound saliency"

10/2011 – Fukuoka, Japan
International Multisensory Research Forum 2011 poster "Conditioning influences audio-visual integration by increasing sound saliency"

25/01/2009 – 31/01/2009 – Bressanone, Italy
workshop on Cognitive Neuropsychology
talk "Independence of visual bias and audio-visual integration"

16/07/2008 – 19/07/2008 – Hamburg, Germany
International Multisensory Research Forum 2008 (IMRF) poster "Temporo-nasal asymmetry in multisensory integration mediated by the superior colliculus"

09/05/2008 – 10/05/2008 – Bologna, Italy
SINP annual meeting annuale talk "Multisensory integration in humans requires the activation of the superior colliculus"

21/01/2007 – 26/01/2007 – Bressanone, Italy
workshop on Cognitive Neuropsychology talk "Cross-modal localization in hemianopia"

18/10/2006 – 20/10/2006 – Toulouse, Italy
2nd meeting of the European Societies of Neuropsychology poster "Multisensory-mediated auditory localization in hemianopic patients"

18/06/2006 – 21/06/2006 – Dublin, Ireland
International Multisensory Research Forum 2006 (IMRF) poster "Multisensory-mediated auditory localization"

01/09/2003 – 05/09/2003 – Paris, France
European Conference on Visual Perception (ECVP) poster "Disambiguation of motion direction by first-order and second-order motion mechanisms"

PROJECTS

2023
Physical activity and sleep patterns of Fitbit users This project aimed at identifying active and sedentary Fitbit users based solely on output data of the smartwatch. Then, I compared activity and physiological data (heart rate, calories, etc.) of the two groups and investigated the relationship between physical activity and sleep.

Link https://github.com/leofabrizio/fitbit_google_data_analytics

2022
Classification and prediction of cancer type using somatic mutation profiles and machine learning approaches The project aimed at answering to three different questions, i.e.:

1) Is it possible to predict cancer type based on genes with somatic mutation in a patient?
2) Is there a «small» set of genes having a good predictive power, or at least as good as the entire set of genes?
3) Does the patient grouping based on similarity of mutated genes reflect the grouping based on cancer type?

This project was done and defended as a requirement for the 2nd level Master in "Machine learning and big data for precision medicine and biomedical research" of the Università degli Studi di Padova, Italy.

Link https://github.com/leofabrizio/somatic_mutation_ml

2021
Clustering Neighborhoods The project, entirely written in Python, attempted to find an optimal location for a new Japanese restaurant in London based on density data. Using a combination of basic statistics and machine learning (i.e. cluster analysis), I identified and selected neighborhoods with very few restaurants, no japanese restaurants and close to the city center.

Link https://github.com/leofabrizio/clustering_neighborhoods

COMMUNICATION AND INTERPERSONAL SKILLS

Scientific writing First author of 10 out of 17 scientific papers published in peer-reviewed journals

TEACHING EXPERIENCE

10/2021
Università di Genova – Degree in Biomedical Engineering – Co-supervisor of bachelor degree theses of candidates Andrea Giuseppe Pietro Manera and Lorenzo Benedetti

2018 – 2021
Università di Genova – Phd program in Robotics and Bioengineering – Dipartimento di Informatica, Bioingegneria, Robotica, Ingegneria di Sistema DIBRIS – co-supervisor of PhD thesis of Sara Nataletti

2015 – 2016
Università di Torino – Psychology Department – Master thesis co-supervisor of Caterina Baccelliere

07/2008
Università di Bologna – Corso di Laurea in Scienze del comportamento e delle Relazioni Sociali - Facoltà di Psicologia - Co-supervisor of bachelor thesis of Noemi Mazzoni

2006 – 2007
Università di Bologna – Tutor and support of teaching activities in "Rehabilitation techniques of cognitive deficits"

PARTICIPATION IN INTERNATIONAL RESEARCH PROJECTS

05/2020 – 06/2022
European Research Council ERC - investigating Human Shared PErception with Robots (wHiSPER) - Grant agreement ID: 804388

04/2014 – 05/2017
European Commission FP7-ICT Personal Assistive Device for BLIND and visually impaired people (BLINDPAD) - Grant agreement ID: 611621

AD HOC REFEREE FOR

Ad hoc reviewer for the following peer-reviewed journals:

Experimental Brain Research, Cerebral Cortex, Neuroimage, PLOS One, Frontiers in Integrative Neuroscience,
Frontiers in Computational Neuroscience, Multisensory Research, Transactions on Haptics, Health Expectations,
Universal Access in the Information Society, SAGE Open

ASSOCIATE EDITOR FOR

SAGE Open