



Tommaso Ghilardi, PhD

Developmental scientist
Data scientist

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- DevStart

Short Bio

I hold a Ph.D. in developmental science with a strong focus on analyzing complex, real-world data, exploring the stories behind the data, and deriving actionable insights through advanced statistical analysis and computational modeling.

I am passionate about sharing knowledge and translating detailed analyses into clear, accessible insights for diverse audiences. To further this, I created **DevStart**, a website where I share simple tutorials to help others understand and apply what I have learned over the years.

Profiles



Skills

Programming:

- R
- Python
- Matlab

Misc:

- Github
- Quarto
- Jupyter lab
- Photoshop
- Illustrator
- MsOffice

Experiences

2023 –

Post-doctoral Researcher

Birkbeck, University of London

In my role as a post-doctoral researcher, I have led the analysis of large, complex datasets while overseeing multiple projects and mentoring PhD students.

- **Advanced Data Analysis:** Applied statistical methods and machine learning to analyze high-dimensional datasets, driving key research insights.
- **Project Supervision:** Managed multiple research projects, ensuring timely delivery and providing guidance to PhD students.
- **Collaboration:** Worked with interdisciplinary teams to design and implement research protocols.
- **Mentorship:** Supervised and mentored PhD students, supporting their research and professional growth.

Advanced Data Analysis

Machine Learning

Project Supervision

Mentorship

High-dimensional Data

2018 – 2023

Ph.D.

Donders Center for Cognition, Netherlands

Led several projects from concept to completion, combining behavioral and neuroimaging data to derive actionable insights and predictive models for human behavior.

- **Project Leadership:** Led projects from research question to data collection, analysis, and presentation (EEG, fNIRS, eye-tracking).
- **Data Analysis:** Developed statistical tools like mixed-effect models and predictive models to analyze large datasets.
- **Communication:** Presented findings clearly to both technical and non-technical stakeholders, ensuring wider impact.

Pre-processing

Linear Mixed Effect Models

Predictive Models

Communication

Project Management

2015 – 2018

Intern

Affiliative Behavior and Physiology Lab

I contributed to research on social interactions and behavior, applying physiological data analysis techniques.

- Collecting and analyzing physiological data (ECG, EMG, EDA) and integrating it with behavioral data to identify patterns and insights.
- Supporting projects that explored the link between physiological responses and social behaviors.

Data Integration

Physiological Analytics

Human Behavior Insights

2016 – 2017

Thesis Research, Erasmus+ Japan

Nagasaki University, Japan

I applied data analysis and experimental design to investigate how ethnicity impacts emotional face recognition. Key activities included:

- Analyzed EEG, ECG, and behavioral data to identify patterns in emotional processing and recognition.
- Designed experiments on ethnicity's role in face recognition, providing insights for user experience and design.

Data Analysis

Experimental Design

Cross-Cultural Insights

Analysis

Frequentist ● ● ● ● ●

- Linear Models
- Generalized Linear Models
- Mixed Effects Models
- Generalized Additive Models

Bayesian ● ● ● ● ●


- Linear Models
- Generalized Linear Models
- Mixed Effects Models
- Generalized Additive Models
- Non-Linear Models

Machine Learning ● ● ● ● ●

- Random Forest
- Kmeans Clustering
- Dirichlet Clustering

Languages

Italian (Mother Tongue)



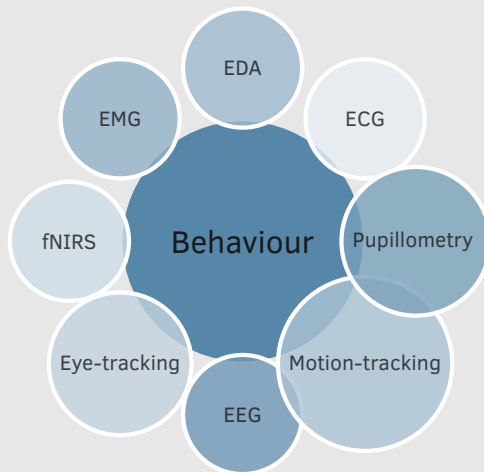
English (C2)



Dutch (A2)



Methods



Givens workshops

2024

BTG Workshop

Max Planck Institute for Evolutionary Anthropology

Delivered the workshop *"Gaze Tracking & Pupilometry"* for the 2nd Bridging the Technological Gap Workshop.

Python

Eye-Tracking

Pre-processing

Psychopy

2024

BCCCD Workshop

Budapest CEU Conference on Cognitive Development

Delivered the workshop *"Python Fundamentals for Eye-Tracking Research"* at the BCCCD.

Python

Eye-Tracking

Pre-processing

Paradigm creation

Education

2016 – 2018

M.Sc. Psychology-Neuroscience

Trento University, Italy

Thesis title: Ethnicity and gender modulate the recognition of emotional facial expressions.

Grade: First Class Honours.

2013 – 2016

B.Sc. Sciences and Techniques of Cognitive Psychology

Trento

University, Italy

Teaching Experience

Radboud University

Thesis Supervision

2021 – 2022

Supervision of 3 master's students in the preparation of their theses.

Radboud University

Teacher Assistant - Brain & Cognition 1

2020 – 2021

Supervised groups of students, guiding them through work-group material and administering tests. The course provided insight into how cognitive behaviors and processes are explained by brain functions

Radboud University

Assistant - Developmental Cognitive Neuroscience EEG Hands-on Session

2020 – 2021

Assisted during the EEG hands-on session led by Sabine Hunnius. The class provided an introduction to EEG analysis for adult and infant EEG signals.

Trento University

Lesson Organizer - Developmental Clinical Neuroscience

2017

Organized course material under the supervision of Professor Gianluca Esposito. The class introduced Social and Affective Neuroscience and provided multidisciplinary knowledge of physiological mechanisms underlying social interaction.

Trento University

Lesson Organizer - Social and Affective Neuroscience (SAN)

2016

Organized course material under the supervision of Professor Gianluca Esposito. The class introduced Social and Affective Neuroscience, and improved students' skills in human physiology research. Lecture given: *"Processing Infant Direct Speech"*.