

WORK EXPERIENCE

07/2023 – Present day

Data Scientist at Data Science for Health (DSH) Unit, Fondazione Bruno Kessler (FBK). Research project: “Digital Driven Diagnostics, prognostics and therapeutics for sustainable Health care (D³4Health), founded by the National Plan for NRRP Complementary Investments. I am currently involved in several projects aimed at applying AI algorithms (**Machine Learning** and **Deep Learning**) to **healthcare data** (EHR, neuroimaging, digital pathology images), with the goal of developing innovative AI-powered solutions to improve diagnosis, treatment and therapy of 5 reference diseases (metastatic colon cancer, liver and bile duct cancer, central nervous system cancer, diabetes type I and multiple sclerosis).

04/2021 – 07/2023

Data Management Analyst at Allitude S.p.A. I am currently involved in a project aimed at creating an **enterprise data catalog** mapping all digital assets within the company, increasing data governance capabilities. I gained a good knowledge of data management tools through specialized courses (ATTACHMENT 3), and I developed several **ETL projects in Python** aimed at automating different tasks, leveraging on **SQL** tables and **Rest APIs**.

05/2019 – 04/2021

Postdoctoral researcher at Center for Mind Brain Science (CIMEC), University of Trento. Research project: European Research Council (ERC) Advanced Grant n. 339939 “Perceptual Awareness in the Reorganizing Brain”, financed by the European Research Council. I independently conducted a functional magnetic resonance (**fMRI**) study on visual mental imagery in healthy participants. I analysed fMRI data using univariate, **machine learning** and resting state techniques and I contributed to the communication of results (ATTACHMENT 1 and 2). I collaborated with **clinical stakeholders** in defining screening protocols for recruitment and patients’ selection. I supervised internship students guiding them in the acquisition of new skills.

11/2015 - 04/2019

PhD in Cognitive and Brain Sciences, Center for Mind Brain Science (CIMEC), University of Trento. Research project: European Research Council (ERC) Advanced Grant n. 339939 “Perceptual Awareness in the Reorganizing Brain”. I independently conducted four research projects on both healthy participants and clinical populations using different techniques (**fMRI**, **eye-tracking**). I gained experience in data analysis, machine learning and data visualization using different softwares. I’ve been actively involved in screening hemianopic patients as part of a multidisciplinary team including clinicians, neuroscientists and technicians. I wrote scientific papers (ATTACHMENT 1) and presented the results of my scientific work in several national and international conferences (ATTACHMENT 2).

09/2014 - 03/2015 Post Lauream internship at Center for Mind and Brain Science (CIMEC), University of Trento. I independently conducted an eye-tracking study, gained a basic knowledge of neuroimaging data analysis using different software and basic skills of Matlab programming. I contributed to fMRI data collection.

EDUCATION

2015 - April 2019 PhD in Cognitive and Brain Sciences, Center for Mind Brain Science (CIMEC), University of Trento. Supervisor: Prof. Angelika Lingnau.

2012 - 2014 Master degree in Neuroscience and Neuropsychological Rehabilitation, Psychology Department, Alma Mater Studiorum – University of Bologna.

2008 - 2011 Bachelor's degree in Psychology, Università Cattolica del Sacro Cuore.

2008 High school diploma, Liceo Scientifico Annibale Calini

HONOURS AND AWARDS

2020 Research fellowship extension at Center for Mind and Brain Science (CIMEC), research project: ERC Advanced grant n. 339939 "Perceptual awareness the reorganizing brain", financed by the European Research Council (27.100,00 Euro).

2019 Research fellowship at Center for Mind and Brain Science (CIMEC), research project: ERC Advanced grant n. 339939 "Perceptual awareness the reorganizing brain", financed by the European Research Council (27.100,00 Euro).

2017 Best poster award at Cognitive Science Arena, Brixen (Italy). Title: *An eccentricity effect for different stimulus categories during visual imagery* (150 Euro).

2015 PhD scholarship financed by University of Trento. Doctoral school in Cognitive and Brain Sciences (CIMEC) (40.915,41 Euro)

FOREIGN LANGUAGES

English: Excellent written and spoken knowledge, acquired during the PhD in cognitive and Brain Science at CIMEC (Doctoral School official language: English).

French: Basic knowledge.

DIGITAL SKILLS

Programming languages	Excellent programming experience in Matlab and Python . Good knowledge of Bash Shell/Unix and command line interfaces. Good software versioning skills using Git .
Machine Learning	Good experience in supervised (linear regression, logistic regression, Support Vector Machines, Random Forest, XGBoost, Neural Networks, Deep Neural Networks) and unsupervised (K-Means, Gaussian Mixture Model, Principal Component Analysis) machine learning (ATTACHMENT 3), using different libraries and toolboxes (pyTorch , CoSMoMVPA , Scikit-learn , Numpy , Matlab). Good knowledge of Pandas . Basic knowledge of SQL and Google BigQuery .
Neuroimaging data	Excellent medical imaging (DICOM , NiftI) data analysis and visualization skills, using different softwares (FSL , SPM , BrainVoyager , MRICro).
Statistical data analyses	Excellent statistical data analysis skills using different software and libraries (SPSS , Matlab , Scipy , Numpy).
Data visualization	Excellent data visualization skills in Python (Matplotlib , Seaborn , Dash/Plotly) and Matlab .

RELATIONAL SKILLS

Team-oriented personality.

Excellent relational and communication skills, both with coworkers and supervisors.

Excellent supervisory and mentoring skills.

ATTACHMENT 1

SCIENTIFIC PUBLICATIONS

- Ragni, F.**, Lingnau, A. & Turella, L. (2021). Decoding category and familiarity information during visual imagery. *NeuroImage*, 241. <https://doi.org/10.1016/j.neuroimage.2021.118428>
- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2020). Decoding stimulus identity in occipital, parietal and inferotemporal cortices during visual mental imagery. *Cortex*, 127, 371-387. <https://doi.org/10.1016/j.cortex.2020.02.020>
- Andersson, P., **Ragni, F.**, & Lingnau, A. (2019). Visual imagery during real-time fMRI neurofeedback from occipital and superior parietal cortex. *Neuroimage*, 200(15), 332-343. <http://doi.org/10.1016/j.neuroimage.2019.06.057>

PUBLISHED ABSTRACTS

- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2018, June) - "Shared representations for observed and imagined stimuli". Organization for Human Brain Mapping (OHBM) Annual Meeting 2019 - Singapore (SGP).

ATTACHMENT 2

CONFERENCES

- Ragni, F.**, Lingnau, A. & Turella, L. (2019, November) - "Decoding identity, but not familiarity, of imagined stimuli in early visual cortex". Talk at Società Italiana di Psicofisiologia (SIPF) Annual Meeting 2019 - Ferrara (IT).
- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2018, June) - "Shared representations for observed and imagined stimuli". Poster presentation at Organization for Human Brain Mapping (OHBM) Annual Meeting 2018 - Singapore (SGP).
- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2018, June) - "The neural correlates of visual mental imagery". Talk at the Cognitive Science Arena (CSA) - Free University of Bozen (IT).
- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2017, November) - "The neural correlates of visual mental imagery". Poster presentation at Low Vision and the Brain - Berlin (DE).
- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2017, May) - "An eccentricity effect for different stimulus categories during visual imagery - Poster presentation at Research in Imagery and Observation (RIO) Group Meeting - University of Roehampton (UK).
- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2017, November) - "An eccentricity effect for different stimulus categories during visual imagery". Poster presentation at Concepts, Actions and Objects (CAoS) - University of Trento (IT).
- Ragni, F.**, Tucciarelli, R., Andersson, P. & Lingnau, A. (2017, February) - "An eccentricity effect for different stimulus categories during visual imagery". Poster presentation at the Cognitive Science Arena (CSA) - Free University of Bozen (IT).

Cashdollar, N., **Ragni, F.**, Tucciarelli, R., & Lingnau, A. (2015, May) - "Explicitly directing the topography of neural oscillations during visual imagery". Poster presentation at Concepts, Actions and Objects (CAoS) - University of Trento (IT).

ATTACHMENT 3

ADDITIONAL TRAINING

2022	Data Modeling Fundamentals. Technology Transfer, November 2022. Machine Learning e Advanced Analytics. Technology Transfer, June 2022. Data Governance and Data Quality - Advanced Course, CeTIF - Università Cattolica del Sacro Cuore di Milano, March 2022.
2021	Axon Content Curation, Informatica University, May 2021. Axon for Power Users, Informatica University, May 2021. Data Discovery and Advanced Profiling, Informatica University, May 2021.
2020	Mathematics for Machine Learning, Imperial College London (via Coursera.com), October 2020. Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization, deeplearning.ai (via Coursera.com), May 2020. Structuring Machine Learning Projects, deeplearning.ai (via Coursera.com), May 2020. Neural Networks and Deep Learning, deeplearning.ai (via Coursera.com), April 2020. Machine Learning, Stanford University (via Coursera.com), March 2020.
2017	International Max Planck Research School on Neuroscience of Communication: Function, Structure, and Plasticity (7th IMPRS NeuroCom 2017), University College London (UCL), London (UK).
2016	CoSMoMVPA: a multi-modal/ivariate pattern analysis toolbox in Matlab (Tutorial). International workshop on Pattern Recognition in Neuroimaging (PRNI 2016), Fondazione Bruno Kessler, Trento (Italy).