Giovanni Federico, PhD (he/him)

Psychologist · Cognitive Neuroscientist
Tenure-track Assistant Professor of Cognitive Neuroscience
Suor Orsola Benincasa University (UNISOB), Naples (NA), Italy (IT)
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I am a young (36-year-old) **psychologist** and **cognitive neuroscientist** exploring how the human brain supports our interaction with both the physical and technological world.

RESEARCH FOCUS

Within the Laboratory of Experimental Psychology and Cognitive Neuroscience at UNISOB (NA, Italy), I lead the programme on **Technological Cognition** and **Action & Physical World Understanding**. My work integrates **behavioural paradigms** with **neuroimaging** (EEG and fMRI) and **clinical/experimental neuropsychology** to map how the human brain produces **technological cognition**, **action/physical understanding**, and **cultural learning**. I supervise all neuroimaging activities in the lab and coordinate collaborations with international partners. I also manage the lab's digital presence and content dissemination.

SKILLS IN KEYWORDS

Cognitive neuroscience · Experimental psychology · Neuropsychology · Human–technology interaction · Technological cognition Neuro-ergonomics · fMRI · EEG/ERP · Eye-tracking · Experimental design · Multivariate statistics · GLMM Bayesian inference · Machine learning · Python · MATLAB · R · PHP · MySQL · Web development · Cognitive and neuropsychological assessment · Teaching and supervision · Scientific writing · Grant writing · Public engagement

PROFESSIONAL EXPERIENCE

November 2024 - To date	**Tenure-track Assistant Professor of Cognitive Neuroscience** Suor Orsola Benincasa University (Naples, Italy) https://www.unisob.na.it/universita/areadocenti/docente.htm?vr=1&id=859
July 2021 – October 2024	**Adjunct Professor of Cognitive Neuroscience** Suor Orsola Benincasa University (Naples, Italy)
December 2020 - October 2024	**Senior Researcher** IRCCS SYNLAB SDN, Naples (Italy)
April 2020 - To date	**Psychologist** Order of Psychologists of the Campania Region (Italy) Registration no. 8692
March 2021 - August 2022	**Postdoctoral Researcher** Laboratory for the Study of Cognitive Mechanisms (EMC EA 3082) University of Lyon (France)
November 2009 - October 2012	**Scientific Advisor** IRCSIA - Research Institute for Applied Statistics and Informatics (Naples, Italy)
November 2009 - October 2012	**IT Consultant** IT Consulting – Software & Web Engineering – Internetworking Services

EDUCATION

September 2021 – To date
Postgraduate School in Systemic-Relational Psychotherapy (4th year)
ISPPREF – Institute of Psychology and Family/Relational Psychotherapy, Naples (IT)

October 2017 – December 2020
Ph.D. in Experimental Psychology and Cognitive Neuroscience
Suor Orsola Benincasa University (Naples, Italy)
Degree obtained in November 2020 with a rating of Excellence

October 2015 – September 2017
Master's degree in Neuropsychology
University of Lille 3 "Charles de Gaulle" (Lille, France) - Double Degree

October 2015 – September 2017
Master's degree in Cognitive Psychology
University of Campania "Luigi Vanvitelli" – Double Degree
Degree obtained in September 2017 with a mark of 110/110 cum laude

October 2012 – July 2015
Bachelor's degree in Psychology
University of Naples "Federico II" (Naples, Italy)
Degree obtained in July 2015 with a mark of 110/110 cum laude

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	Comprehension		Spoken		Written
	Listening	Reading	Interaction	Oral production	
English	B2	B2	B2	B2	B2
Pearson EDI Jetset 601/5625/9 CEFR B2 Certification					

Communication
- I have developed the ability to adapt to multicultural environments through my experiences studying and working abroad.
- I possess strong communication skills in both Italian and English languages.

Organisation and Management
- Organisational skills
- Experience in planning and project management
- Leadership and initiative

Digital skills

Self-assessment				
Information processing	Communication	Content Creation	Security	Troubleshooting
Advanced	**Advanced**	**Advanced**	**Advanced**	**Advanced**

IT skills
- **Operating Systems**: macOS, Microsoft Windows, GNU/Linux
- **Productivity Software**: Microsoft Office, Google Workspace, OpenOffice
- **Multimedia Production**: Adobe Creative Suite, GIMP, Audacity

- **Programming Languages**: Python, MATLAB, C, PHP
- **Web Development**: HTML, CSS, JavaScript, AJAX, PHP-MySQL
- **Databases (DBMS)**: MySQL (Oracle), MariaDB, MongoDB
- **Research Software**: PsychoPy, E-Prime, OpenSesame, Psychtoolbox, FMRIB Software Library (FSL), SPM, CONN Toolbox, Nilearn, R, EyeTrackingR, SPSS
- **3D Graphics and Visualization**: Google SketchUp, Blender
- **Hardware & Software Prototyping**: Experience with platforms for cognitive neuroscience and experimental neuropsychology, including brain–computer interfaces and systems for physiological data acquisition (*e.g.*, Arduino, OpenBCI, Raspberry Pi, BITalino)

Driving licence A e B (Europe)

COMPETITIVE EXAMS & QUALIFICATIONS

December 2023 *Italian National Scientific Qualification (ASN), Associate Professor*
General Psychology, Neuropsychology, Cognitive Neuroscience and Psychometrics (SSD PSIC-01)
Ministry of Universities and Research (Rome, Italy)

June 2025 *Eligibility in national public competition*
National Research Council, Researcher – Level III
Call no. "367.227 RIC" (Italian Official Gazette no. 28, 08/04/2022)
Formal appointment letter issued on 30/06/2025
Voluntary renunciation of the position

TEACHING | giovannifederico.net/teaching

- **FOUNDATIONS OF COGNITIVE NEUROSCIENCE** | 2025 – to date
  Course Credits: 6 Italian CFU (Equivalent to 6 ECTS)
  Subject Area: Cognitive Neuroscience – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/B
  Degree Program: Master's degree in psychology: Human Resources, Cognitive Ergonomics, Cognitive Neuroscience. Curriculum in Cognitive Neuroscience.
  Institution: Suor Orsola Benincasa University, Naples, Italy

- **COGNITIVE NEUROSCIENCE (ADVANCED COURSE)** | coming in 2026
  Course Credits: 6 Italian CFU (Equivalent to 6 ECTS)
  Subject Area: Cognitive Neuroscience – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/B
  Degree Program: Master's degree in psychology: Human Resources, Cognitive Ergonomics, Cognitive Neuroscience. Curriculum in Cognitive Neuroscience.
  Institution: Suor Orsola Benincasa University, Naples, Italy

- **NEURAL BASES OF COGNITION** | 2022 – to date
  Course Credits: 5 Italian CFU (Equivalent to 5 ECTS)
  Subject Area: Psychobiology – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/B
  Degree Program: Bachelor's degree in Cognitive Psychology Sciences and Techniques
  Institution: Suor Orsola Benincasa University, Naples, Italy

- **NEUROCOGNITIVE FOUNDATIONS OF TECHNOLOGICAL EVOLUTION** | 2022 – to date
  Subject Area: Cognitive Neuroscience – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/A
  Doctoral Research Program: Humanities and Technologies: An Integrated Research Path, Curriculum in Cognitive Psychology and Ergonomics
  Seminar Activities: 8 to 12 hours
  Institution: Suor Orsola Benincasa University, Naples, Italy

- **NEURAL CORRELATES OF COGNITIVE AND AFFECTIVE PROCESSING** | 2021 – 2025
  Course Credits: 6 Italian CFU (Equivalent to 6 ECTS)
  Subject Area: Cognitive Neuroscience – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/A
  Degree Program: Master's degree in psychology: Human Resources, Cognitive Ergonomics, Cognitive Neuroscience. Curriculum in Cognitive Neuroscience.
  Institution: Suor Orsola Benincasa University, Naples, Italy

- **PSYCHOLOGY OF LEARNING AND MEMORY** | 2022
  Course Credits: 1 Italian CFU (Equivalent to 1 ECTS)
  Subject Area: Cognitive Psychology – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/A
  Degree Program: Bachelor's degree in Cognitive Psychology Sciences and Techniques (L-24)
  Institution: Suor Orsola Benincasa University, Naples, Italy

- **GENERAL PSYCHOLOGY** | 2025
  Course Credits: 5 Italian CFU (Equivalent to 5 ECTS)
  Subject Area: Cognitive Psychology – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/A
  Degree Program: Bachelor's degree in Cognitive Psychology Sciences and Techniques (L-24)
  Institution: Suor Orsola Benincasa University, Naples, Italy

- **OBJECT RECOGNITION: COGNITIVE AND NEURAL BASES (SEMINARS)** | 2021 – to date
  Course Credits: 1 Italian CFU (Equivalent to 1 ECTS)
  Subject Area: Cognitive Psychology – Italian Scientific-Disciplinary Sector (SSD): PSIC-01/A
  Seminar activities within the courses *Cognitive Psychology* and *Psychology of Learning and Memory* (Prof. Maria Antonella Brandimonte) at the Master's and Bachelor's levels.
  Institution: Suor Orsola Benincasa University, Naples, Italy

THESES SUPERVISION | giovannifederico.net/people

PHD STUDENTS

- **Valerio Elia** – PhD candidate, National Doctoral Programme *"Humanities and Technologies: An Integrated Research Path"* (Curriculum in Psychology and Cognitive Ergonomics), Suor Orsola Benincasa University of Naples. His research investigates the neurocognitive foundations of physical reasoning and extends into comparative perspectives through animal cognition studies, in collaboration with international universities. The project integrates behavioural paradigms and cross-species approaches to explore the evolution of technical and problem-solving abilities.
- **Luigi Valio** – PhD candidate, National Doctoral Programme *"Humanities and Technologies: An Integrated Research Path"* (Curriculum in Psychology and Cognitive Ergonomics), Suor Orsola Benincasa University of Naples. His doctoral research, carried out within the Laboratory of Experimental Psychology and Cognitive Neuroscience, explores how humans perceive and mentally represent tools, bridging visual cognition, semantic knowledge, and technical reasoning.

MASTER STUDENTS

Class 2025/2026 (ongoing theses)

- **Roberta De Santis** – Master's student in Psychology (Cognitive Neuroscience), Suor Orsola Benincasa University of Naples. Thesis investigates the cognitive foundations of material culture and physical reasoning through behavioural experiments designed with an innovative paradigm.
- **Ilaria Monacella** – Master's student in Psychology (Cognitive Neuroscience), Suor Orsola Benincasa University of Naples. Research project employs eye-tracking techniques to study visual cognition patterns in caregivers of families with autistic individuals.
- **Vincenzo Paciolla** – Master's student in Psychology (Cognitive Neuroscience), Suor Orsola Benincasa University of Naples. Thesis combines structural MRI data with neuropsychological assessment to explore the relationship between electronic device use and cognitive performance, aiming to clarify technology–brain interactions.
- **Ariadna Martina Pisani** – Master's student in Psychology (Cognitive Neuroscience), Suor Orsola Benincasa University of Naples. Thesis project involves behavioural experiments based on a novel paradigm probing the cognitive foundations of material culture and physical reasoning.
- **Daniela Rigatti** – Master's student in Psychology (Cognitive Neuroscience), Suor Orsola Benincasa University of Naples. Conducts behavioural experiments using an innovative paradigm to investigate the cognitive underpinnings of material culture and physical reasoning.
- **Giuseppe Scognamiglio** – Master's student in Psychology (Cognitive Neuroscience), Suor Orsola Benincasa University of Naples. Thesis develops behavioural investigations into the mental processes supporting material culture and mechanical reasoning, adopting a new methodological approach.
- **Luca Ciro Strazzullo** – Master's student in Psychology (Cognitive Neuroscience), Suor Orsola Benincasa University of Naples. Thesis employs eye-tracking methodologies to examine visual cognition in caregivers of families with autistic individuals.

Class 2024/2025

- **Emanuela Vastola** (Alumna) – Master's Degree in Psychology, Suor Orsola Benincasa University of Naples. Thesis: *Do narcissistic traits shape how we look at ourselves?* This research combined personality assessment with advanced eye-tracking methods to explore visual self-perception patterns in individuals with varying levels of narcissistic traits. Final grade: 110/110 cum laude; awarded thesis publication distinction.
- **Gaia Diglio** (Alumna) – Master's Degree in Psychology, Suor Orsola Benincasa University of Naples. Thesis: *Semantically-driven effects of visual-perceptual context on tool encoding*. This project investigated how semantic and perceptual contexts influence the cognitive encoding of tools, integrating experimental paradigms in visual cognition. Final grade: 110/110 cum laude.

Class 2023/2024

- **Giuseppe Michele Canuso** (Alumnus) – Master's Degree in Psychology, Suor Orsola Benincasa University of Naples. Thesis: *The effects of technical reasoning on tool-related action understanding: An eye-tracking study*. The project applied high-precision eye-tracking to investigate how reasoning about mechanical principles shapes the visual processing of tool-use actions. Final grade: 110/110 cum laude.
- **Maria Cuomo** (Alumna) – Master's Degree in Psychology, Suor Orsola Benincasa University of Naples. Thesis: *The visual encoding of familiar and unfamiliar tools*. Using eye-tracking techniques, her research demonstrated how prior semantic knowledge modulates visual exploration and object processing. Final grade: 110/110 cum laude; awarded thesis publication distinction. She is currently a PhD student at the University of Pavia.

- **Igor Tarantino** (Alumnus) – Master's Degree in Psychology, Suor Orsola Benincasa University of Naples. Thesis: *On the functional brain networks involved in physical reasoning*. The study used task-based fMRI to map the neural circuits underpinning the ability to reason about the physical world. Final grade: 110/110 cum laude.

Class 2022/2023

- **Sarah Ferretti** (Alumna) – Master's Degree in Psychology, Suor Orsola Benincasa University of Naples. Thesis: *Visual hallucinations: an integrated neuropsychological perspective*. This theoretical work combined clinical neuropsychology, cognitive neuroscience, and perceptual theories to deepen understanding of the mechanisms behind visual hallucinations. Final grade: 110/110 cum laude.
- **Sanda Perrotta** (Alumna) – Master's Degree in Psychology, Suor Orsola Benincasa University of Naples. Thesis: *On the neurocognitive origins of cumulative technological culture*. This theoretical work examined the cognitive foundations enabling the emergence and transmission of complex technological systems. Final grade: 110/110 cum laude.
- **Valerio Elia** (Alumnus) – Master's Degree in Neurobiology (LM-6), University of Pavia. Thesis: *Physical thought: neural bases of technical–mechanical reasoning*. Co-supervised at the Neuroimaging Laboratory, IRCCS SYNLAB SDN (Naples), the project used task-based fMRI to explore brain regions involved in mechanical reasoning. Final grade: 109/110. Currently a PhD student at Suor Orsola Benincasa University (see below).

PUBLICATIONS | *giovannifederico.net/publications*

- **H-index:** 15 (Google Scholar) – **First publication** (year): 2019
- **Google Scholar**: https://scholar.google.com/citations?user=erL_c24AAAAJ
- **ResearchGate:** https://www.researchgate.net/profile/Giovanni-Federico
- **ORCID:** https://orcid.org/0000-0001-8395-0770

SELECTED PUBLICATIONS:

1. Federico *et al.* (2025). An integrated account for technological cognition. **Cognitive Neuroscience**.
2. Federico *et al.* (2024). Two distinct neural pathways for mechanical versus digital technology. **NeuroImage**.
3. Federico *et al.* (2023). On the functional brain networks involved in tool-related action understanding. **Communications Biology**.
4. Osiurak, Claidière, and Federico (2023). Bringing cumulative technological culture beyond copying versus reasoning. **Trends in Cognitive Sciences**.
5. Osiurak and Federico (2023). What semantic dementia tells us about the ability to infer others' communicative intentions. **Behavioral and Brain Sciences**.
6. Federico *et al.* (2022). The cortical thickness of the area PF of the left inferior parietal cortex mediates technical-reasoning skills. **Scientific Reports**.
7. Osiurak, … Federico, *et al.* (2022). Technical reasoning bolsters cumulative technological culture through convergent transformations. **Science Advances**.
8. Federico, Osiurak, and Brandimonte (2021). Hazardous tools: The emergence of reasoning in human tool use. **Psychological Research**.
9. Federico and Brandimonte (2020). Looking to recognise: The pre-eminence of semantic over sensorimotor processing in human tool use. **Scientific Reports**.
10. Federico and Brandimonte (2019). Tool and object affordances: An ecological eye-tracking study. **Brain and Cognition**.

PREPRINTS

- Cuomo, M., Federico, G., Fracasso, A., & Buonocore, A. (2025). The Influence of Spatial Frequencies, Orientation and Familiarity on Face Stimuli Integration. **bioRxiv**.
- Federico, G., Ilardi, C. R., Marangolo, P., Bryche, C., Metaireau, M., Bluet, A., ... & Osiurak, F. (2025). Left Area PF as a Neural Marker of Technical Reasoning. **bioRxiv**.
- Valio, L., Cuomo, M., Ilardi, C. R., & Federico, G. (2025). The visual encoding of familiar and unfamiliar tools. **bioRxiv**.

2025

- Bluet, A., Reynaud, E., Federico, G. et al. (2025). The technical-reasoning network is recruited when people observe others make or teach how to make tools: An fMRI study. **iScience**, 28(2).
- Federico *et al*. (2025). An integrated account for technological cognition. **Cognitive Neuroscience**.
- Federico, G., Lesourd, M., Fournel, A. et al. (2025). Two Distinct Neural Pathways for Mechanical versus Digital Technology. **NeuroImage**. 305, 120971.
- Federico, G., Osiurak, F., Ilardi, C. R. et al. (2025). Mechanical and semantic knowledge mediate the implicit understanding of the physical world. **Brain and Cognition**, 183, 106253.
- Ilardi, C. R., Marangolo, P., Chieffi, S., Napoletano, M., Finoja, A., Federico, G., ... & Iavarone, A. (2025). Error Monitoring Failure in Metamemory Appraisal: A Visuospatial-Driven Feature of Mild Cognitive Impairment due to Alzheimer's Disease. **Journal of Geriatric Psychiatry and Neurology**.
- Ilardi, C. R., Menichelli, A., Federico, G., Salvatore, M., & Manganotti, P. (2025). No matter how big it is, but how you use it: the importance of demographic adjustment in clinical neuropsychology. **Neurological Sciences**, *46*(2), 1027-1030.
- Ilardi, C.R., Federico, G., La Marra, M. et al. (2025). Deficits in reaching movements under visual interference as a novel diagnostic marker for mild cognitive impairment. **Scientific Reports**, 15(1), 1901.
- Ilardi, C.R., Menichelli, A., Federico, G. et al. (2025). No matter how big it is, but how you use it: the importance of demographic adjustment in clinical neuropsychology. **Neurological Sciences**, 46(2), 1027-1030.
- Osiurak, F., & Federico, G. (2025). Rethinking causal understanding and reverse engineering through the lens of cultural ecology. **Evolution and Human Behavior**, 46(5), 106712.
- Osiurak, F., Federico, G., Fournel, A., Gaujoux, V., Lamberton, F., Ibarrola, D., ... & Lesourd, M. (2025). Shaping the physical world to our ends through the left PF technical-cognition area. **eLife**, 13, RP94578.

2024

- Federico, G., Ciccarelli, G., Noce, G. et al. (2024). The fear of COVID-19 contagion: an exploratory EEG-fMRI study. **Scientific Reports**, 14(1), 1-10.
- Ilardi, C. R., Monda, A., Iavarone, A. et al. (2024). The Relationship between Executive Functions and Body Weight: Sex as a Moderating Variable. **Behavioral Sciences**, 14(3), 258.
- Ilardi, C.R., Menichelli, A., Michelutti, M. et al. (2024). On the Clinimetrics of the Montreal Cognitive Assessment: Cutoff Analysis in Patients with Mild Cognitive Impairment due to Alzheimer's Disease. **Journal of Alzheimer's Disease: JAD.**
- Ilardi, C.R., Sannino, M., Federico, G. et al. (2024). The Starkstein Apathy Scale-Italian Version: An Update. **Journal of Geriatric Psychiatry and Neurology**.
- Osiurak, F., Federico, G., Bryche, C., Bluet, A., Metaireau, M., Tran, É., ... & Claidière, N. (2024). The Role of Explanation in the Evolution of Technology. **The American Journal of Psychology**, *137*(3), 285-320.

2023

- Alfano, V., Cavaliere, C., Di Cecca, A., Ciccarelli, G., Salvatore, M., Aiello, M., & Federico, G. (2023). Sex differences in functional brain networks involved in interoception: An fMRI study. **Frontiers in Neuroscience,** 17, 1130025.

- Ciccarelli, G., Federico, G., Mele, G., Di Cecca, A., Migliaccio, M., Ilardi, C. R., ... & Cavaliere, C. (2023). Simultaneous real-time EEG-fMRI neurofeedback: A systematic review. **Frontiers in Human Neuroscience**, 17, 1123014.
- Federico, G. (2023). Eating Russula mushrooms is a matter of semantic knowledge. Comment on "The elicitation of affordance depends on conceptual attributes: evidence from a virtual reality study" by Lai et al.(2023). **Experimental Brain Research**, 241, 1459–146.
- Federico, G., Osiurak, F., Ciccarelli, G. et al. (2023). On the functional brain networks involved in tool-related action understanding. **Communications Biology** 6, 1163.
- Ilardi, C. R., La Marra, M., Amato, R., Di Cecca, A., Di Maio, G., Ciccarelli, G., ... & Federico, G. (2023). The "Little Circles Test"(LCT): a dusted-off tool for assessing fine visuomotor function. **Aging Clinical and Experimental Research**, 1-14.
- Lesourd, M., Reynaud, E., Navarro, J., Gaujoux, V., Faye-Védrines, A., ... & Osiurak, F. (2023). Involvement of the posterior tool processing network during explicit retrieval of action tool and semantic tool knowledge: an fMRI study. **Cerebral Cortex**, 33(11).
- Osiurak, F., & Federico, G. (2023). What semantic dementia tells us about the ability to infer others' communicative intentions. **Behavioral and Brain Sciences**, 46, e12.
- Osiurak, F., Claidière, N., & Federico, G. (2023). Bringing cumulative technological culture beyond copying versus reasoning. **Trends in Cognitive Sciences**, 27(1), 30-42.
- Osiurak, F., Claidière, N., & Federico, G. (2023). Cultural cognition and technology: Mechanical actions speak louder than bodily actions. Comment on" Blind alleys and fruitful pathways in the comparative study of cultural cognition" by Andrew Whiten. **Physics of Life Reviews**, 44, 141-144.
- Osiurak, F., Federico, G., & Claidière, N. (2023). Technical reasoning: Neither cognitive instinct nor cognitive gadget. **Trends in Cognitive Sciences**, 27(4), 339–340.

2022

- Alfano, V., Federico, G., Mele, G., Garramone, F., Esposito, M., Aiello, M., ... & Cavaliere, C. (2022). Brain networks involved in depression in patients with frontotemporal dementia and Parkinson's disease: an exploratory resting-state functional connectivity MRI study. **Diagnostics**, 12(4), 959.
- Brandimonte, M. A., & Federico, G. (2022). Verso un approccio integrato dei sistemi di conoscenza semantica e sensomotoria. **Giornale italiano di psicologia**, 49(2), 429-435.
- Federico, G., & Brandimonte, M. A. (2022). Il ruolo del ragionamento e dell'elaborazione semantica nell'uso di utensili: la prospettiva integrata dell'action reappraisal. **TOPIC-Temi Di Psicologia Dell'ordine Degli Psicologi Della Campania**, 1(1), 10-53240.
- Federico, G., Alfano, V., Garramone, F., Mele, G., Salvatore, M., Aiello, M., & Cavaliere, C. (2022). Self-reported sleep quality across age modulates resting-state functional connectivity in limbic and fronto-temporo-parietal networks: An exploratory cross-sectional fMRI study. **Frontiers in Aging Neuroscience**, 14, 806374.
- Federico, G., Cavaliere, C., Reynaud, E., Salvatore, M., Brandimonte, M. A., & Osiurak, F. (2022). The Area Prostriata may play a role in technical reasoning. **Behavioral and Brain Functions**, 18(1), 1-4.
- Federico, G., Osiurak, F., Brandimonte, M. A., Salvatore, M., & Cavaliere, C. (2023). The visual encoding of graspable unfamiliar objects. **Psychological Research**, 87(2), 452-461.
- Federico, G., Reynaud, E., Navarro, J., Lesourd, M., Gaujoux, V., Lamberton, F., ... & Osiurak, F. (2022). The cortical thickness of the area PF of the left inferior parietal cortex mediates technical-reasoning skills. **Scientific Reports**, 12(1), 11840.
- Osiurak, F., Claidière, N., Bluet, A., Brogniart, J., Lasserre, S., Bonhoure, T., Di Rollo, L., Gorry, N., Polette, Y., Saude, A., Federico, G., Uomini, N., & Reynaud, E. (2022). Technical reasoning bolsters cumulative technological culture through convergent transformations. **Science Advances**, 8(9), eabl7446.

2021

- Baldi, D., Basso, L., Nele, G., Federico, G., Antonucci, G. W., Salvatore, M., & Cavaliere, C. (2021). Rhinoplasty pre-surgery models by using low-dose computed tomography, magnetic resonance imaging, and 3D printing. **Dose-Response**, 19(4), 15593258211060950.
- Federico, G., Ferrante, D., Marcatto, F., & Brandimonte, M. A. (2021). How the fear of COVID-19 changed the way we look at human faces. **PeerJ**, 9, e11380.
- Federico, G., Osiurak, F., & Brandimonte, M. A. (2021). Hazardous tools: the emergence of reasoning in human tool use. **Psychological Research**, 1-11.
- Federico, G., Osiurak, F., Reynaud, E., & Brandimonte, M. A. (2021). Semantic congruency effects of prime words on tool visual exploration. **Brain and Cognition**, 152, 105758.
- Osiurak, F., & Federico, G. (2021). Four ways of (mis-) conceiving embodiment in tool use. **Synthese**, 199(1-2), 3853-3879.

2020

- Federico, G., & Brandimonte, M. A. (2020). Looking to recognise: The pre-eminence of semantic over sensorimotor processing in human tool use. **Scientific Reports**, 10 (1): 6157.
- Osiurak, F., Federico, G., Brandimonte, M. A., Reynaud, E., & Lesourd, M. (2020). On the temporal dynamics of tool use. **Frontiers in Human Neuroscience**, 518.

2019

- Federico, G., & Brandimonte, M. A. (2019). Tool and object affordances: An ecological eye-tracking study. **Brain and Cognition**, 135, 103582.

BOOK CHAPTERS

- Federico, G., & Osiurak, F. (2023). Parietal cortex and cumulative technological culture. In E. Bruner (Ed.), ***Cognitive archaeology, body cognition, and the evolution of visuospatial perception*** (pp. 109-130). Amsterdam: Elsevier.
- Osiurak, F., & Federico, G. (2024). Affordance and tool use: A neurocognitive approach. In M. Mangalam, A. Hajnal, & D. G. Kelty-Stephen (Eds.), ***The modern legacy of Gibson's affordances for the sciences of organisms***. New York: Routledge.

PEER REVIEW ACTIVITY

- **Arch. and Anthrop. Sciences** (Springer Nature)
- **Brain Sciences** (MDPI)
- **Cortex** (Elsevier)
- **Depression and Anxiety** (Wiley)
- **Experimental** Psychology (Hogrefe Publishing)
- **Frontiers** in Psychology (Frontiers)
- **Journal of Intelligence** (MDPI)
- **Neural** Plasticity (Hindawi)
- **NeuroImage Reports** (Elsevier)
- **Neuroscience & Biobehavioral Reviews** (Elsevier)
- **PeerJ** (PeerJ)
- **Scientific Reports** (Springer Nature)

SCIENTIFIC SOCIETIES

- Member of the **Psychonomic Society** (Chicago, IL, USA)
- Member of the **Italian Society of Neuropsychology** (Rome, RM, Italy
- Member of the **Italian Association of Psychology** (Rome, RM, Italy)

EDITORIAL COMMITTEES

- **Behavioral Sciences** (MDPI): *Guest Editor (SI: Neural Correlates of Cognitive and Affective Processing)*
- **BMC Psychology** (Springer Nature): *Editor*
- **Frontiers in Cognition** (Frontiers): *Associate Editor*
- **Frontiers in Human Neuroscience** (Frontiers): *Review Editor*
- **Human Behavior and Emerging Technologies** (Wiley): *Academic Editor*
- **PeerJ** (PeerJ): *Academic Editor*

SCIENTIFIC AWARDS

- **SYNLAB Medical Innovation Awards 2023** (https://www.synlab.com/medical-innovation-awards).
  First prize in the **Artificial Intelligence** category for the paper "**Bringing cumulative technological culture beyond copying versus reasoning**" published in **Trends in Cognitive Sciences** (January 2023, Vol. 27, No. 1; DOI: https://doi.org/10.1016/j.tics.2022.09.024).

SCIENTIFIC CONGRESSES

- **Federico, G.** & Brandimonte, M. A. (November 2019). *Tool and object affordances: The role of thematic consistency in modulating visual exploration patterns and object recognition performance*. Poster presented at the Trieste Symposium on Perception and Cognition, University of Trieste, Trieste, Italy.
- Soricelli, A. & **Federico, G.** (November 2021). *Cognitive neuroscience and COVID-19: The impact of the pandemic on cognitive and social functioning*. Invited talk at *Medical Excellence in the Post-COVID-19 Era: From Syndemic to Reaction*, Synlab Italia, Monza, Italy.
- **Federico, G.** (January 2023). *Eye-tracking and the use of modern tools*. Invited talk at *Journées Technition*, Laboratory of Cognitive Mechanisms Studies, University of Lyon, Bron, France.
- **Federico, G.** (June 2023). *The face after COVID: Longing for a glance. How the pandemic has changed the way we look at faces*. Invited talk at *The Face in the Mirror: A Dialogue Between Medicine, Neuroscience, and Art*, Vita-Salute San Raffaele University, Milan, Italy.
- **Federico, G.** (October 2023). *The neurocognitive basis of physical understanding through the lens of visual cognition*. Talk presented at the Trieste Symposium on Perception and Cognition, University of Trieste, Trieste, Italy.
- **Federico, G.** (September 2025). *Technological cognition: An integrated neurocognitive model*. Talk presented at the 31st Annual Meeting of the Italian Association of Psychology – Experimental Section (AIP Sperimentale 2025), Campus Luigi Einaudi, University of Turin, Italy.

RESEARCH GRANTS – PRINCIPAL INVESTIGATOR

- **Psychosocial, Psychiatric, and Neurological Effects of the COVID-19 Pandemic: An Integrated EEG/Eye-Tracking/fMRI Neuropsychological Study**. Funded by the Italian Ministry of Health (*Ricerca Corrente* grant, 2021–2022). Conducted at IRCCS SYNLAB SDN, Naples, Italy.
- **Study of Anatomic-Functional Correlates and Identification of Early Biomarkers in Neurological Diseases**. Funded by the Italian Ministry of Health (*Ricerca Corrente* grant, 2020–2022). Conducted at IRCCS SYNLAB SDN, Naples, Italy.
- **The Contribution of Integrative Neuroscience and Neuroinformatics to Neurodiagnostics: Towards a Technological, Integrated, and Non-Invasive Approach to Neuropsychological Assessment**. Funded by the Italian Ministry of Health (*Ricerca Corrente* grant, 2022). Conducted at IRCCS SYNLAB SDN S.p.A., Naples, Italy.
- **Simultaneous EEG/fMRI Study of Saccadic Inhibition in Patients with Unilateral Spatial Neglect.** Funded by the Italian Ministry of Health (2022). Conducted at IRCCS SYNLAB SDN, Naples, Italy.

NATIONAL AND INTERNATIONAL COLLABORATIONS

2020 – Present **Laboratoire d'Étude des Mécanismes Cognitifs, University of Lyon (France)**
Reference: Prof. François Osiurak
Research focus: Neurocognitive foundations of cumulative technological culture

2022 – Present **Laboratoire de Recherches Intégratives en Neurosciences et Psychologie Cognitive, University of Franche-Comté – Besancon (France)**
Reference: Prof. Mathieu Lesourd
Research focus: Neurocognitive bases of physical understanding

2025 – Present **Department of Humanities, Federico II University of Naples (Italy)**
Reference: Prof. Paola Marangolo
Research focus: Clinical and cognitive neuroscience; the co-evolution of language and tool use: cognitive and neural mechanisms

Last update: August 21, 2025

I hereby authorise the processing of my data included in this curriculum vitae, following EU Regulation 2016/679 (GDPR)