
PANOS SAPOUNTZIS

I am an Assistant Professor of Physiology and Neurophysiology at the School of Medicine, University of Crete, and an Associated Researcher at the Institute of Applied and Computational Mathematics (IACM), FORTH. My research investigates the neural circuit mechanisms underlying cognitive functions such as visual attention and working memory. To explore these mechanisms, I use multi-area, laminar electrophysiological recordings, functional magnetic resonance imaging (fMRI) and psychophysical methods. I pair these experimental approaches with computational tools, such as signal-processing techniques, artificial neural networks, and machine-learning approaches to characterize how cognitive functions are implemented at the level of neural populations and brain-wide networks.

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Research and Professional Experience

Assistant Professor of Physiology and Neurophysiology

— April 2026-Present, School of Medicine, University of Crete

Postdoctoral Research Fellow — 2012-April 2026

Institute of Applied and Computational Mathematics, Foundation for Research & Technology, Hellas (FORTH) & School of Medicine, University of Crete

Education

PhD in Neuroscience — 2006-2009

University of Nottingham, School of Psychology, UK

Thesis: "Studying the selectivity of neuronal sub-populations within fMRI voxels"

MSc in Optics & Vision — 2003-2005

University of Crete, Departments of Medicine, Physics and Mathematics

BSc in Applied Mathematics — 1999-2003

University of Crete, School of Sciences and Engineering

Research Funding

Postdoctoral Research Grant (€150,000) — 2019-2022

Hellenic Foundation for Research and Innovation (HFRI) and General Secretariat for Research and Technology (GSRT)

Postdoctoral Research Fellowship on Systems Neuroscience — 2017-2018

Stavros Niarchos Foundation and Foundation for Research & Technology, Hellas

Postdoctoral Research Grant (€150,000) — 2012-2015

General Secretariat for Research and Technology (GSRT)

Research grant (€6,000) — 2006

Crete Innovative Region (CRINNO)

Academic Teaching

Physiology A (Physiology of the nervous system) — 2023-Present

International Program in Medicine, School of Medicine, University of Crete

Physiology B (Physiology of the gastrointestinal system) — 2024-Present

International Program in Medicine, School of Medicine, University of Crete

Introduction to Statistics and Programming — 2018-Present

MSc programme in Brain & Mind Sciences, University of Crete

Basic Principles of Signal Processing. Applications in the Analysis of Discrete and Continuous Neural Signals — 2018-Present

MSc programme in Brain & Mind Sciences, University of Crete

Electrophysiological recordings in non-human primates: from brain rhythms to representational geometries, lecture at the Athens International Master's Programme in Neurosciences, University of Athens — 2024-present

Selected invited talks

NeuroAI: Past, Present, and Future

VIII Photonics meets Biology Summer School, Spetses, Greece, August 2026

Neural population codes for feature attention and working memory

International Neuropsychological Symposium (INS), Agios Nikolaos, Crete, June 2026

Neuronal population codes for cognition

Hellenic Physiological Society Conference, Larissa, March 2026.

Are we our brains?

Talk at the event titled "Genes, brain, and artificial intelligence: Interactions and perspectives", organized by the Hellenic Society for Neuroscience, Heraklion, March 2025.

Publications

P. Sapountzis, A. Antoniadou and G.G. Gregoriou (2025) Diverse neuronal activity patterns contribute to the control of distraction in the prefrontal and parietal cortex. PLOS Biology, <https://doi.org/10.1371/journal.pbio.3003008>

P. Sapountzis, S. Paneri, S. Papadopoulos and G.G. Gregoriou (2022) Dynamic and stable population coding of attentional instructions coexist in the prefrontal cortex. Proc Natl Acad Sci (PNAS), U.S.A., 119 (40), doi.org/10.1073/pnas.2202564119

P. Sapountzis, S. Paneri and G.G. Gregoriou (2018) Distinct roles of prefrontal and parietal areas in the encoding of attentional priority. Proc Natl Acad Sci (PNAS), U.S.A., 115(37), doi.org/10.1073/pnas.1804643115

P. Sapountzis, D. Schluppeck, R. Bowtell, J.W. Peirce. (2010) A comparison of fMRI adaptation and multi-variate pattern classification analysis in visual cortex. Neuroimage 49:1632–1640, doi.org/10.1016/j.neuroimage.2009.09.066

P. Sapountzis, G.G. Gregoriou. (2018) Neural signatures of attention: insights from decoding population activity patterns. Frontiers in Bioscience, Landmark, 23, 221-246, doi.org/10.2741/4588

G.G Gregoriou, S. Paneri, **P. Sapountzis**. (2015) Oscillatory synchrony as a mechanism of attentional processing. Brain Res. Invited Article, Special Issue on Prediction and Attention, 1626: 165-182, doi.org/10.1016/j.brainres.2015.02.004

A. Theocharous, G. G. Gregoriou, **P. Sapountzis**, I. Kontoyiannis (2024) Temporally Causal Discovery Tests for Discrete Time Series and Neural Spike Trains, IEEE Transactions on Signal Processing, 72, 1333-1347, doi.org/10.1109/TSP.2024.3371899

S. Plainis, E. Ktistakis, **P. Sapountzis**, N.W. Charman (2023) Modelling changes in the prevalence of childhood myopia, Ophthalmic and Physiological Optics, 2023;00:1–7, doi.org/10.1111/opo.13131

S. Plainis, N.R. Parry, **P. Sapountzis**, I.J. Murray. (2015) Orientation and spatial frequency selectivity following adaptation; a Reaction Time study. Perception, 44(3):301-14, doi.org/10.1068/p7797

S. Plainis, N.R. Parry, A. Panorgias, **P. Sapountzis**, I.J. Murray. (2009) The summation characteristics of the detection of compound gratings. Vision Research, 49(16):2056-66, doi.org/10.1016/j.visres.2009.05.006

Selected Peer Reviewed Abstracts

P. Sapountzis, S. Paneri, G.G. Gregoriou. (2024) Differential collective patterns of activity in the prefrontal and visual cortices before and after attention deployment: the influence of mixed selective subpopulations (FENS Forum of Neuroscience, Vienna, Austria)

P. Sapountzis, S. Paneri, S. Papadopoulos, G.G. Gregoriou. (2022) Functional specialization and adaptive coding of task relevant attributes in the prefrontal cortex (AREADNE, Research in Encoding and Decoding of Neural Ensembles, Santorini, Greece)

P. Sapountzis, S. Paneri, S. Papadopoulos, G.G. Gregoriou. (2021) Decoding visible and memorized stimulus features from neuronal ensembles in the prefrontal and visual cortices (Journal of Vision, Vol 21, 2053)

P. Sapountzis, S. Paneri, G.G. Gregoriou. (2020) Parieto-frontal interactions as a mechanism for working memory maintenance (FENS 2020 Virtual Forum)

P. Sapountzis, S. Paneri, G.G. Gregoriou. (2019) Encoding and Working Memory Maintenance of Feature and Spatial Information in the Parietal and Prefrontal Cortex. (ESI Systems Neuroscience Conference, Frankfurt, Germany)

P. Sapountzis, S. Paneri, G.G. Gregoriou. (2018) Extracting Working Memory-Related Information from Primate Parietal and Prefrontal Cortices. (11th FENS Forum of Neuroscience, Berlin, Germany)

P. Sapountzis, S. Paneri, G.G. Gregoriou (2017) Decoding Feature-Attention Related Information from Neuronal Ensembles in the Primate Parietal and Prefrontal Cortices. (ESI Systems Neuroscience Conference, Frankfurt, Germany)

P. Sapountzis, S. Paneri, G.G. Gregoriou. (2016) The role of prefrontal and parietal cortices in visual search. (AREADNE, Research in Encoding and Decoding of Neural Ensembles, Santorini, Greece)

P. Sapountzis, S.J. Gotts, R. Desimone, G.G. Gregoriou. (2014) Cell-class specific attentional modulation of neuronal responses and synchronization in the frontal eye field and area V4.(Society for Neuroscience (SfN) Annual Meeting, 156.13/DD28, Washington DC)

Supervision of Postgraduate Students

Supervision of students at the MSc Programme in Brain and Mind sciences, and at the Athens International Master's Programme in Neurosciences
— 2016-present

Awards and Fellowships

Travel grant to attend the Federation of Neuroscience Societies (FENS) Forum (2020), FENS-IBRO/PERC

Postgraduate studentship — 2006-2009, jointly funded by the School of Psychology and the School of Physics and Astronomy, University of Nottingham, UK

Postgraduate poster prize for best work in Neuroimaging (2008), Institute of Neuroscience, University of Nottingham, UK

Post-hoc Reviewer

Nature Communications, Current Biology, Journal of Physiology, Progress in Neurobiology, Brain and Behavior, Brain and Cognition, Journal of the Optical Society of America A (JOSA A)

Professional Memberships

International Neuropsychological Symposium (INS)-elected member, Federation of European Neuroscience Societies (FENS), International Brain Research Organization (IBRO), Hellenic Society for Neuroscience, Hellenic Cognitive Society

Certifications and Training

Laboratory Animal Science Course on Non-Human Primates, FELASA certificate (Functions A and B), 2020

Science Communication Activities (in Greek)

Compulsory Military service

Hellenic Air Force — 2010-2011