HELLENIC REPUBLIC
MINISTRY OF DEVELOPMENT AND INVESTMENTS
GENERAL SECRETARIAT FOR RESEARCH AND INNOVATION

FOUNDATION FOR RESEARCH AND TECHNOLOGY - HELLAS
INSTITUTE OF MOLECULAR BIOLOGY AND BIOTECHNOLOGY

Heraklion 22/11/2022

PRESS RELEASE

Prestigious ERC Starting Grant awarded to FORTH Researcher Dr. Emmanouil Froudarakis

Emmanouil Froudarakis, Researcher at the Institute of Molecular Biology and Biotechnology of the Foundation for Research and Technology – Hellas (FORTH) and Assistant Professor at School of Medicine, University of Crete is awarded a Starting Grant from the European Research Council (ERC). The ERC Starting Grants are awarded to talented early-career scientists, who have already produced excellent work and showing potential to be research leaders, to launch their own projects. Emmanouil Froudarakis will receive €1.9 million in funding for five years, to study the neural mechanisms for object recognition.

Object recognition is a fundamental problem in visual perception: every day we depend on our ability to identify objects in our visual environment, and our brain is capable of accomplishing it effortlessly and in a fraction of a second, in spite of immense variation in the sensory information that arrives in our retinas. Despite significant progress in characterizing visual processing, we do not understand how the visual system solves visual inference problems in natural environments and we are still far from having a complete understanding of how the brain creates neural activity representations that are not affected by the complexity in the appearance of the objects we encounter in our daily life, that can subsequently be used to guide behavior. Understanding the algorithm that the brain uses to do this complex task is a decisive conquest in neuroscience as it can be used as a powerful framework to advance our understanding of brain computations in general.

Emmanouil Froudarakis and his team at FORTH-IMBB will combine an advanced recording technique that allows sampling of thousands of neurons, with state-of-the-art behavioral training in naturalistic virtual environments, as well as computational modeling to study how visual encoding of object characteristics enables animals to identify objects. The outcomes of this project will provide significant insights into the computations used by the mouse visual cortex to extract relevant features from the environment, identify how distinct features are represented across the mouse visual areas and how in turn these representations guide the behavior of the animals.

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Brief CV

Emmanouil Froudarakis obtained his B.Sc. Degree in Biology at the National & Kapodistrian University of Athens. He continued his studies in Neuroscience in Utrecht university in the Netherlands and Baylor college of Medicine in Houston, USA where he got his Ph.D. in 2015 studying the neural representations of natural image statistics. He did his post-doctoral studies and worked as an Instructor of Neuroscience at Baylor College of Medicine. From 2019 he is a group leader at IMBB-FORTH and his lab investigates how cortical circuits across different brain areas interact to form representations that can guide behavior. In 2022 E. Froudarakis was elected Assistant Professor of Neurophysiology at the Medical School, University of Crete. His work has been published in top research journals in the field of Neuroscience including, Nature, Science, Cell, Nature Neuroscience , Neuron and Nature Communications.

More info:

The ERC official press release: https://erc.europa.eu/news-events/news/starting-grants-2022-call-results

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