



Solving the maze: How the brain works

COGNITION EXPERT EXPLAINS SECRETS OF HIS SCIENCE

By **Athena Karsera**

world-renowned brain expert recently spoke to Cyprus audiences about 'Brain Mechanisms of Cognitive Processes: Achievements, Prospects and Challenges.'

Dr Apostolos Georgopoulos gave the Cyprus Institute's annual Hubert Curien Memorial Lecture lecture.

In an exclusive interview with The Cyprus Weekly, Georgopoulos, an advocate of the multi-disciplinary approach to understanding the brain mechanisms of cognition, said that his approach comes out of necessity.

"Cognition is by definition multi-disciplinary, so the methods by which it can be properly studied can only be multidisciplinary too...I call this the 'cognitive-scientific' approach," he said.

Georgopoulos said that a close parallel could be found in medicine: "A patient comes in the clinic with an ailment, for example, coughing

and fever.

"How do you go about it? You use tools from various disciplines to find out what is wrong and how to fix it: history (language), physical examination (bodily senses: vision, audition, touch, movement), laboratory tests (biochemistry, microbiology, haematology), X-rays (radiology), etc, etc. Each one of these examinations yields a set of data in a multi-disciplinary space.

It is then the science and art of the physician to integrate these data using prior knowledge (acquired through training and accumulated experience) to reach a diagnosis and prescribe appropriate treatment."

His specialty, Georgopoulos said, would see "coughing and fever" substituted by "solving a maze."

"How do you find the exit in a maze? The 'how' in this question includes strategy, tactics, brain mechanisms – how do you investigate those aspects? Using multi-

disciplinary tools: measuring the time it takes to find the exit, monitoring eye movements, evaluating outcomes, recording brain activity etc, – that is, methods from cognitive psychology, motor control, neuroscience, and modelling later on. Ideally, this is the way to achieve an integrated understanding of what "solving a maze" is about, a fundamentally multi-disciplinary "cognitive scientific" approach," he said.

The lecture was part of Georgopoulos' second visit to Cyprus: "Some of my best friends are from Cyprus. I am truly honoured to serve at the Scientific Advisory Council of the Cyprus Institute and I am looking forward to visit again and contribute to this unique and wonderful institution".

Georgopoulos is internationally known for his work on how the brain affects movement, and hopes his research can help develop a new generation of prosthetics, driven by brain signals, to assist patients dealing with paralysis or limb loss.



***Dr Apostolos Georgopoulos
earlier this month enlightened Cyprus audiences
about 'Brain Mechanisms of Cognitive Processes:
Achievements, Prospects and Challenges.'***