Computational Theory Sheds Light on Brain Functioning

David Heeger
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CURRENT RESEARCH

Bringing together computer science and neuroscience

The research of Dr. David Heeger, of New York University, spans an interdisciplinary cross-section of engineering, psychology, mathematics, computer science, and neuroscience. By combining computational theory with the ability to measure brain activity, he and his team are able to quantitatively investigate the relationship between the brain and human behavior. Much like the algorithms that allow computers to process, the neurons in our brains perform computations, which underlies everything that we do, and how we do it. Therefore, computational theory has given scientists a powerful approach for understanding how the brain supports its many functions. Computational theory is also a powerful approach for understanding psychiatric illnesses, neurological diseases, and developmental disorders, all of which can be characterized as dysfunctions of neural computations. Dr. Heeger's research is likely to provide insight about Autism, about vision and visual awareness, as well as continued development of computational models of brain function and dysfunction.

As a vocal critic of established paradigms, Dr. Heeger has pioneered new directions for the fields he works in. His innovation has been recognized by being elected into the National Academy of Sciences nearly a decade younger than average and by the David Marr Prize in computer vision, among other awards. His varied projects are made possible by an established track record of international and interdisciplinary collaborations; Dr. Heeger has collaborated with over 30 leaders in their respective fields at academic institutions all over the world, including Cambridge, Oxford, Stanford, Carnegie-Mellon University, and more. In short, through the...

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AFFILIATION

New York University

EDUCATION

- Postdoc, in Brain and Cognitive Science, 1989,Massachusetts Institute of Technology
- Ph.D., in Computer Science, 1987,University of Pennsylvania
- M.S.E., in Computer Science, 1985,University of Pennsylvania
- B.A., in Mathematics, 1983,University of Pennsylvania

AWARDS

- Silver Professorship, New York University, 2014
- National Academy of Sciences, 2013
- Troland Research Award in psychology, National Academy of Sciences, 2002
- David Marr Prize in computer vision, 1987

RESEARCH AREAS

Neurological / Cognitive, Technology, Neurological / Cognitive, Pediatric

FUNDING REQUEST

Your donation will support the continued research of Dr. David Heeger, of New York University, as he explores the computations that brain circuits perform. Your donations will support the necessary $500K per year required for personnel, facilities, and taking care of lab animals. In choosing to support his research you will play a role in understanding brain function and dysfunction with applications ranging from consumer products to better understanding of Autism.