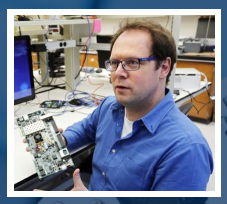
Making Computers Work Like Humans



Eugenio Culurciello

Associate Professor of Psychological Sciences, College of Health and Human Services Associate Professor of Biomedical Engineering, Weldon School of Biomedical Engineering

CURRENT RESEARCH

Creating synthetic vision and communication systems for computers and machines

Computers already possess processing power far beyond the capability of the human brain. Yet as intelligent as these machines are, many sensory functions like sight and hearing remain elusive. Dr. Eugenio Culurciello, associate professor of Biomedical Engineering at Purdue University, is working to bestow computers and machines with the power of sight and visual, audio, and speech recognition. Having computers view the world exactly as humans do would greatly increase the practicality of having them carry out daily tasks and allow for graceful assistance in everyday duties. Never worry about losing your keys again, just have your computer search the couch cushions for them!

- Dr. Culurciello's research is driven by the desire to develop synthetic vision systems and efficient communication systems for computers and machines, enabling them to understand the content of images, videos, audio, speech, and music.
- With these abilities, computers will be able to respond to a video similar to the way humans do, by recognizing relationships between objects and actions and making inferences based on this information.
- This process begins by reverse-engineering the human brain and its capabilities.
- Dr. Culurciello writes computer algorithms that mimic the neural networks in the human brain.
- After testing these algorithms, new computer processors are made that are necessary for the computer program to function at optimal speed and efficiency.
- Dr. Culurciello specializes in the development of electrical technologies, specifically microchips and systems of...

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AFFILIATION

Purdue University

EDUCATION

- Ph.D. in Electrical and Computer Engineering 2004 , Johns Hopkins University
- M.S. in Electrical and Computer Engineering 1999 , Johns Hopkins University
- M.S. in Electrical Engineering 1997 , University of Trieste

AWARDS

- Invited to the Microsoft Research Faculty Summit 2013, July 2013
- Presidential Early Career Award for Scientists and Engineers (PECASE) 2009
- Distinguished Lecturer of the IEEE, Circuit and System Society, 2011-2012
- Yale Associate Faculty Fellowship
- Best Paper Award, IEEE Circuit and System Society
- and 1 more...

RESEARCH AREAS

Technology, Computational Sciences / Mathematics, IOT, Devices, Data

FUNDING REQUEST

Contributions to Dr. Culurciello's research would be used to fund the writing of algorithms that have the ability to reverse-engineer the computation of the human brain. Funds will also be directed towards the development of hardware and electrical technologies necessary for executing the processes required by these algorithms.