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UC San Diego Receives \$7 Million from DOD for Innovative Neural Research

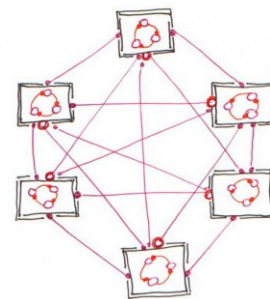
An interdisciplinary team of scientists at UC San Diego composed of physicists, biologists, chemists, bioengineers and psychologists has received a five-year, \$7 million grant from the U.S. Department of Defense to investigate the dynamic principles of collective brain activity.

The innovative research effort, which is being funded by the Office of Naval Research under the Defense Department's MultiUniversity Research Initiative, or MURI, will also involve scientists at UC Berkeley and the University of Chicago.

The team plans to conduct basic research on how collective action in the brain learns, modulates and produces coherent functional neural activity for coordinated behavior of complex systems.

"This research will tie together theoretical ideas, hardware implementation of structural models and experimental investigations of human and animal behavior to develop a quantitative understanding and a predictive language for discussing complex physical and biological systems," said Henry Abarbanel, a physics professor at UC San Diego who is heading the collaboration.

The grant will pay for the costs of new laboratory facilities at UC San Diego and the University of Chicago, create powerful parallel computing capabilities for the three universities involved and employ 10 or more postdoctoral research fellows. Key UC San Diego researchers participating in the effort are Katja Lindenberg, professor of chemistry and biochemistry; Tim Gentner,



Schematic of cooperative brain centers interacting to produce functional neural behavior associated with learning and decision making.

associate professor of psychology; Gert Cauwenberghs, professor of bioengineering; Misha Rabinovich, research physicist in the BioCircuits Institute; and Terry Sejnowski, professor of biology.

This is the fourth MURI award led by Abarbanel. The first focused on theory and experiment in complex fluid flows and was funded by the Defense Advanced Research and Projects Agency from 1988 to 1993. The second investigated chaotic communications strategies from 1998 to 2003 under sponsorship by the Army Research Office. The third developed advanced chemical sensing methodologies using animal olfactory dynamics and was funded by the Office of Naval Research from 2007 to 2012.

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