



*“Providing technological innovation  
for national security for over 40 years.”*

## *News Release*

### **Defense Advanced Research Projects Agency**

3701 North Fairfax Drive  
Arlington, VA 22203-1714

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IMMEDIATE RELEASE

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#### **DARPA ANNOUNCES RESEARCH INITIATIVE IN COGNITIVE SYSTEMS**

The Defense Advanced Research Projects Agency (DARPA) today announced a new research initiative in the field of cognitive systems, releasing a Broad Agency Announcement (BAA) seeking innovative research proposals.

The DARPA Cognitive Information Processing Technology Initiative will develop the next generation of computational systems with radically new capabilities. *“Cognitive systems”* will demonstrate levels of autonomy and reasoning far beyond those of today’s systems. With the ability to reason, learn and adapt, and with facilities for self-awareness, these will literally be *systems that know what they’re doing*.

As computing systems grow in size and complexity, they become more brittle – difficult to build and maintain, prone to error and breakdown, and vulnerable to attack. The DARPA vision is to develop systems that overcome these problems by being responsible for their own operation and able to cope with unforeseen events. They will possess the ability to *reason* in a variety of ways, using substantial amounts of appropriately represented knowledge; they will *learn* from experiences and improve performance using accumulated knowledge; they will be able to *explain* themselves and *accept naturally expressed guidance and direction*; they will be *aware* of their own behavior; and most importantly, they will *respond* in a robust manner to surprises. DARPA envisions cognitive systems that possess *imagination* – the ability to invent interesting scenarios and plan for and predict novel futures.

The initiative will be managed through DARPA’s Information Processing Technology Office (IPTO). Ronald J. Brachman was recently appointed director of the office, with Zachary J. Lemnios serving as his deputy director.

Brachman explains his office’s new direction: “Our vision is a new type of system that reduces the complexity that the expanding capabilities of modern computer science have made inevitable. The focus of our initiative is to make systems not simply faster and smaller, but smarter. Systems will be easier to extend and maintain. They will engage humans and other systems in dialogue to understand the desired end state, and then coordinate in unprecedented ways with other systems to get there. The research programs created by DARPA in the past were responsible for some of the most dramatic changes of the 20<sup>th</sup> century. Our intention is to create the next leap forward. Our BAA is a call to the best minds in computer science and

(more)

information technology – we want their most innovative ideas. We urge them to be part of the next computing revolution.”

DARPA Director Anthony J. Tether added, “I am excited by the prospect that the energy and vision of today’s staff, building on scientific and technical foundations created by DARPA over the last 20 years, will lead us to a new era of cognitive capabilities for humans and computer systems and will lead the information revolution in the 21<sup>st</sup> century.”

The elements of the new vision are captured in the recently issued BAA, Cognitive Information Processing Technology, BAA 02-21, available via the web at <http://www.eps.gov/spg/ODA/DARPA/CMO/BAA02-21/listing.html>. Researchers interested in submitting proposals should review the details of the BAA.

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Media with questions, please contact Jan Walker, (703) 696-2404, or [jwalker@darpa.mil](mailto:jwalker@darpa.mil). This release is available electronically at <http://www.darpa.mil/body/news.html>. Biographical details for Brachman and Lemnios are also available at that location.