



# *News Release*

## **Defense Advanced Research Projects Agency**

3701 North Fairfax Drive  
Arlington, VA 22203-1714

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FOR IMMEDIATE RELEASE

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### **DARPA Seeks to Invigorate Computer Science Education**

3 year, \$14.2M CS-STEM program seeks to increase computer science graduates

Since 2002, the number of students graduating with Computer Science and related degrees has declined 58.5%. These fields comprise three of the top six largest job growth categories according to the latest data available from the US Department of Labor. More graduates in these fields are needed to keep pace with the increasing number of positions required to secure DoD networks and accelerate our national rate of computer science innovation—two elements that are vital to national security.

The CS-STEM Education program will increase the size of the talent pool of applicants available to secure U.S. DoD networks and accelerate the rate of CS innovation by encouraging students to enroll in college level CS programs. To accomplish this, the program will create compelling activities and opportunities for middle and high school students to apply science, technology, engineering and mathematics (STEM) that will increase in complexity as the student grows to achieve a long term, positive impact on the lives of the students and the nation's talent pool.

The three year, \$14.2M program employs three unique approaches to achieve its goals. According to Melanie Dumas, DARPA program manager, "With this program, we are focusing on computer science specifically to highlight its importance in modern education. US students should realize their potential to become expert developers and innovators, beyond simple users of their daily technologies."

"Teach Ourselves," developed by the University of Arizona, will create a distributed, online community of students and teachers. It will introduce students to the knowledge economy, a matrix wherein students can track their advancement through various subjects. Advancement through the matrix will be rewarded with points which may be redeemed for real goods. Problem posing is well-suited to the social environment of Teach Ourselves, where potentially very large numbers of students will both generate and solve problems.

The "Fostering Innovation through Robotics Exploration" (FIRE) online robotics academy—developed by Carnegie Mellon University will enable students to sharpen their ability to solve complex problems by equipping them with algorithmic thinking skills, engineering processes, math, and programming know-how. FIRE will significantly improve the educational value of robotics competitions by developing online cognitive tutors and simulation tools designed to use robots and programming to teach several "big ideas" in math.

Lastly, an extracurricular online CS-STEM community of middle-school and high-school students using ongoing, age-appropriate practice activities and competitions, educational content, discussion boards, mentoring, and role models that will develop CS-STEM skills and foster lasting interest in CS-STEM careers will be built by TopCoder, Inc.. Collaborative activities, puzzles and games, webisodes, workshops, and other content will be used to draw students to the site daily.

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*Media with inquiries, contact DARPA Public Affairs, [DARPAPublicAffairsOffice@darpa.mil](mailto:DARPAPublicAffairsOffice@darpa.mil)*