

## **HIP and HPCMP**

The Department of Defense (DoD) High Performance Computing Modernization Program (HPCMP) welcomes you to the 2014 High Performance Computing Internship Program (HIP). The HPCMP truly appreciates and values the time and knowledge you provide to our interns. The knowledge transfer between mentors and interns is invaluable. Knouse et al. (1999) conducted a study which found that students with internships had a significantly higher overall grade point average, were younger upon graduation than other classmates, and were more apt to become employed upon graduation. Additional findings indicate that overall college performance, social skills, and job offers were more significant for students participating in internship programs.<sup>1</sup> The HIP has a history of validating the intrinsic value found in the mentor/intern relationship, as well as the overall benefits to both the HPCMP and the intern.

The HPCMP has a significant history, spanning over twenty years, of providing computational resources to DoD's scientists and engineers. Success stories gathered over the years from the Services (Air Force, Army, and Navy) and the DoD consistently demonstrate the benefits of high-performance computing (HPC) resources in support of the Warfighter. In modern times of continuing cuts to the U.S. Defense budgets, it is imperative to support up-and-coming scientists in the field of high-performance computing. Weingarten (1994) contends that earmarks continually initialize provocation, and as the battle wears on, Defense will continue to suffer. Most who read the papers recognize that Defense expenditures are dropping sharply, and we continue to read about base closings, cancelations of weapons systems, and so forth.<sup>2</sup> The HPCMP has held strong in the face of cuts due to the value added across the entire DoD, as well as universities and laboratories. In an article by Feder (1996), we learn that in 1991 Congress called for a DoD-wide upgrade due to the fact that the DoD fell behind in supercomputing because of budget cuts. In response to the budget cuts, it was determined that the HPCMP would evolve to become agency-wide in order to protect the Program. Consolidation provides a way to get the most out of scarce resources.<sup>3</sup> By partnering mentors with interns, the HPCMP is

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<sup>1</sup> Knouse, et al. (1999). The Relation of College Internships, College Performance and Subsequent Job Opportunity. *Journal of Employment Counseling*.

<sup>2</sup> Weingarten, F.W. (1994). University Research in a Squeeze. *Communications of the ACM*.

<sup>3</sup> Feder, T. (1996). DoD upgrades its supercomputing facilities, and forges new partnerships with academia. *Physics Today*.

bringing together current resources with future resources to best prepare for the future of America's defense.

The HPCMP's Next Generation Workforce Development (NGWD) Internship enables the symbiotic relationship between the HPCMP NGWD and mentors to enhance the development of critical next-generation human resource assets; the relationships between other organization components; and the skills, technologies, and competencies required to meet future Warfighter demands. The Federal government has a number of programs which target audiences ranging from high school to graduate school, Wounded Warriors, Veterans, and underrepresented minorities. These programs provide individuals with opportunities to explore Federal careers via internships while being paid for work performed. The NGWD HIP is proud to participate in concert with these existing programs to provide opportunities that will assist in securing our nation.

The purpose of the HIP is to expand the DoD science, technology, engineering and mathematics (STEM) and computational workforce to resolve modern military and security problems through the use of HPC resources. DoD's NGWD Program is funding high-quality programs for students, graduates and professionals utilizing various vehicles such as Pathways. Pathways, for example, offers clear opportunities to Federal internships for students from high school through post-graduate school, as well as careers for recent graduates. In addition, Pathways provides meaningful training and career development opportunities for individuals who are at the beginning of their Federal service.