USC/Vanderbilt software has right the stuff: wins $5.74 million contract to improve safety of Marine Corps air operations

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In the near future, when Marine Corps pilots climb into the cockpit for a training flight or an actual combat mission, they will do so with confidence that the possibility of human error in every operational aspect of their mission from aircraft maintenance to flight scheduling has been minimized by the use of customized software developed by Vanderbilt University and the University of Southern California.

The software, which greatly simplifies the complex scheduling requirements of air operations and aircraft maintenance, is the result of a collaboration between researchers at Vanderbilt University’s Institute for Software Integrated Systems (ISIS) and the USC School of Engineering’s Information Sciences Institute (ISI). ISI is the prime contractor of the project.

After an extensive evaluation since August 2002 in Marine Corps squadrons of AV8-B Harrier jump jets, including squadrons now engaged in Operation Iraqi Freedom, the Office of Naval Research has announced that it will spend $5.74 million to expand the use of the software – called Autonomous Negotiating Teamware (ANT) – to the entire inventory of Marine Corps tactical aircraft, including the next-generation Lockheed Joint Strike Fighter.

“It takes an experienced operations scheduler as much as six hours per day - and lots of time for a maintenance controller as well – to create daily schedules … that balance ... all [the] variables,” says retired Marine Corps Col. Russ Currer, a Harrier pilot and Joint Strike Fighter Program expert who was a key consultant for the researchers. “This software lets them do the job in four minutes.”

ANT uses a model of human negotiation to rapidly explore tradeoffs and reformulate requirements that balance the needs and considerations of the many different interests involved.

The new three-year contract will create versions of the software specifically tailored to all of the aircraft types currently in use by the 90 tactical air squadrons of the Marine Corps, and will expand its use up the chain of command by adding tools for commanders of Air Combat Elements within Marine Expeditionary Brigades. The team will also supply versions of the software to Lockheed Martin Aeronautics Company for use in demonstrations of the company’s “Autonomic Logistics Information System” being developed for the new Joint Strike Fighter (JSF) aircraft.

Many non-military planning tasks requiring complex coordination of numerous variables such commercial airline, trucking, or package-delivery operators could use similar software systems.

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