

The Draper Distinguished Performance Award

The Draper Distinguished Performance award was established to provide recognition for extraordinary, unique technical contributions and outstanding technical accomplishments by individuals and/or teams that result in significant improvements in the Laboratory. All Draper employees (excluding Officers) are eligible, including both full-time and part-time employees and individuals who may have recently left the Laboratory. Any member of Draper may nominate an individual or team for award consideration. A screening committee made up of both technical and administrative staff members reviews nominations vs award criteria and makes a recommendation to the Executive Council, who ultimately make the final selection. The award is granted in November of each year at the annual Board of Directors dinner.

1997 Distinguished Performance Awards were presented to two teams and one individual by Draper President and CEO Vincent Vitto and Chairman of the Board Dr. Robert Hermann.

Extended Range Guided Munition (ERGM) Demonstration Program



Tom Thorvaldsen, Frank Petkunas, Tony Kourepenis, and John Dowdle were recognized for their work on the ERGM Demonstration program. The feasibility of integrated GPS/MMIMU (Micromechanical Inertial Measurement Unit) guidance technology was flight demonstrated for the first time in a 5-inch Navy gun-launched projectile. The program goal of significantly reducing the risk associated with the development of this technology for follow-on applications was achieved. All of the program goals were met: the GPS and MMIMU survived the 6,800-g gun launch and operated post-flight, the GPS receiver reacquired, the micromechanical inertial sensors functioned as designed, the standby battery and telemetry functioned as designed, and the communications between the Control Processor and Draper Guidance and Navigation Processor was functional.

Precision Guided Airdrop System



Tim Barrows, Peter Kachmar, Tom Fill, Phil Hattis, Brent Appleby, Larry McGovern, Bob Polutchko, and Terry McAteer (not pictured) were recognized for their collaborative effort in the innovative development of a guidance, navigation, and control system for guiding a family of Army airdrop ram air parafoils named the Precision Guided Airdrop System (PGAS). The PGAS was designed, developed, and tested for the Army by the Draper team over a two-year period encompassing 1995 and 1996 and included 34 flight tests. During flight test, the Draper PGAS was hosted on the NASA "Wedge 3" airdrop platform. NASA Dryden Flight Research Center provided integration support to host the PGAS on an 88-square-foot ram air parafoil. The goal of this development activity was to achieve a robust airdrop guidance system, using off-the-shelf GPS/INS equipment, that could achieve 100-meter landing accuracy for a variety of payload

weights and parafoil sizes. The PGAS performance was demonstrated on 34 flights to average a 130-meter landing accuracy. Modifications to the control line actuators to allow servo loop closure enabled the last 14 flights to average a landing accuracy of approximately 33 meters. PGAS performance for larger parafoil and payload systems was demonstrated through a Draper-developed simulation that includes high-fidelity parafoil/payload dynamics models and the prototype GN&C software.

Boeing Micromechanical Yaw Rate Sensor



Paul Ward received a Distinguished Performance Award this year, his second, for his key technical contribution to the success of the Boeing micromechanical yaw rate sensor. In 1994, he received the award as part of the team that improved the in-plane micromechanical gyro instrument by several orders of magnitude. This year's award recognizes Ward's analysis and design of most of the Boeing micromechanical yaw rate sensor electronic system, including analysis at the single-electron level, CMOS circuit design at the transistor level, noise and control loop analysis, and debug during the integration phase. He now is concentrating on minimizing total area and power requirements while maintaining performance specified for the automotive gyro.