2003-04

Attachment 3: Menneken Research Award Recipients

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MENNEKEN RESEARCH AWARD RECIPIENTS

In 1988, the late Jessie W. Menneken provided the NPS Foundation with the means to fund an annual award to an NPS faculty member who has displayed outstanding effort and achievement in research, science and engineering. The award recognizes recent highly meritorious research having identifiable impact on navy or DoD technology and is intended especially for the encouragement and benefit of younger faculty members.

Dr. I. Michael Ross is the fourteenth recipient of the "Menneken Award." Dr. Ross is an Associate Professor in the Department of Aeronautics and Astronautics. He also holds a joint appointment with the Space Systems Academic Group. Dr. Ross received his M.A. and Ph.D. from Penn State.

Dr. Ross' current research focus is on developing pseudospectral theory and techniques for the real-time computation of optimal controls for nonlinear and nonsmooth dynamical systems. He is the lead software architect for DIDO, the object-oriented reusable software for rapid dynamic optimization. The software and its variants have

been used extensively at the Charles Stark Draper Laboratory, the former MIT Instrumentation Laboratory (where he spent two years as a Visiting Associate Professor). It is also being used at a number of universities and laboratories across the country. DIDO has been used to solve a wide variety of complex optimal control problems arising in orbital dynamics, launch vehicle design, rigid body control, flexible body control, formation keeping and configuration design, missile guidance and many other areas.

Professor Ross is also the co-developer of ACAPS, a MATLAB code used at the California Institute of Technology Jet Propulsion Laboratory for the preliminary design of interplanetary aeroassisted maneuvers. It has been used for the preliminary design of several Mars missions. For about three years at NPS, he served as the Project Lead on PANSAT, a small experimental communications satellite currently in low-Earth-orbit.

He has also served in leadership roles at the national level, chairing and organizing several conferences and committees in AIAA and AAS including chairing the prestigious AIAA Mechanics and Control of Flight Award Committee. An Associate Fellow of AIAA, he is the founding Book Review Editor for the *Journal of Guidance Control and*

Dynamics. He has over 55 Journal and Conference publications in the open literature.

Dr. Douglas J. Fouts is the Fifteenth recipient of the "Menneken Award." Dr. Fouts is a Professor in the Department of Electrical and Computer Engineering and Space Systems Academic Group.

Since his arrival at NPS in September 1990, Professor Fouts has conducted numerous research projects in the general area of very large scale integrated-circuits (VLSI) and microelectronic system design. Some of his research topics include Gallium Arsenide (GaAs) and Indium Phosphide (InP) digital integrated-circuit design, radiation tolerant and radiation hardened integrated-circuit design for space applications, high-speed/low-power Gallium Arsenide and Indium Phosphide logic circuits, and fault-tolerant microprocessor systems for space applications. All of the funding for his research has come from DoN/DoD sponsors, which is a strong indicator of the military relevance of his research. In addition, he has been very successful at involving graduate students in his research, having advised or co-advised over sixty masters thesis students and two doctoral students during his tenure at NPS. His

publication record of thirty-three refereed journal and conference papers and four U.S. patents is outstanding.

Of particular note is his contribution to the recent Office of Naval Research sponsored project titled "Digital Target imaging architecture for Multiple Large Target Generation." In this research, he developed an application-specific integrated-circuit (ASIC) capable of generating false target decoy images for countering imaging inverse synthetic aperture radars (ISARs). The fully programmable ship is capable of generating images of both small and large targets, even up the size of an aircraft carrier. As a result, ONR considers this project to be critical for future platform protection.