

September 23, 2006

NASA Goddard Space Flight Center Wins FLC MAR Award for Data Analysis System

The Mid-Atlantic Region of the Federal Laboratory Consortium this year presented the Regional Excellence in Technology Transfer Award to Joe Famiglietti, Dr. Norden Huang, Keith Dixon, Karin Blank, Semion Kizhner, Tom Flatley and Laura Schoppe of the NASA Goddard Space Flight Center for work on the “Computer Implemented Empirical Mode Decomposition Method, or, ‘Hilbert-Huang Transform’ (HHT).”

The HHT technology is a highly efficient, adaptive, and user-friendly set of algorithms used to analyze, encode, or modulate signals or data sets for a variety of applications. Dr. Norden Huang developed HHT in 1995 as part of NASA’s ongoing research into ocean waves to advance understanding of Earth science. Huang’s development of HHT was a response to the shortcomings of other alternative methods of signal analysis. Fourier Transform methods (the standard at the time) required that signals be both linear and stationary, making the method unsuitable for many applications in communications, sonar, seismic analysis, acoustics, optics, and medicine that require the analysis of multiple signals that are non-linear and/or non-stationary. When used on such signals, Fourier methods risked low quality and accuracy. Unlike these methods, HHT provides effective analysis of nonlinear and non-stationary signals while also improving the accuracy of linear- and stationary-signal analysis. Since its introduction, the technology has benefited NASA Shuttle safety and testing and has demonstrated broad applicability to research in medicine, the environment, communications, structural and civil engineering, and business.

In July 2004, Goddard entered into a Space Act Agreement (SAA) with Beth Israel Deaconess Medical Center (BIDMC), the goal of which was to refine the use of HHT for a variety of medical research. The result of the agreement is a collaborative effort to enhance monitoring of patients at risk for sudden cardiac failure and stroke, as well as monitor diagnosis and treatment of depression and other neurological disorders. The research was also designed to use HHT to analyze physiological signals in order to measure the vitality of various systems within the body.

One of the most coveted awards in the field of technology transfer, FLC awards for Excellence in Technology Transfer recognize laboratory employees who have accomplished outstanding work in the process of transferring Federally-developed technology to the marketplace. The award was made on September 21 at the region’s annual meeting.

The Federal Laboratory Consortium is comprised of the technology transfer offices of all of the Federal laboratories throughout the country while its Mid-Atlantic Region focuses on the 70 Federal laboratories in DC, DE, MD, PA, VA and WV.

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