One of the goals of the Education Committee of the Instrumentation and Measurement Society is to support and encourage graduate-level research in the areas of instrumentation and measurement. The Graduate Fellowship Grant Award committee annually reviews applications for research funding. Successful students are given a monetary grant to initiate or continue work on a specific project. This article provides a profile of the past few years’ recipients and the results of this program.

In 2011, the Fellowship Grant Award was given to Jonathan D Armstrong for research titled, “Steadiness/Tremor Measurement Using General Systems Performance Theory (GSPT)”.

Jonathan D. Armstrong (M’05) is a native of Arlington, Texas, USA. He received the M.S. degree in electrical engineering from the University of Texas at Arlington in 2009. He is a Ph.D. research assistant in the Human Performance Institute (HPI) at the University of Texas at Arlington, Arlington, TX.

Using the award, his primary focus has been the investigation and measurement of human performance under the mentorship of Dr. George Kondraske. These investigations frequently require incorporation of Dr. Kondraske’s General Systems Performance Theory. Mr. Armstrong’s primary interest includes the measurement and quantification of human steadiness/tremor. His technical interests include signal processing, embedded operating systems, and circuit analysis.

As a result of this research, Mr. Armstrong is in the process of enriching the body of knowledge of Instrumentation and Measurement with the following publications:

2. Deriving Steadiness/Tremor Composite Measures from Multiple Degrees of Freedom Motion Data Using General Systems Performance Theory (IEEE Transactions on Neural Systems & Rehabilitation Engineering) (In Progress)

A second Graduate Fellowship Award was made in 2011 to Arpit Kothari of the Missouri University of Science and Technology for work titled, “A Calibration-Free Vector Network Analyzer”.
Arpit Kothari received his Bachelor of Engineering Degree in 2007 in ‘Instrumentation Technology’ from Visvesvaraya Technological University, India. After his graduation, from July 2007 to April 2010, he worked on Distributed Control System (DCS) at Yokogawa India Limited, a firm specializing in Measurement, Control and Industrial Automation. His area of focus was Power Plant Instrumentation and Control.

In July 2013, he received his Master of Science degree in Electrical Engineering from Missouri University of Science & Technology, Rolla, Missouri where he worked on microwave design, vector network analysis and calibration. He is presently working as a Hardware Engineer at Juniper Networks Inc., Sunnyvale, CA. His areas of interest are RF design, measurement and Signal Integrity.

As a result of his research, Mr. Kothari was an author to the following published papers which explain his work.


The following is a quote from Mr. Kothari on the value of this award to his career development: “During my Masters I obtained an internship with Cisco Systems Inc. at San Jose, CA (Feb 2013), and after graduating, was offered permanent employment with Juniper Networks Inc., Sunnyvale, CA (Oct 2013). Throughout my Masters, this Fellowship Award provided me with financial independence due to which I could concentrate on my research full-time. The skills acquired during my research were instrumental in obtaining both the internship and my present full time position. I proudly and gratefully acknowledge the fellowship and my association with I&M society in my Master’s thesis, my published papers and my resume.”

In 2012 , a Graduate Fellowship Award was presented to Lee Gonzales Fuentes of the Vrije Universiteit Brussel for research in “Density Estimation for the Disturbing Noise in Sampling Oscilloscopes”.
Lee Gonzales Fuentes was born in Arequipa, Perú. She received the Bachelor degree in Electronic Engineering with a major in Telecommunications from the Universidad Nacional de San Agustín (UNSA), Perú in 2008. Her M.Sc. degree in Electronics/Telecommunications from the University of Gävle (HIG), Sweden was received in 2012. In March 2012, Lee joined the department of Electricity and Instrumentation (ELEC) as a Ph.D. student in the domain of pre- and post-processing of measured data. Her main research interests are measurements and modeling techniques for high-frequency applications, wireless network design, telemetry and digital signal processing.

Research under this award has been captured in the following transaction papers:


In addition, results have been published in conference proceedings:


Lee Gonzales Fuentes based her doctoral dissertation entitled:


on the research supported by this award.

And finally, the following conference presentations have highlighted the research results:


The estimation of the probability density of a measured physical variable is a very common functionality in both measurement instruments and virtual measurement systems. The relevance of this project attracted the attention of Agilent Technologies (currently Keysight Technologies) which resulted in a scientific collaboration. Several discussions regarding the
different techniques and their implementation allowed the research team to apply them to different measurement problems that an engineer usually encounters.

The second 2012 award was presented to Jie Huang, who was studying at the time at the Missouri University of Science and Technology. He received his master’s degree from that institution and is currently pursuing his doctorate at Clemson University. His work was titled: “Novel coaxial cable interferometric sensors for distributed measurement of large strain in structural health monitoring.”

Jie Huang received his B.S. degree in opto-electronic engineering from Tianjin University, Tianjin, China, in 2009 and M.S. degree in electrical engineering in Missouri University of Science and Technology, Rolla, US, in 2012. He is currently pursuing the Ph.D. degree in electrical engineering at Clemson University. From 2010 to present, he was a Research Assistant with the Photonics Technology Lab at Missouri University of Science and Technology and Clemson University. His research interest mainly focuses on the development of photonics and microwave sensors and instrumentations for applications in energy, intelligent infrastructure and biomedical sensing. Mr. Huang was a recipient of the IEEE I&M society graduate fellowship award from 2012 to 2013. He has authored or co-authored over 30 research journal papers and held 2 US patents in the past 4 years. He is members of Omicron Delta Kappa National Leadership Honor Society, OSA (Optical Society of America), SPIE and IEEE.

The following publications relate to his research under this grant:


The stories of these recipients illustrate the benefits to the advancement of our profession that are promoted by the Graduate Fellowship Grant Award. The Graduate Fellowship Grant Award program is administered by a committee currently chaired by Kristi Paranjape. We thank Kristi and the other members for their volunteer dedication to this program. For more information including application instructions and selection criteria, please visit the Instrumentation and Measurement website at www.ieee-ims.org/awards.