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Dr. Kefu Xue received his Ph.D. degree from The Pennsylvania State University, MS and BS degrees from Shanghai Jiao Tong University all in Electrical Engineering. In the past seventeen years, he has been working in the fields of sensor technology, embedded systems, digital signal and image processing. He has been a principal designer and developer of several imaging instruments and real-time embedded digital signal processing (DSP) sensor systems. The imaging systems include a laser-optical 3-D scanner and an ultrasonic 3-D medical imaging system. He also developed two software image-processing suites for testing various motion estimation and data compression algorithms. The embedded DSP sensor systems include a remotely deployable solar powered Oceanographic CO2 sensor and an industrial high precision real-time ultrasonic plastic tube wall-thickness measurement instrument. Several Oceanographic CO2 sensors have been deployed in various sites at Atlantic Ocean and Golf Mexico for the environmental research sponsored by the United States Department of Energy. The high precision ultrasonic measurement instrument is a major product of a company in Dayton area. He gained enormous industrial research, design and development experiences over the years by leading many research and development projects sponsored by private industry as well as federal and Ohio State government. The total funding of those projects has been accumulated over one million USD. In addition, he has published more than 30 technical articles and holds 2 U.S. patents.

Research Interests

Dr. Xue is an expert in mixed-signal processing, sensor/imaging technology and embedded real-time DSP systems. His current R&D interests are in a) Distributed (Internet) embedded instrumentation; b) Advanced ultrasound, Electro-optical, radar imaging and hyperspectral sensor technologies; c) Multi-platform and multi-modality image registration, d) 3D graphics in prosthesis design and manufacture. He is also interested in solving any real-life sensor/instrumentation problems that have the potential impact on human life, industrial productivity and earth environment.

Current Research Projects

Dr. Xue is currently working on some problems in ultrasonic measurement precision and compensation. He is also working on research problems associated with SAR and Electro-optical image registration and motion restoration. He is looking into the development of an automatic design and manufacture technology for above and below knee prosthesis to improve the quality of fit and the productivity of the prosthetic industry.