Mobile and Connected Imaging

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One of the greatest technological advances in recent years is the ability to collect and analyze large amounts of data to enhance knowledge about the world, both in natural and man-made environments. This knowledge can help develop timely solutions for many pressing problems, from environ-mental sustainability to improving economic efficiencies. This advance is largely driven by the advent of cheap connected sensors. In general, widely deployed inexpensive sensors can continuously collect data from large areas and transmit the data to users remotely. The "Internet of Things" is driven by these connected sensors. One of the most interesting aspects of this sensor deployment is many of these sensors are cameras that are collecting images/video in new applications areas that have not previously used imaging. This presents interesting and unique challenges for data engineering.

Images and video are everywhere. Embedded mobile telephone cameras and relatively cheap digital cameras/webcams have driven this ubiquitous deployment of visual sensors. We are seeing these deployed in many applications including farming using cameras mounted on drones, accident avoidance using cameras in cars, health and fitness monitoring using cameras in mobile telephones, body cameras worn by the police, environmental surveillance using cameras, and even cameras in toys. This visual spatio-temporal data (images and video) enhances our knowledge about the world. The challenge is to interpret and extract valuable information from this ever-increasing amount of imagery.

In this talk I will discuss how the ubiquity of images impacts our research efforts and the way we train our students.

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Edward J. Delp was born in Cincinnati, Ohio. He received the B.S.E.E. (cum laude) and M.S. degrees from the University of Cincinnati, and the Ph.D. degree from Purdue University. In May 2002 he received an Honorary Doctor of Technology from the Tampere University of Technology in Tampere, Finland.

He is currently The Charles William Harrison Distinguished Professor of Electrical and Computer Engineering and Professor of Biomedical Engineering and Professor of Psychological Sciences (Courtesy).

His research interests include image and video compression, multimedia security, medical imaging, multimedia systems, communication and information theory.

Dr. Delp is a Fellow of the IEEE, a Fellow of the SPIE, a Fellow of the Society for Imaging Science and Technology (IS&T), and a Fellow of the American Institute of Medical and Biological Engineering. In 2004 he received the Technical Achievement Award from the IEEE Signal Processing Society for his work in image and video compression and multimedia security. In 2008 Dr. Delp received the Society Award from IEEE Signal Processing Society (SPS). This is the highest award given by SPS and it cited his work in multimedia security and image and video compression. In 2009 he received the Purdue College of Engineering Faculty Excellence Award for Research.

In 1990 he received the Honeywell Award and in 1992 the D. D. Ewing Award, both for excellence in teaching. In 2001 Dr. Delp received the Raymond C. Bowman Award for fostering education in imaging science from the Society for Imaging Science and Technology (IS&T). In 2004 he received the Wilfred Hesselberth Award for Teaching Excellence.