

DEPARTMENT OF MECHANICAL ENGINEERING
Purdue School of Engineering and Technology

Fall 2008 SEMINAR SERIES

Date: Thursday, August 28, 2008

Time: 12:00 pm – 1:00 pm

Room: SL 008

Everyone is invited

3D Imaging and VLSI Applications

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Abstract

The application of VLSI circuits to 3D imaging algorithms to improve throughput and real-time analysis of 3D image data is an important research area. The next frontier in image technology is the extension to 3D in displays, image processing and in image capture. These technologies are seeing growth in medical imaging (3D CT, Ultrasound, MRI) and other applications. One area of algorithmic research is in 3D statistical image segmentation using an iterative Bayesian analysis with the Expectation-Maximization algorithm to achieve results in highly noisy images (such as Ultrasound). This type of algorithm poses challenges to real-time clinical needs, due to lengthy convergence speeds on traditional hardware. New challenges in data access and dedicated processing for these types of applications dictate the need for VLSI solutions. The short term research goal is to map these algorithms to chip solutions.

About the Speaker

Dr. Christopher received a BS and MS in Electrical Engineering from Massachusetts Institute of Technology, both in 1982. She has over 25 years of experience in Consumer Electronics applying VLSI to Signal and Image Processing. She recently obtained a PhD in Electrical Engineering from Purdue University in 2003 with a focus on medical image processing. In her early career, as part of RCA Laboratories, she led the team developing some of the first ICs for Digital Television, and was involved in the committees that set Digital TV standards. Her career in Thomson includes leading the team to develop Thomson's DVD player and leading an entrepreneurial team developing the first small-dish satellite service (DIRECTV), for which the team received a technical Emmy award. Dr. Christopher has been active in the IEEE: she chaired the Custom IC conference, edited Solid State Circuits Journal, and currently reviews paper submissions for Transactions on Consumer Electronics.