



EE 500 GRADUATE COLLOQUIUM

Spring 2014

You are cordially invited to

“Directional Transforms and their Applications in Image Processing, Detecting Seismic Features, and Quality Assessment of Videos”

By

Dr. Ghassan AlRegib

Department of Electrical and Computer Engineering
Georgia Institute of Technology

Date: March 6, 2014

Time: 4:00 pm

Location: 160 Willard Bldg.

Abstract

In this talk, I will briefly present the work my group does at both the Multimedia and Sensors Lab (MSL) and the Center for Energy and Geo Processing (CeGP) at Georgia Tech. In more detail, I will focus on three topics. First I will detail our recent work on directional transform with emphasize on curvelets and their applications in image processing. We proposed an adaptive curvelets transform that is trained based on the class of images we are processing. I will show applications of this new adaptive transform in denoising applications and similarity index measures. Second, I will present our work in using image processing techniques to detect faults within 3D seismic volumes. We rely on Hough transform as well as skeletization algorithms to better detect faults in such complex data sets. Third, I will describe our work in measuring quality in 3D videos and more recently in streamed 2D videos.

Biography

Prof. AlRegib joined the Georgia Institute of Technology as an Assistant Professor in the School of Electrical and Computer Engineering in 2003 and is currently an associate professor. He is the Director of the Multimedia and Sensors Lab (MSL) at Georgia Tech. In 2012, he was named the Director of Georgia Tech's Center for Energy and Geo Processing (CeGP). He is a faculty member of the Center for Signal and Information Processing (CSIP). He has authored and co-authored more than 100 articles in international journals and conference proceedings. He has been issued three U.S. patents, two US patent applications, and several invention disclosures. He is a Senior Member of IEEE.

Prof. AlRegib received the ECE Outstanding Graduate Teaching Award in 2001 and both the CSIP Research and the CSIP Service Awards in 2003. In 2008, he received the ECE Outstanding Junior Faculty Member Award.

Prof. AlRegib served as the chair of the Special Sessions Program at ICIP'06, the area editor for Columns and Forums in the IEEE Signal Processing Magazine (SPM), 2009–12, the associate editor for IEEE SPM, 2007–09, the Tutorials co-chair in ICIP'09, a guest editor for IEEE J-STSP, 2012, a track chair in ICME'11, the co-chair of the IEEE MMTC

Interest Group on 3D Rendering, Processing, and Communications, 2010-12, the chair of the Speech and Video Processing Track at Asilomar 2012, and the Technical Program co-Chair of IEEE GlobalSIP, 2014. He is a member of the editorial board of the Wireless Networks Journal (WiNET), 2009-present and the IEEE Transaction on Circuits and Systems for Video Technology (CSVT), 2014-present.

His research group is working on projects related to image and video processing and communications, seismic imaging, quality assessment of images and videos, and video analysis.

Prof. AlRegib has provided services and consultation to several companies and international educational and R&D organizations.

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