

Dear Faculty, IGERT Fellows, IGERT Associates and Students,

You are cordially invited to attend a Seminar presented by Atena Zahedi.  
Please plan to attend.

# Atena Zahedi

IGERT Fellow  
Bioengineering

Date: Friday, September 27, 2013

Location: Bourns A265

Time: 11:00am

## Revolutionizing the Way We See in the Brain

### Abstract:

Neuroscience has advanced a long way since the discovery of nerve cells by H. Waldeyer-Hartz in 1891. In the past, neuroscientists would sketch out the broad anatomy of the brain, and realize that individual functions are mediated by circuitry that can cross anatomical borders. Researchers can now examine the detailed electrical activity of a group of neurons, and more recently with the help of advanced emerging technologies such as Optogenetics, they can show which brain areas are activated during defined tasks. Still, the big picture is illusive with many questions unanswered: what is the human consciousness, what makes each individual different, why some people develop psychiatric/neurological disorders, etc. With the launch of two highly-funded interdisciplinary projects led by US president Obama's BRAIN Initiative (Brain Research through Advancing Innovative Neurotechnologies) and European Commission's Human Brain project, we are inching closer to the ultimate goal of mapping the human brain in terms of activity in normal and diseased conditions. Here, we will discuss some of the past discoveries in neuroscience as well as emerging technologies that are transforming the ways scientists study and peer inside the brain. Currently, he is an assistant professor in School of Computing, Informatics, and Decision Systems Engineering at Arizona State University. His research focuses on the computer vision, mathematics, neuroscience, and clinical aspects of neuroimaging and brain mapping. He develops new imaging methods to track how diseases spread in the living brain over time and how medications resist them. He has published over 120 peer-reviewed technical papers and was invited to give plenary talks at different international technical conferences, including HBM (twice), MICCAI (twice), CVPR (twice), etc.

Attached are two related papers for the talk.

