ECE Research Information Session 2016

For more information on…

U of M URA: Google University of Manitoba URA and visit the U of M website.

NSERC USRA: Google NSERC USRA and visit the NSERC website.

Either Award: Contact Kristy McGregor in E1-284 or at kristy.mcgregor@umanitoba.ca

1. Dr. Carl Ho: RIGA Lab, Carl.Ho@umanitoba.ca, E1-456.

One student for implementation of a DSP controller for Solar Inverters: To develop algorithms and program in a TI DSP/MCU to control Solar inverters, including MPP Tracking, gird current control. One student for implementation of a Solar Inverter: To design a converter and route PCBs to implement an Solar inverter prototype.

2. Dr. Derek Oliver, Nano-Scale Systems, Derek.Oliver@umanitoba.ca, E2-390G.

I collaborate with an interdisciplinary and international team to develop a device that will use energy from the sun to "split" water into hydrogen and oxygen. A key part of the proposed device are silicon microwires that will absorb the sunlight. The electrical characterization of these wires and their interface with other system components is our speciality - a summer student will work in partnership with graduate students on this.

3. Dr. Zahra Moussavi, Biomedical Instrumentation, Zahra.Moussavi@umanitoba.ca, E3-517.

My research is focused in three clusters: 1) medical devices instrumentation and signal analysis, 2) immersive virtual reality design for diagnosis and rehabilitation of Alzheimer's disease, and 3) electrovestibulography for diagnosis of neurological and mental disorders, e.g. depression, concussion, Alzheimer's, etc.

4. Dr. Joe LoVetri, Electromagnetic Imaging Lab, Joe.LoVetri@umanitoba.ca, E2-390C.

Dr. LoVetri is the director of the University of Manitoba Electromagnetic Imaging Lab, focused on the development of microwave and ultrasound imaging algorithms and hardware systems. Summer research positions will focus on the development, maintenance or testing of hardware systems and/or algorithms for various imaging applications. Matlab/C/C++ programming, RF hardware, and/or embedded system experience will be advantageous.

5. Dr. Arkady Major, Biomedical & Laser Photonics Lab, A.Major@umanitoba.ca, E3-559.

Develop (design, build and test) a (1) CCD camera based laser beam profiler; (2) temperature controlled cooling system for LED; (3) electrical pulse generator with MHz repetition rate; (4) laser based microscope.

6. Dr. Cyrus Shafai, Nano-Systems Fabrication Lab, Cyrus.Shafai@umanitoba.ca, E1-534.

Development of micro-fabricated (in cleanroom) micro-sensors for electric field and magnetic field measurement. Integration of sensors with electronics, with Arduino and Raspberry Pi for interfacing and data logging. Application for remote, non-contact, voltage and current measurement of electric cabling and high voltage power lines.

7. Dr. Dustin Isleifson, Applied Electromagnetics & Remote Sensing, Dustin.Isleifson@umanitoba.ca, E3-513.

Undergraduate student research position in the development of electromagnetic simulation tools for remote sensing problems. Tasks would include running simulations, code development (MATLAB, C), validation, and verification.

8. Ahmad Byagowi, Ahmad.Byagowi@umanitoba.ca

9. Dr. Greg Bridges, Advanced RF Systems Laboratory, Gregory.Bridges@umanitoba.ca, E3-465.

The ARFSL specializes in the design and test of microwave and millimeter wave integrated circuits and RF microfluidic devices. Summer research positions are available in two areas. 1. Development of an RF microfluidic fabrication process that integrates RF electronics with fluid channels on a single chip. 2. Development of a microwave chipless RFID sensor for remote chemical monitoring.

10. Dr. Ian Jeffrey, Electromagnetic Imaging Lab, Ian.Jeffrey@umanitoba.ca, E3-546.

Dr. Jeffrey is a member of the Electromagnetic Imaging Lab. This summer one project focuses on the development of computational electromagnetics codes in Matlab and/or C++ for microwave imaging algorithms. A second project is the development of a mobile game platform for determining users' abilities to detect and maintain strategies in short-duration simple games.

We hope you learned something. Sorry for the wall of text - UMES Outreach