

Masters of Science Position in Transformative sensor Technologies and Smart Watersheds Project

Opportunity: Field testing of GNSS reflectometer for snow depth and surface soil moisture measurements

Start date: Winter/ spring 2018

A Master's of Science position is available in the 'Transformative sensor Technologies and Smart Watersheds for Canadian Water Futures' project (TTSW) at the University of Waterloo. The position is part of Global Water Futures: Solutions to Water Threats in an Era of Global Change, a large collaborative initiative involving multiple Canadian universities and partner organizations. TTSW aims to develop, test, and employ advanced terrestrial, sub-orbital, and satellite remote sensing tools connected through "smart" watershed networks. These technologies are targeted to support research regarding the emerging spectrum of water related issues throughout cold regions.

More Information

Water supply and water quality are two critical concerns relevant to water resources not only in Canada, but globally in a warming climate. Through collaboration with industrial partners, this project works towards the design, development, and deployment of remote sensing technologies that will better prepare end users to respond to the threats of changing water futures.

Global Navigation Satellite System Reflectometry has shown potential for the retrieval of water and land surface properties including soil moisture and snow depth. The surface reflected (passive) GPS signals measured onboard drones, aircrafts, or satellites are expected to revolutionize land/hydrology mapping. GNSS reflectometry (GNSS-R) will be used as a form of passive remote sensing that uses signals from GNSS satellites, most commonly GPS to correlate to the reflected signals from earth to characterize and measure several properties such as the dielectric properties of a frozen land or soil moisture content.

The successful student will collaborate with researchers and private industry in order to carry out field testing of a GNSS reflectometer as well as collect coincident field measurements.

Eligibility

A background in electrical engineering is required, with preference given to those who have remote sensing/ environmental science experience. Students are expected to have strong interests/background in electrical engineering concepts pertaining to radar basics and hands on experience and testing. Majority of the testing will be performed on a quad-copter platform for the payload proof of concept and design.

The student will work under the supervision of Professor Armaghan Salehian with the Mechanical and Mechatronics Engineering department.

<http://www.eng.uwaterloo.ca/~salehian/>

Application Instructions

Interested applicants should submit a cover letter stating their motivation and expectations. In addition, a curriculum vitae, unofficial transcripts, and contact information for three references should be included in a single pdf file and sent to salehian@uwaterloo.ca with MSC4-TTSW-YourName in the subject line. We thank all applicants for their interest, however, only selected candidates will be contacted.