SHINONG MAO

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EDUCATION

Honor Science
Environmental Science (Geoscience), Earth and Environmental Science
University of Waterloo, Waterloo, Ontario, 2014-2016

Honors Thesis: Nitrate export along the Nith River (Supervisor: Dr.Schiff)

- Investigating nitrate change along the Nith River both seasonally and during storm events
- Determine the source of nitrate contributing to the river.
- Determine the relations between land use type and agriculture regime and the nitrate concentration

Bachelor of Engineering
Environmental Engineering
China University of Geosciences Beijing, Beijing, China, 2011-2016

Undergraduate Thesis: Efficiency of sulphate removal and electrical power generation from sulphur rich wastewater by an anaerobic baffled stacking microbial fuel cell

- Contract a set of stackable baffled microbial fuel cell chambers
- Maintained and operated equipment to cultivate the microorganisms from the WWTP
- Monitoring voltage levels of each single cell and test sulphate concentration of each cell by ion chromatography

MASc Candidate
Mechanical and mechatronic Engineering, NSERC Chair Lab-on-chip Group
University of Waterloo, Waterloo, Ontario, 2016-present

Research Area: Microwave sensing combing with microfluidic technologies

- Microwave sensor design and theoretical study
- Combine thermoplastic microchannel onto the customized microwave sensor for real-time sensing
- New algorithm for qualitative and quantitative measurement using the customized microwave sensing system

Supervisor: Dr. Ren

WORKING EXPERIENCE

Hardware Development Engineer, Quantwave Technologies Inc.

- Design and optimize the microwave sensor
- Design the microfluidic channels
- System design (programmable control system)
- Data processing and algorithm study

RESEARCH EXPERIENCE

Assistant researcher in the Chemistry Lab
China University of Geoscience Beijing, 2012-2013

- Participated in project focusing on the efficiency of photocatalysis by applying different catalyst carriers to nano TiO_2
- Help prepare the nano TiO_2 by mixing titanium chloride with DI water in a magnetic stirrer
- Test the catalysis efficiency by monitoring the organic dye concentration which is used as an indicator through UV photometer

Assistant Researcher in the Earth Science Isotope group
University of Waterloo, 2015-2016

- Sampled water quality along the Grand River and measured river flow rates
- Analyzed water sample using a variety of analysis instruments for DO, TSS, TP, SRP, nitrogen and isotopes
- Participate in several ongoing projects such as investigating how nitrogen transfer within aquatic system by use of isotope analysis

Assistant Researcher in the NSERC Drinking Water Group
University of Waterloo, 2015-2016

- Assisted in a PhD student's research of the efficiency of PFC adsorption by various ion-exchange resins and nano particles
- Prepare the water samples such as filtering water samples by vacuum filtration

TEACHING EXPERIENCE

Peer Mentor for Earth 10 - Enhancing Communication Skills for Earth Scientists

- Provided academic and social support for new Earth Science students
- Assessed student essays, critiqued presentation skills, provided geoscience instruction

AWARDS & SCHOLARSHIPS

Dean's Honours List, University of Waterloo, Winter term 2015

- Granted to the students who have an overall term average of at least 80%
- Less than 25% of the undergraduates in Science earn this distinction

J.P. Bickell Foundation Mining Scholarship, Fall term 2015

VOLUNTEER EXPERIENCE

Science Open House of 2014 (Earth Sciencs)

- It is an annual science popularizing activities to the public especially for children
- Illustrate the basic geoscience knowledge by some scenarios or models, for example, show people how the contaminants transfer within underground & surface water cycle systems

LANGUAGES

- **Chinese(native Language)**
- **English(second language, skilled in communication and academic writing)**