

EDUCATION

Massachusetts Institute of Technology (MIT) **Cambridge, MA**

PhD in Mechanical Engineering; Precision Engineering Research Group 5.0/5.0 GPA *Expected Aug. 2017*

- Won \$400K of funding to pursue my proposed research agenda to mitigate India's water pipe problems
- Developed a new hydraulic modeling method to capture the behavior of intermittently-operated water systems
- Invented and validated a new multi-jet water meter, tailored to the specific challenges of intermittent water systems
- Calibrated the hydraulic model and discovered unmapped parts of Delhi's system, enabling a 60% reduction in energy
- Modelled the emissions impact of installing thousands of 3.5MW wind turbines across the Athabasca Oil sands
- Received mentorship, thesis supervision, and design oversight by Professor Alexander H. Slocum

Massachusetts Institute of Technology (MIT) **Cambridge, MA**

MS in Mechanical Engineering; Precision Engineering Research Group 5.0/5.0 GPA *2014*

- Identified the urgent need for a pressure-sustaining valve for household connections in large Indian cities through stakeholder interviews and pressure and flow measurements, done in collaboration with Delhi's water utility
- Created, built, provisionally patented (Application no. PCT/CA2015/050002, India: 201647025990), and tested this valve, preventing an average of 68 minutes of intrusion-inducing negative pressure per day per connection in Delhi
- Designed, on a team of six, a new double-lumen endotracheal tube to allow larger bronchoscopes in smaller patents

University of Toronto **Toronto, Canada**

BASc in Engineering Science, Honors 3.99/4.0 CGPA *2011*

- Majored in Energy Systems, focusing on power generation, transmission, and end-use efficiency
- Tested, experimentally, the disinfection properties of a surfactant-treated activated carbon for Twothirds Water Inc.

PROFESSIONAL EXPERIENCE

Aquaya Institute **Nairobi, Kenya**

Visiting Researcher *July 2015-August 2015*

- Proved the statistical impotence of water quality sampling recommendations issued by the World Health Organization by analyzing 27,930 tests for fecal indicator bacteria taken by 351 utilities across eight countries

Engineers without Borders Canada **Tamale, Ghana**

Market Facilitation Consultant to USAID Ghana's ADVANCE Project *July 2011-July 2012*

- Facilitated Northern Regions' first sale of locally-branded hybrid maize seed; 20 tons was sold to Armajaro Cotton
- Improved USAID Ghana's \$35M Feed the Future (ADVANCE) project's seed promotion strategy
- Coached, cross-culturally, the project's field staff in market facilitation practice and theory
- Studied rural Ghanaian water economics through cultural integration into a water-retailing Dagomba family
- Championed knowledge sharing in a practitioners forum, winning MaFI's "Influencer of the Month" award

FP&P HydraTek Inc. **Toronto, Canada**

Engineering and Research Intern *May 2010- August 2010*

- Conceived of a new efficiency testing branch of the company that now substantially contributes to company revenues
- Wrote a winning Expression of Interest for \$250K from Ontario Power Authority's Conservation Fund to subsidize the launch of this pump testing program, which decreased the initial cost to customers by 80%
- Assessed through field monitoring the water hammer risk in client's water and waste water systems
- Saved \$4M for the city of Vaughan, by installing strategically located flow meters to track night flow

CVM **Jiddah, The Gambia**

Rural Water Project Specialist *May 2009*

- Implemented the country's first capital cost sharing model for a village water system, unfortunately the innovative model was ultimately unsuccessful because another NGO offered the village a larger and fully subsidized system

AWARDS

- MIT IDEAS Global Challenge 1st Place
- NSERC's Alexander Graham Bell Scholarship - Doctoral
- Tata Center for Design and Technology Fellow
- NSERC's Alexander Graham Bell Scholarship - Masters
- Engineering Science's Academic Excellence Award
- NSERC's Industrial Undergraduate Research Award