LIANG (LIAM) JING, Ph.D., E.I.T.

Department of Civil Engineering
Faculty of Engineering and Applied Science
Memorial University
St. John's, NL, Canada, A1B 3X5
Phone: 1(709)351-1816
E-mail & Skype: liang.jing@mun.ca

0. EXECUTIVE SUMMARY

A) RESEARCH

- Produced over **30** publications, including **21** peer-reviewed journal papers (13 as first author) and **14** conference papers (5 as first author);
- Participated in **8** research projects in the areas of environmental systems modeling and analysis, wastewater treatment, resource-oriented waste management, and water resources management; and
- Involved in writing over **8** research grant proposals to funding agencies such as the Natural Sciences and Engineering Research Council of Canada (NSERC), Canada Foundation for Innovation (CFI), and MITACS.
- Over **10** presentations in colloquia/seminars and conferences.

B) TEACHING

- Taught or co-taught **5** courses in environmental engineering, CEQ (Overall quality of instruction): avg. **4.78 out of 5** (stdev = 0.23).

C) TRAINING OF HQP

- Advisor for **2** graduate student team-projects and **4** co-op undergraduate students.

D) AWARDS

- Received over **20** institutional, provincial and national scholarships and awards.

1. EDUCATION

Ph.D. in **Environmental Engineering**	Memorial University	Canada	**2014**
M.Eng. in **Environmental Engineering**	Memorial University	Canada	**2009**
M.A.Sc. in **Environmental System Engineering and Management**			
	Memorial University	Canada	**2006**
B.Eng. in **Mechanical Engineering**	Tsinghua University	China	**2005**

2. HONOURS AND AWARDS

- Delegate of the Silk Road International Symposium for Distinguished Young Scholars, nominated by Xi'an Jiaotong University, 2016
- Canadian Delegate of Outstanding Oversea Young Researchers, nominated by Chinese Embassy in Canada and invited by Chinese Academy of Science, 2015
- Governor General's Gold Medal, Memorial University, 2015 (Nominated)
- **The David Dunsiger Award for Excellence**, Memorial University, 2015 (only one

recipient every year)
- Fellow of the School of Graduate Studies, Memorial University, 2014 and 2009
- Chinese Government Award for Outstanding Students Abroad, China Scholarship Council, 2014
- **Royal Bank Fellowship in Marine Studies**, Memorial University, 2014
- **Chevron Canada Limited Rising Star Award**, Memorial University, 2014
- Recognition of Excellence, Memorial University, 2014
- **Chevron Canada Limited Rising Star Award**, Memorial University, 2013
- Recognition of Excellence, Memorial University, 2012
- **RDC Ocean Industries Student Research Award**, Research & Development Corporation of Newfoundland and Labrador, 2011
- Northern Research Fund, Churchill Northern Studies Center, 2008
- Memorial Entrance Scholarship, Memorial University, 2007
- Best Overall Performance Award, Memorial University, 2006
- Best Project Award, Memorial University, 2006
- School of Graduate Studies Scholarships, Memorial University, 2007-2014
- Research Assistant Scholarships, Memorial University, 2007- 2013
- Teaching Assistant Scholarships, Memorial University, 2007- 2013

3. PUBLICATIONS
A) Published Peer-Reviewed Journal Papers
-In Environmental Systems Modeling and Analysis

1) **Jing, L.,** Chen, B., Xudong Ye, Zhang, B.Y. (2017). Wastewater treatment plant network design using a multi-scale two-stage mixed integer stochastic (MSTMIS) model. *Environmental Engineering Science*, in press.

2) **Jing, L.,** Chen, B., Zhang, B.Y., Li, P. (2016). An integrated simulation-based process control and operation planning (IS-PCOP) system for marine oily wastewater management. *Journal of Environmental Informatics*, 28(2), 126-134.

3) Li, P., Chen, B., Li, Z.L., **Jing, L.** (2016). ASOC: a novel agent-based simulation-optimization coupling approach - algorithm and application in offshore oil spill responses. *Journal of Environmental Informatics*, 28(2), 90-100.

4) **Jing, L.,** Chen, B., Zhang, B.Y., Li, P. (2015). Process Simulation and Dynamic Control for Marine Oily Wastewater Treatment using UV Irradiation. *Water Research*, 81, 101-112, doi: 10.1016/j.watres.2015.03.023.

5) **Jing, L.,** Chen, B., Zhang, B.Y. (2014). Modeling of UV-induced photodegradation of naphthalene in marine oily wastewater by artificial neural networks. *Water, Air, & Soil Pollution*, 225(4), 1-14, doi: 10.1007/s11270-014-1906-0.

6) Li, P., Chen, B., Li, Z.L., Zheng, X., Wu, H.J., **Jing, L.,** Lee, K. (2014). A Monte Carlo simulation based two-stage adaptive resonance theory mapping approach for offshore oil spill vulnerability index classification. *Marine Pollution Bulletin*, 86(1-2), 434-442, doi: 10.1016/j.marpolbul.2014.06.036.

7) Li, P., Chen, B., Zhang, B.Y., **Jing, L.,** Zheng, J.S. (2014). Monte Carlo simulation-based dynamic mixed integer nonlinear programming for supporting oil recovery and devices

allocation during offshore oil spill responses. *Ocean & Coastal Management*, 89, 58-70, doi: 10.1016/j.ocecoaman.2013.12.006.

8) **Jing, L.,** Chen, B., Zhang, B.Y., Li, P. (2013). A hybrid stochastic-interval analytic hierarchy process (SIAHP) approach for prioritizing the strategies of reusing treated wastewater. *Mathematical Problems in Engineering*, vol. 2013, Article ID 874805, 10 pages, doi:10.1155/2013/874805.

9) **Jing, L.,** Chen, B., Zhang, B.Y. (2013). A hybrid fuzzy stochastic analytical hierarchy process (FSAHP) approach for evaluating ballast water treatment technologies. *Environmental Systems Research*, 2:10, doi:10.1186/2193-2697-2-10.

10) **Jing, L.,** Chen, B., Zhang, B.Y., Li, P. (2012). A stochastic simulation-based hybrid interval fuzzy programming approach for optimizing the treatment of recovered oily water. *Journal of Ocean Technology*, 7(4), 59-72.

11) **Jing, L.,** Chen, B., Zhang, B.Y., Li, P., Zheng, J.S. (2012). Monte Carlo Simulation–Aided Analytic Hierarchy Process Approach: Case Study of Assessing Preferred Non-Point-Source Pollution Control Best Management Practices. *Journal of Environmental Engineering ASCE*, 139(5), 618-626, doi: 10.1061/(ASCE)EE.1943-7870.0000673.

12) Li, P., Chen, B., Zhang, B.Y., **Jing, L.,** Zheng, J.S. (2012). A multiple-stage simulation-based mixed integer nonlinear programming approach for supporting offshore oil spill recovery with weathering processes. *Journal of Ocean Technology*, 7(4), 87-105.

-In Wastewater Treatment and Waste Management

13) Lin, W.Y., **Jing, L.,** Zhang, B.Y., Zhu, Z.W., Cai, Q.H. (2017). Removal of heavy metals from mining wastewater by micellar enhanced ultrafiltration: kinetics study and artificial neural networks modeling. *Water, Air, & Soil Pollution*, in press.

14) Zhang, K.D., Zhang, B.Y., Chen, B., **Jing, L.,** Zhu, Z.W., Kazemi, K. (2016). Modeling and Optimization of Newfoundland Shrimp Waste Hydrolysis for Microbial Growth Using Response Surface Methodology and Artificial Neural Networks. *Marine Pollution Bulletin*, 109, 245-252, doi: 10.1016/j.marpolbul.2016.05.075.

15) Liu, B., Chen, B., Zhang, B.Y., **Jing, L.,** Zhang, H., Lee, K. (2016). Photocatalytic Degradation of Polycyclic Aromatic Hydrocarbons (PAHs) in Offshore Produced Water (OPW): the Effects of Water Matrix. *Journal of Environmental Engineering ASCE*, 142, 11, doi: 10.1061/(ASCE)EE.1943-7870.0001135.

16) Liu, B., Chen, B., Lee, K., Zhang, B.Y., Ma, Y.C., **Jing, L.** (2016). Removal of naphthalene from offshore produced water through immobilized nano-TiO_2 aided photo-oxidation. *Water Quality Research Journal of Canada*, 51(2), doi: 10.2166/wqrjc.2016.027.

17) **Jing, L.,** Chen, B., Zhang, B.Y., Zheng, J.S., Liu, B. (2014). Naphthalene degradation in seawater by UV irradiation: the effects of fluence rate, salinity, temperature and initial concentration. *Marine Pollution Bulletin*, 81, 149-156, doi: 10.1016/j.marpolbul.2014.02.003.

18) **Jing, L.,** Chen, B., Zhang, B.Y., Peng, H.X. (2012). A review of ballast water management practices and challenges in harsh and arctic environments. *Environmental Reviews*, 20, 83-108, doi: 10.1139/a2012-002.

-In Water Resources Management

19) Chen, B., **Jing, L.,** Zhang, B.Y., Liu, S. (2011). Wetland Monitoring, Characterization and

Modeling under Changing Climate in the Canadian Subarctic. *Journal of Environmental Informatics*, 18(2), 55-64, doi:10.3808/jei.201100199.

20) **Jing, L.,** Chen, B. (2011). Hydrological Modeling of Subartic Wetlands: Comparison between SLURP and WATFLOOD. Environmental *Engineering Science*, 28(7), 521-533, doi: 10.1089/ees.2010.0277.

21) **Jing, L.,** Chen, B. (2011). Field Investigation and Hydrological Modelling of a Subarctic Wetland - the Deer River Watershed. *Journal of Environmental Informatics*, 17(1), 36-45, doi:10.3808/jei.201100185.

B) Published Peer-Reviewed Conference Papers
-In Environmental Systems Modeling and Analysis

1) Ye, X.D., Chen, B., **Jing, L.,** Li, P. (2016). A Simulation-based Multi-agent Particle Swarm Optimization Approach for Supporting Dynamic Decision Making in Offshore Oil Spill Responses. *In*: Proceedings of the 39th AMOP Technical Seminar on Environmental Contamination and Response, Halifax, Canada, pp. ???.

2) Song, X., Chen, B., Zhu, Z.W., **Jing, L.,** Cai, Q.H., Ye, X.D., Zhang, B.Y., Zheng, X. (2016). A Preliminary Study on Droplet Size Distribution of Chemically Dispersed Crude Oil under High Pressure Conditions. *In*: Proceedings of the 39th AMOP Technical Seminar on Environmental Contamination and Response, Halifax, Canada, pp. ???.

3) **Jing, L.,** Chen, B., Zhang, B.Y., Li, P. (2014). An Integrated System Planning and Process Control System for Marine Wastewater Management. In: Proceedings of the 2014 International Conference on Marine and Freshwater Environments, St. John's, Canada.

4) Li, P., Chen, B., Li, Z.L., **Jing, L.** (2014). An Agent-based Simulation-optimization Coupling Approach for Device Allocation and Operation Control in Response to Offshore Oil Spills under Uncertainty. *In*: Proceedings of the 2014 International Conference on Marine and Freshwater Environments, St. John's, Canada.

5) Li, P., Chen, B., Zhang, B.Y., **Jing, L.,** Zheng, J.S. (2012). Development of a Multi-stage Simulation Based Mixed Integer Nonlinear Programming Approach for Supporting Offshore Oil Spill Recovery. *In*: Proceedings of the 35th AMOP Technical Seminar on Environmental Contamination and Response, Vancouver, Canada, pp. 434-447.

6) Li, P., Chen, B., Zhang, B.Y., **Jing, L.** (2012). A new agro-industrial waste management model for supporting rural co-operative stewardship and sustainable development. In: Proceedings of CRETE2012 - the 3rd International Conference on Industrial and Hazardous Waste Management, Chania, Greece, S13.3: 1-8.

7) **Jing, L.,** Chen, B., Zhang, B.Y., Zheng, J.S., Li, P. (2012). A Stochastic Analytical Hierarchy Process for Supporting Nonpoint Source Pollution Control. *In*: Proceedings of the 2012 Canadian Society for Civil Engineering Annual Conference, Edmonton, Canada, pp. 1167-1176.

-In Wastewater Treatment and Waste Management

8) Liu, B., Chen, B., Zhang, B.Y., Ma, Y.C., **Jing, L.** (2014). Photocatalysis of Naphthalene in offshore produced water: comparison between suspended TiO_2 and immobilized TiO_2. *In*: Proceedings of the 2014 International Conference on Marine and Freshwater Environments, St. John's, Canada.

9) **Jing, L.,** Chen, B., Zhang, B.Y., Zheng, J.S. (2013). The Effects of Salinity and Temperature on the Photolysis of Naphthalene Using UVC Irradiation. *In*: Proceedings of the 36th AMOP Technical Seminar on Environmental Contamination and Response, Halifax, Canada, pp. 591-600.

10) Zhang, B.Y., Zhu, Z.W., Chen, B., **Jing, L.,** Cai, Q.H., Lin, W.Y. (2013). A Pilot Study of Enhanced Bioremediation of NAPL-Contaminated Soil in Northern Region. *In*: Proceedings of BIT's 3rd International Congress of Environment-2013, Xi'an, China.

11) Zhu, Z.W., Zhang, B.Y., Chen, B., **Jing, L**., Lin, W.Y. (2012). Development of a 3-dimensional pilot-scale physical model for demonstration of enhanced in-situ bioremediation in Newfoundland and Labrador, Canada. *In*: Proceedings of CRETE2012 - the 3rd International Conference on Industrial and Hazardous Waste Management, Chania, Greece, P49: 1-8.

-In Water Resources Management

12) **Jing, L.,** Chen, B., Zhang, B.Y. (2010). A comparison study on distributed hydrological modelling of a subarctic wetland system. Procedia Environmental Sciences, 2, 1043-1049.

13) Chen, B., **Jing, L**., Snelgrove, K., Papakyriakou, T. (2010). Hydrological investigation and modeling of a sub-arctic wetland system-a case study in the Deer River watershed, Manitoba. *In:* Proceedings of the Canadian Society of Civil Engineering 2010 Annual Conference, Winnipeg, MB, Canada, pp. 74-79.

14) **Jing, L**., Chen, B., Snelgrove, K., Papakyriakou, T. (2009). Hydrological Monitoring and Characterization of a Sub-Arctic Wetland in the Hudson Bay Lowlands. *In:* Proceedings of the Canadian Society of Civil Engineering 2009 Annual Conference, St. John's, Canada, pp. 727-736.

C) Published Peer-Reviewed Book Chapters

1) Chen, B., **Jing, L**., Zhang, B.Y. (2012). Investigation and Modelling of Subarctic Wetland Hydrology-A Case Study in the Deer River Watershed, Canada. *In:* Management of Mountain Watersheds. Krecek, J., Haigh, M.J., Hofer, T., Kubin, E. Eds. Springer: New York, pp56-82.

D) Selected Technical Reports

1) Zhang, B.Y., Zhu, Z.W., **Jing, L.,** Cai, Q.H., and Li, Z.L. (2012). Pilot-scale demonstration of biosurfactant-enhanced in-situ bioremediation of a contaminated site in Newfoundland and Labrador. Technical Report, Prepared for Harris Centre Applied Research Fund, November, 143 pages.

2) Chen, B., Wu, H.J., **Jing, L.,** Cai, Q.H., and Cao, T. (2012). A preliminary study on hydrological characterization and modeling of the Wenjingjiang River Watershed in the City of Chongzhou, China. Technical Report, Prepared for Water Governance Project under United National Development Program (UNDP), August, 230 pages.

3) Chen, B., Li, P., Liu, B., Zheng, J.S., **Jing, L.,** and Cao, T. (2012). Decision support for the integrated water resources management and planning in the City of Chongzhou, China. Technical Report, Prepared for Water Governance Project under United National

Development Program (UNDP), July, 173 pages.

4) Chen, B., **Jing, L.,** and Zheng, J.S., and Li, P. (2011). Integrated management of nonpoint source pollution in the City of Chongzhou, China. Technical Report, Prepared for Water Governance Project under United National Development Program (UNDP), August, 225 pages.

5) Chen, B., **Jing, L.,** and Xiao, L. (2011). Integrated management of the wastewater treatment plant and wastewater reuse in the City of Shuangcheng, China. Technical Report, Prepared for Water Governance Project under United National Development Program (UNDP), July, 263 pages.

6) Chen, B., **Jing, L.,** Peng, H., and Zhang, H. (2010). Ballast Water Management in Harsh and Arctic Environments: Review and Challenges. Technical Report, Prepared for the American Bureau of Shipping (ABS), December, 161 pages.

7) Chen, B., **Jing, L.,** Snelgrove, K, and Papakyriakou, T. (2009). Hydrologic Monitoring, Characterization and Modelling of the Goose Creek and Deer River Watersheds, Technical Report, prepared for Manitoba Hydro and ArcticNet, August, 110 pages.

8) Chen, B., and **Jing, L.** (2008). Assessment of Nonpoint Source Pollution and Development of Mitigation Strategy for the City of Shuangcheng, China. Technical Report, Prepared for Water Governance Project under United Nations Development Program (UNDP), October, 131 pages.

4. RESEARCH EXPERIENCE

A) Postdoctoral Research Fellow, Memorial University   **2015 - present**

Project	***Development of biosurfactant-based dispersants and technologies for oily wastewater treatment***
Funder	Petroleum Research Newfoundland and Labrador (PRNL), 2015-present
Role	Key Researcher and Student Team Lead
Contribution	A new resource-oriented waste management scheme was proposed. Biosurfactants were produced from multiple solid waste streams, including fish waste, shrimp waste and composting waste by selected microorganisms, and further used for the removal of oil contaminants and heavy metals from industrial wastewater.
Publication	1 journal paper (published)

Project	***Multi-agent based simulation-optimization approaches for environmental systems modeling and management***
Funder	The Natural Sciences and Engineering Research Council of Canada (NSERC), 2015-present
Role	Key Researcher
Contribution	The multi-agent concept was used to understand how the behavior and heterogeneities of autonomous individuals can affect the environmental systems. A set of novel multi-agent based models were developed for modeling wastewater treatment processes and environmental emergency responses.

Publication   1 journal paper (published), 1 conference paper (published)

B) Graduate Research Assistant, Memorial University   **2007 - 2014**

    Project   ***Ozonation as a Treatment Option for Produced Water Effluents***

    Funder   Petroleum Research Newfoundland and Labrador (PRNL), 2012-2015

    Role   Research Assistant

    Contribution   Developed and tested a set of novel advanced oxidation technologies for produced water treatment using ultraviolet irradiation, ozonation and ultrasonication along with nanocatalysts. Investigated the reduction of environmental and health risks from removing recalcitrant organic pollutants.

    Publication   3 journal papers (published), 2 conference papers (published)

    Project   ***An integrated ballast water management system for vessels operating in harsh environments***

    Funder   Ocean Industry Student Research Award, Research & Development Corporation of Newfoundland and Labrador (RDC NL), 2011-2014

    Role   Principal Investigator

    Contribution   The removal of petroleum hydrocarbons from ballast water using UV were studied through bench- and pilot-scale experiments to understand the reaction mechanisms and parameter effects. A novel simulation-based process control and operation planning (IS-PCOP) system for ballast water treatment system design and operation was further proposed by using neural networks, genetic algorithm, multistage principle, and Monte Carlo simulation.

    Publication   5 journal papers (published), 2 conference papers (published)

    Project   ***Development of an integrated diagnosis, alert and emergency response system for supporting prevention and clean-up of offshore oil spills***

    Funder   Research & Development Corporation of Newfoundland and Labrador (RDC NL), 2011-2013

    Role   Research Assistant

    Contribution   Developed an integrated oil spill modelling and response decision making system including oil spill diagnosis, hydrodynamic and oil weathering/trajectory modelling, impact/risk assessment, cleanup technology screening and response process optimization. It was one of the first comprehensive emergency decision support system in Canada.

    Publication   5 journal papers (published), 1 conference paper (published)

    Project   ***Sustainable development and best management practices for municipal solid and liquid waste streams treatment and disposal***

    Funder   United Nations Development Programme (UNDP), 2011-2012

    Role   Project advisor

    Contribution   Quantified human-health risks from long-term exposure to trace metals in

	drinking water sources by GIS mapping. Studied regional hydrological modelling, statistical downscaling, climate change impacts, solid waste management and water resources management planning in Chongzhou, China.
Publication	1 journal paper (published), 3 conference papers (published)

Project	***Pollution investigation and impact assessment in the Nut Brook-Kelligrews River Watersheds***
Funder	MITACS, 2009-2010
Role	Research Assistant
Contribution	Studied the transport and fate of heavy metals in natural water bodies using (WASP) and evaluated health risks of exposure to heavy metals in the Nut Brook River and the Kelligrews River Watershed in Newfoundland, Canada.
Publication	1 journal paper (published)

Project	***Field investigation and hydrological modelling of sub-arctic wetland systems in Southwestern Hudson Bay***
Funder	ArcticNet & Manitoba Hydro, 2007-2009
Role	Research Assistant and Student Team Lead
Contribution	Monitored surface fluxes using tower-based sensors and conducted hydrological modelling (SLURP and WATFLOOD) for the assessment of vulnerability of Canadian subarctic wetlands to climate change.
Publication	3 journal papers (published), 3 conference papers (published)

C) Research and Project Engineer, Memorial University   **2009 - 2010**
- Developed a risk and vulnerability assessment framework for the treatment and management of produced water from offshore oil and gas operations.

D) Undergraduate Student Research Training, Tsinghua University   **2003 - 2005**
- Investigated the heat transfer features of CO_2 as a novel automobile refrigerant.

5. RESEARCH INTERESTS
- Artificial intelligence-based environmental systems modeling and analysis;
- Advanced oxidation processes for wastewater treatment;
- Sustainable development of natural resources and industrial pollution control; and
- Resource-oriented waste management systems.

6. TEACHING EXPERIENCE
A) Sessional Instructor, Memorial University   **2013- 2016**
- Graduate course: **ENGI9626 Environmental Management Systems** (CEQ: 4.43/5, Spring 2016, 20 registrants). This course delivers how to understand, design and implement an organization's environmental management system in a comprehensive, systematic,

planned and documented manner. It also covers the certification to the ISO 14001 standard.

- Graduate course: **ENGI9621 Soil Remediation Engineering** (Spring 2015, 18 registrants). The overall goal of this course is to introduce students to broad and practical insight to hydraulic and hydrologic modelling, fluid mechanics, and various soil and groundwater remediation technologies and infrastructures used to address different environmental conditions. Within the context of the overall goal, technical mechanisms, strengths and limitations and the practical details of each soil remediation technology are tackled.
- Graduate course: **ENGI9627 Environmental Systems Engineering** (CEQ: 4.91/5, Fall 2014, 21 registrants; CEQ: 4.93/5, Fall 2013, 22 registrants). This course covers environmental systems modeling and analysis techniques such as linear programming, integer programming, dynamic programming, and multi-objective programming using Excel Solver and Lindo what's the best.
- Graduate course: **ENGI9628 Environmental Laboratory** (CEQ: 4.83/5, Winter 2014, 21 registrants). The goal of this course is to help students learn how to operate water, air, and soil sampling and analyzing instrument. Topics include solid determination, environmental sampling, errors in sampling and analysis, water hardness determination, water alkalinity determination, BOD and COD determination, jar testing, PM_{10} measurement, soil analysis, heavy metal analysis, UV spectroscopy and GC analysis.

B) Guest Lecturer, Memorial University   **2010 - 2014**

- Undergraduate course: **ENGI4717 Applied Environmental Science and Engineering** (7 lectures). This course covers basic environmental engineering topics such as water and wastewater treatment, water quality simulation, air pollution, soil pollution, and water resources management.
- Undergraduate course: **ENGI6718 Environmental Geo-techniques** (3 lectures). This course teaches soil properties, hydraulics and fluid mechanics, groundwater flow, characteristics, partitioning of contaminants, and contaminated site characterization.

C) Teaching Assistant, Memorial University   **2007 - 2014**

ENGI9627 Environmental Systems Engineering	Fall 2007 & 2010
ENGI9626 Environmental Management System	Spring 2007
ENGI9628 Environmental Laboratory	Spring 2011
ENGI9629 Environmental Policy and Regulations	Fall 2008
ENGI9621 Soil Remediation Engineering	Spring 2012
ENGI4717 Applied Environmental Science and Engineering	Spring 2010 & 2013
ENGI4312 Mechanics of Solids	Winter 2008
ENGI5312 Mechanics of Solids II	Winter 2011
ENGI3911 Chemistry and Physics of Engineering Materials I	Fall 2011 & 2012
ENGI5911 Chemistry and Physics of Engineering Materials II	Winter 2012

7. GRANTS RECEIVED

Project	***Integrated ballast water management system for vessels operating in harsh environments***
Funder	Ocean Industry Student Research Award, Research & Development

                Corporation of Newfoundland and Labrador (RDC NL), 2011-2014
Role   Principal Investigator, $77,000 (90%)

Project   ***Hydrological monitoring and characterization of the Deer River basin near Churchill, Manitoba***
Funder   Churchill Northern Studies Centre Northern Research Fund (NRF), 2008
Role   Co-Investigator, $5,000

8. HQP TRAINING

A) Graduate Student Mentor, Memorial University   **2015-present**
- Junior graduate students Zelin Li, Xudong Ye, and Kedong Zhang in my postdoc supervisor's group.
- Duties including guiding graduate students through thesis research and professional development.

B) Graduate Student Team-Project Advisor, Memorial University   **2015**
- Emuesiri Adjere-Taunu, Jiachen Li and Elissa Schuett in a project titled "*Offshore oil and gas produced water treatment for re-injection*" (January-August 2015).
- Ginelle Carallo, Alex Akrofi Yeboah and Swapneel Marwan in a project titled "*Offshore oil spill modelling and response decision making*" (January-August 2015).
- Duties including meeting with students regularly for discussion and providing technical recommendations based on their progress.

C) Undergraduate Student Mentor, Memorial University   **2011-2014**
- An exchange student Arthur Fioresi Altoé from Brazil in a project titled "*Development of a user-friendly web-based interface for offshore oil spill risk classification and response management*" (April -August 2013).
- An exchange student Carlos A. Chang L from University of Oklahoma in a project titled "*Measurement of polycyclic aromatic hydrocarbons by GC/MS*" (May-August 2011).
- A term-4 co-op student Michael Coffey and a term-3 co-op student Bing Han from Memorial University in a project titled "*Field investigation of sub-arctic wetland hydrology in Southwestern Hudson Bay*" (May-December 2007).
- Duties including providing training sessions, leading field trips and experimental work, and helping students know how the work they do can impact the research projects.

9. PROFESSIONAL DEVELOPMENT

A) Selected Research Grant Proposal Writing
- Writer on the project titled "*Risk-based multi-agent simulation-optimization approaches for spill response management (RMASOS) in harsh environments*". Worked on proposing research tasks in terms of agent-based environmental infrastructure modelling and using risk as a decision-making paradigm for natural and man-made hazards response. Funded by the Natural Sciences and Engineering Research Council of Canada (NSERC), 2014-2019.
- Writer on the project titled "*Ozonation as a Treatment Option for Produced Water*

Effluents". Proposed an integrated produced water treatment framework using ultraviolet irradiation, ozonation and ultrasonication along with nanocatalysts. Funded by Petroleum Research Newfoundland and Labrador (PRNL), 2012-2014.
- Lead writer and principal investigator on the project titled "*Integrated ballast water management system for vessels operating in harsh environments*". Funded by Research and Development Corporation of Newfoundland and Labrador (RDC NL), Ocean Industry Student Research Award, 2011-2014.

B) Conference Presentations
- 1 oral presentation at the 2014 International Conference on Marine and Freshwater Environments, August 6-8, 2014, St. John's, NL, Canada
- 2 oral presentations at the 36th Arctic and Marine Oil spill Program (AMOP) Technical Seminar, June 4-6, 2013, Halifax, NS, Canada
- 2 oral presentations at the 2012 Canadian Society for Civil Engineering Annual Conference, Edmonton, AB, Canada
- 2 oral presentations at the 35th Arctic and Marine Oil Spill Program (AMOP) Technical Seminar, June 4-6, 2012, Vancouver, BC, Canada
- 1 oral presentation at the 64th Canadian Water Resources Association (CWRA) National Conference, June 27 - 30, 2011, St John's, NL, Canada
- 1 oral presentation at the Canadian Society for Civil Engineering (CSCE) 2009 Annual Conference, May 27 - 30, St. John's, NL, Canada

C) Invited Talks
- "*Oily wastewater management: from advanced oxidation processes to biosurfactant*", at multiple Chinese Academy of Science Institutions in Beijing, Xiamen, Yantai, Changchun, and Urumqi, China, August 27-September 4, 2015
- "*Offshore Oil Spill - Facts, Responses and Decision Making*". Environmental Development and Training Workshop for Saudi Electricity Company (Saudi Arabia) in St. John's, Canada, August 5, 2015 (Invited Lecture)
- "*Numerical modelling and decision support for offshore oil spills in harsh environments*", for visitors from SINTEF Norway, Memorial University, St. John's, Canada, March 4, 2015
- "*A framework of an integrated diagnosis, alert and emergency response system for supporting prevention and clean-up of offshore oil spills in cold regions*", for visitors from DFO Canada, Memorial University, St. John's, Canada, October 12, 2011
- "*Hydrological investigation and modelling of a sub-arctic wetland system – a case study in the Deer River watershed, MB*", for visitors from University of Regina, Memorial University, St. John's, Canada, August 17, 2011

D) Invited Journal Reviewer
- Journal of Environmental Management (Elsevier)
- Environmental Pollution (Elseview)
- Journal of Cleaner Production (Elsevier)
- Waste Management (Elsevier)
- Cold Regions Science and Technology (Elsevier)

E) Thesis and Report Examiner

- He Zhang, Master of Environmental Engineering, Memorial University, thesis: "*Integrated nano zero valent iron and biosurfactant aided remediation of PCB-contaminated soil*" (February 2015).
- Jennifer Beresford, Master of Environmental Science, project report: "*Comparison of Synthetic and Biosurfactants in the Mitigation of Marine Oil Spills: A review*" (December 2016).

F) Certifications

- Completed a certified training program offered by Memorial University for teaching skills enhancement (April 2014)

G) Conference Registrar and Session Co-chair

- The International Conference on Marine and Freshwater Environments, August 6-8, 2014, St. John's, NL, Canada. Duties including the coordination of conference registration needs, as well as introducing the presenters, keeping everything on schedule and solving technical issues.

H) Workshop Organizing Committee Member

- Workshop titled "*Offshore Oil Spills in Harsh Environments - from Challenges to Opportunities*", November 14, 2011, St John's, NL, Canada. Duties including the assembly of a proceeding following the workshop and the coordination of student volunteers.

I) Professional Memberships

- Engineer-in-Training, Professional Engineers and Geoscientists Newfoundland & Labrador, 2016-present
- Member, International Society for Environmental Information Sciences (ISEIS), 2013-present
- Student Member, Canadian Society for Civil Engineering (CSCE), 2009-2014
- Student Member, American Society for Civil Engineers (ASCE), 2010-2014