

HIGHLIGHTS

- Passionate and capable Ph.D. candidate in environmental science and engineering. Maintain 4.3/4.3 GPA throughout the Ph.D. study.
- Published 28 peer-reviewed articles with 12 as the first author in top journals such as Environmental Science & Technology, ACS ES&T Water, Chemical Engineering Journal, and Journal of Hazardous Materials (H-index: 12).
- 10 conference abstracts and Student Oral Presentation Award.
- Awarded numerous prestigious awards such as the Chinese Government Award for Outstanding Self-financed Students Abroad, Relève Étoile Louis-Berlinguet Award, Northeastern Association of Graduate Schools (NAGS) Master's Thesis Award, and F. A. Gerard Prize.
- Organization and service for 4 international conferences such as IOSSC 2022 and PEOPLE 2023 and Special Recognition Award for IOSSC 2022.
- Conducted peer-review work for 11 esteemed journals in the field of environmental science and engineering.
- Teaching assistant for 3 courses and Certificate of Graduate Seminar in University Teaching.
- Professional Engineer (EIT of APEGS), Certificate of LEED Green Associate.

EDUCATION

- **Ph.D. Candidate, Civil Engineering** 09/2020–Present
Concordia University, Montreal, Canada
CGPA: 4.3/4.3
- **Master of Applied Science, Civil Engineering** 09/2018–08/2020
Concordia University, Montreal, Canada
CGPA: 3.75/4.3
The F. A. Gerard Prize: Merited to the most deserving graduate
Thesis: *Exploration of nanocellulose-based nanofluid for cleanup of oil-contaminated sand*
- **Bachelor of Engineering, Civil Engineering** 09/2014–07/2018
University of Liverpool, UK
First Class Honors
- **Bachelor of Engineering, Civil Engineering** 09/2014–07/2018
Xi'an Jiaotong-Liverpool University, China
First Class Honors
Thesis: *Quantifying construction waste reduction by application of prefabrication in China*

RESEARCH EXPERIENCE

- **Research Assistant - Concordia University** 09/2020–Present
Entrainment and Enrichment of Microplastics in Arctic Sea Ice
 - Investigating the mechanisms and factors affecting the entrainment of microplastics in the ice formation processes based on laboratory experiments, mesocosm tests, and field investigations.
- **Research Assistant - Concordia University** 09/2018–08/2020
Oil Translocation Pathways and Processes in Canadian Shoreline Environments
 - Exploring the fate of spilled oil on shoreline and the mechanisms and impacts for various environmental factors including oil property, tide, temperature, and substrate type, etc.*Washing Agent-Aided Shoreline Treatment Tool Sets – Evaluation, Improvement and Development*
 - Assisting the development of novel green surface-washing agent using nanocellulose-based nanofluid to aid the cleanup of oil-contaminated shoreline.*Assessment of Regional Greenhouse Gas Emission from Beef Cattle Production: A Case*

Study of Saskatchewan in Canada

- Assessing the GHG emission from beef-production industry in Saskatchewan based on an emission model and proposing some mitigation measures according to the sensitivity analysis for all influencing factors.

▪ **Research Assistant** - Xi'an Jiaotong-Liverpool University 06/2017–08/2018

Application of BIM and 3D printing on course instruction

- Developing a method to apply building information modelling (BIM) and 3D printing into teaching. The corresponding achievements have been used in the classroom of XJTLU.

Key factors affecting construction waste recycling in China

- Exploring the key factors affecting construction waste recycling in China through case studies and survey questionnaires. Also, the results suggested the potential direction for the further development of waste recycling industry in China.

Quantifying construction waste reduction through the application of prefabrication in China

- Establishing a model to assess the waste generation rate from construction activities and quantifying the potential reduction on construction waste by using prefabrication. The results showed that maximum 53.6% reduction on the construction waste can be achieved through the application of prefabricated construction.

TEACHING

- **Teaching Assistant** - Concordia University 01/2024–05/2024
Grader and assistant of CIVI 468/691 Waste Management
- **Teaching Assistant** - Concordia University 06/2019–08/2019
Grader and assistant for laboratory session of CIVI 361 Introduction to Environmental Engineering.
- **Teaching Assistant** - Concordia University 01/2019–05/2019
Grader and assistant for laboratory session of CIVI 361 Introduction to Environmental Engineering.

CONFERENCE ORGANIZATION AND SERVICE

- **Organizing Committee Member** – People 2023 International Conference, August 7-11, 2023, Montreal 03/2023–08/2023
Video editing and poster design for conference promotion
- **Organizing Committee Member** – International Oil Spill Science Conference (IOSSC) 05/2022–10/2022
2022, October 4-7, 2022, Halifax
Video editing and poster design for conference promotion
- **Organizing Committee Member** – ITAC-MPRI Workshop, November 2, 2021, Virtual 11/2021
- **Organizing Committee Member** – Multi-Partner Research Initiative (MPRI) Student Research Forum, September 23-24, 2021, Virtual 09/2021

OTHER WORKING EXPERIENCE

- **Research Intern** - Mitacs Accelerate, funded by City of Montreal West 03/2021–10/2021
Advancing sustainable management of construction, renovation, and demolition (CRD) waste in Montreal West.
- **Engineering Intern** - Huaibei Industrial Architectural Design Institute 06/2016–07/2017
Assisting the structural design and drawing for the construction project.

CERTIFICATION&MEMBERSHIP

- Chinese-American Professors in Environmental Engineering and Science (CAPEES) student member 03/2024
- Engineer in Training (EIT), The Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS) 08/2022–Present
- Certificate of Graduate Seminar in University Teaching 08/2023

▪ LEED Green Associate (U.S. Green Building Council)	07/2017–07/2021
▪ The Canadian Society for Civil Engineering (CSCE) student member	06/2019–Present

AWARDS & PRIZES

▪ AquaHacking Great Lakes Challenges 2023-2024 Finalist – Team Maxinano	03/2024
▪ Relève Etoile Louis-Berlinguet Award (Fonds de recherche du Québec) - 2023-2024	11/2023
▪ The Gina Cody School EDI Research Grant	10/2023
▪ People 2023 International Conference Best Presentation Award (2nd place)	08/2023
▪ Special Recognition Award, International Oil Spill Science Conference (IOSSC) 2022	10/2022
▪ Chinese Government Award for Outstanding Self-finance Students Abroad	07/2022
▪ Mitacs Accelerate Fellowship	03/2021
▪ Concordia University Conference and Exposition Award	06/2022
▪ NAGS Master's Thesis Awards	04/2022
▪ The F. A. Gerard Prize – Best graduate of master in engineering programs	09/2020
▪ Gina Cody School of Engineering and Computer Science Graduate Scholarship	09/2020
▪ Concordia Merit Scholarship	09/2018
▪ Research Fellowships	09/2018–Present
▪ Architectural Engineering Project Prize (XJTLU)	07/2018
▪ China National Scholarship	2017
▪ Summer Undergraduate Research Fellowships	06/2017–09/2017

MEDIA INTERVIEW

Concordia sweeps the 2022 Northeastern Association of Graduate Schools Awards

URL: <https://www.concordia.ca/cunews/main/stories/2022/05/17/concordia-sweeps-the-2022-northeastern-association-of-graduate-schools-awards.html?c=/students/graduate>

Research Spotlight: Interview with Zhikun Chen

URL: <https://storage.grenadine.co/public.grenadine.co/global/357/3677/7f3cb4eb89e262a3eca897dfce33da86.pdf>

Lab Walk Through – 4th Space Concordia University

URL: https://www.youtube.com/watch?v=NsmoM2qQ_Gg

PEER-REVIEWED JOURNAL PUBLICATIONS

1. **Chen, Z.K.**, Elektorowicz, M., An, C., Tian, X., Wang, Z., Yang, X., & Lyu, L. (2024). Revealing the Freezing-induced Alteration in Microplastic Behavior and its Implication for the Microplastics Released from Seasonal Ice. Submitted to *Environmental Science & Technology* (ACS).
DOI: [10.1021/acs.est.4c05322](https://doi.org/10.1021/acs.est.4c05322)
2. Tian, X., Lu, C., Song, Z., An, C., Wan, S., Peng, H., An, Qi Feng & **Chen, Z.K.** (2024). Quantifying weather-induced unreliable public transportation service in cold regions under future climate model scenarios. *Sustainable Cities and Society* (Elsevier), 113:105660.
DOI: [10.1016/j.scs.2024.105660](https://doi.org/10.1016/j.scs.2024.105660)
3. **Chen, Z.K.**, Elektorowicz, M., An, C., & Tian, X. (2024). Seasonal ice encapsulation: the pivotal influence on microplastic transport and fate in cold regions. *Environmental Science: Water Research & Technology* (RCS).
DOI: [10.1039/D4EW00339J](https://doi.org/10.1039/D4EW00339J)
4. Wang, Z., Lee, K., Feng, Q., An, C., & **Chen, Z.K.** (2024). Effect of nanobubbles on the mobilization of microplastics in shorelines subject to seawater infiltration. *Environmental Pollution* (Elsevier), 349, 123950.
DOI: [10.1016/j.envpol.2024.123950](https://doi.org/10.1016/j.envpol.2024.123950)
5. Yang, X., Huang, G., **Chen, Z.K.**, Feng, Q., An, C., Lyu, L., Bi, H., & Zhou, S. (2024). Spotlight on the vertical migration of aged microplastics in coastal waters. *Journal of Hazardous Materials* (Elsevier), 469, 134040.
DOI: [10.1016/j.jhazmat.2024.134040](https://doi.org/10.1016/j.jhazmat.2024.134040)
6. **Chen, Z.K.**, Elektorowicz, M., An, C., Tian, X., & Peng, H. (2024). Role of Aquatic Dissolved Organic Matter in the Entrainment of Microplastics under Freezing Conditions. *ACS ES&T Water* (ACS), 4(1), 256–267.
DOI: [10.1021/acsestwater.3c00579](https://doi.org/10.1021/acsestwater.3c00579)
7. Wang, Z., **Chen, Z.K.**, & An, C. (2024). Improving solid waste management in remote First Nations communities

- through inventory-theory-based optimization. *Canadian Journal of Civil Engineering* (Canadian Science Publishing), 1(51).
DOI: [10.1139/cjce-2023-0320](https://doi.org/10.1139/cjce-2023-0320)
8. **Chen, Z. K.**, Elektorowicz, M., An, C. & Tian, X. (2023). Entrainment and enrichment of microplastics in ice formation processes: Implications for the transport of microplastics in cold regions. *Environmental Science & Technology* (ACS), 57(8):3176-3186.
DOI: [10.1021/acs.est.2c09340](https://doi.org/10.1021/acs.est.2c09340)
 9. Peng, H., An, C., **Chen, Z. K.**, Tian, X., & Sun, Y. (2023). Promoting cross-regional integration of maritime emission management: A Euro-American linkage of carbon markets. *Environmental Science & Technology* (ACS), 57(33), 12180-12190.
DOI: [10.1021/acs.est.3c02529](https://doi.org/10.1021/acs.est.3c02529)
 10. Tian, X., Waygood, E. O. D., An, C., Chen, Z., & Peng, H. (2023). Achieving urban net-zero targets through regionalized electric bus penetration and energy transition. *Transportation Research Part D: Transport and Environment* (Elsevier), 120, 103797.
DOI: [10.1016/j.trd.2023.103797](https://doi.org/10.1016/j.trd.2023.103797)
 11. Tian, X., An, C., and **Chen, Z. K.** (2023). The role of clean energy in achieving decarbonization of electricity generation, transportation, and heating sectors by 2050: A meta-analysis review. *Renewable and Sustainable Energy Reviews* (Elsevier), 182, 113404.
DOI: [10.1016/j.rser.2023.113404](https://doi.org/10.1016/j.rser.2023.113404)
 12. **Chen, Z. K.**, An, C., Elektorowicz, M., & Tian, X. (2022). Sources, behaviors, transformations, and environmental risks of organophosphate esters in the coastal environment: A review, *Marine Pollution Bulletin* (Elsevier), 180:113779.
DOI: [10.1016/j.marpolbul.2022.113779](https://doi.org/10.1016/j.marpolbul.2022.113779)
 13. Wang, Z., **Chen, Z. K.**, & An, C. (2022). A Review on Solid Waste Management in Canadian First Nations Communities: Policy, Practices, and Challenges. *Cleaner Waste Systems* (Elsevier), 4:100074. doi: [10.1016/j.clwas.2022.100074](https://doi.org/10.1016/j.clwas.2022.100074)
 14. Chen, X., Bi, H., Yue, R., **Chen, Z.K.**, & An, C. (2022) Effects of Oil Characteristics on the Performance of Shoreline Response Operations: A Review. *Frontiers in Environmental Science* (Frontiers), 2043.
DOI: [10.3389/fenvs.2022.1033909](https://doi.org/10.3389/fenvs.2022.1033909)
 15. Tian, X., An, C., Nik-Bakht, M., and **Chen, Z. K.** (2022). Assessment of reductions in NO₂ emissions from thermal power plants in Canada based on the analysis of policy, inventory, and satellite data, *Journal of Cleaner Production* (Elsevier), 341:130859.
DOI: [10.1016/j.jclepro.2022.130859](https://doi.org/10.1016/j.jclepro.2022.130859)
 16. **Chen, Z. K.**, Feng, Q., Yue, R., Chen, Z., Moselhi, O., Soliman, A., Hammad, A. and An, C. (2022). Construction, renovation, and demolition waste in landfill: A review of waste characteristics, environmental impacts, and mitigation measures, *Environmental Science and Pollution Research* (Springer), 29: 46509-46526.
DOI: [10.1007/s11356-022-20479-5](https://doi.org/10.1007/s11356-022-20479-5)
 17. Yue, R., An, C., Ye, Z., Bi, H., **Chen, Z.K.**, Liu, X., Zhang, X., Lee, K. (2022). Cleanup of oiled shorelines using a dual responsive nanoclay/sodium alginate surface washing agent, *Environmental Research* (Elsevier), 205:112531.
DOI: [10.1016/j.envres.2021.112531](https://doi.org/10.1016/j.envres.2021.112531)
 18. **Chen, Z. K.**, An, C., Wang, Y., Zhang, B., Tian, X., & Lee, K. (2022). A green initiative for oiled sand cleanup using chitosan/rhamnolipid complex dispersion with pH-stimulus response, *Chemosphere* (Elsevier), 288:132628.
DOI: [10.1016/j.chemosphere.2021.132628](https://doi.org/10.1016/j.chemosphere.2021.132628)
 19. Tian, X., Huang, G., Song, Z., An, C., & **Chen, Z.K.** (2022). Impact from the evolution of private vehicle fleet composition on traffic related emissions in the small-medium automotive city. *Science of The Total Environment* (Elsevier), 840, 156657.
DOI: [10.1016/j.scitotenv.2022.156657](https://doi.org/10.1016/j.scitotenv.2022.156657)
 20. **Chen, Z. K.**, An, C., Chen, X., Taylor, E., Bagchi, A., & Tian, X. (2021). Inexact inventory-theory-based optimization of oily waste management system in shoreline spill response. *Science of The Total Environment* (Elsevier), 777:146078.
DOI: [10.1016/j.scitotenv.2021.146078](https://doi.org/10.1016/j.scitotenv.2021.146078)
 21. Tian, X., An, C., **Chen, Z. K.**, Tian, Z. (2021). Assessing the impact of COVID-19 pandemic on urban transportation

and air quality in Canada. *Science of The Total Environment* (Elsevier), 765:144270.

DOI: [10.1016/j.scitotenv.2020.144270](https://doi.org/10.1016/j.scitotenv.2020.144270)

22. **Chen, Z. K.**, An, C., et al. (2021). Exploring the use of nanocellulose-based nanofluid as a green surface-washing agent for oiled shoreline treatment. *Journal of Hazardous Materials* (Elsevier), 402: 123464.
DOI: [10.1016/j.jhazmat.2020.123464](https://doi.org/10.1016/j.jhazmat.2020.123464)
23. **Chen, Z. K.**, An, C., et al. (2021) Spatiotemporal analysis of land use pattern and stream water quality in southern Alberta, Canada, *Journal of Contaminant Hydrology* (Elsevier), 242:103852.
DOI: [10.1016/j.jconhyd.2021.103852](https://doi.org/10.1016/j.jconhyd.2021.103852)
24. Hao, J., **Chen, Z. K.**, Zhang, Z., & Loehlein, G. (2021). Quantifying Construction Waste Reduction Through the Application of Prefabrication: A Case Study in Anhui, China, *Environmental Science and Pollution Research* (Springer).
DOI: [10.1007/s11356-020-09026-2](https://doi.org/10.1007/s11356-020-09026-2)
25. **Chen, Z. K.**, An, C., et al. (2020). Assessment of Regional Greenhouse Gas Emission from Beef Cattle Production: A Case Study of Saskatchewan in Canada. *Journal of Environmental Management* (Elsevier), 264: 110443.
DOI: [10.1016/j.jenvman.2020.110443](https://doi.org/10.1016/j.jenvman.2020.110443)
26. Tian, X., An, C., and **Chen, Z. K.** (2020). Assessing the impact of urban form on the greenhouse gas emissions from household vehicles: A review. *Journal of Environmental Informatics Letters* (International Society of Environmental Information Sciences), 3(2), 70-85.
DOI: [10.3808/jeil.202000029](https://doi.org/10.3808/jeil.202000029)
27. **Chen, Z. K.**, An, C., et al. (2020). Use of Surface-Washing Agents in Oiled Shoreline Cleanup: Research Advancement, Technical Application and Future Challenge, *Chemical Engineering Journal* (Elsevier), 391: 123565.
DOI: [10.1016/j.cej.2019.123565](https://doi.org/10.1016/j.cej.2019.123565)
28. Hao, J., Maria, F. D., **Chen, Z. K.** Yu, S., Yu, W., & Di Sarno, L. (2020). Comparative study of construction and demolition waste management in China and the European Union. *Detritus* (CISA Publisher), 13:144-121.
DOI: [10.31025/2611-4135/2020.14029](https://doi.org/10.31025/2611-4135/2020.14029)

CONFERENCE PRESENTATIONS

1. **Chen, Z. K.** Elektorowicz, M., and An, C. Entrainment of Microplastics in Ice: Implications for the Transport of Microplastics in Northern Regions, Canadian Chemistry Conference and Exhibition (CSC 2024), June 2-6, 2024, Winnipeg, Canada.
2. **Chen, Z. K.** and An, C. An appraisal of end-of-life options for post-consumer asphalt shingle waste. People 2023 International Conference, August 7-11, 2023, Montreal, Canada (*Second prize, Student Oral Presentation Award*).
3. **Chen, Z. K.** and An, C. Use of a Green Complex Dispersion in Oiled Sand Washing. International Oil Spill Science Conference (IOSSC) 2022, October 4-7, 2022, Halifax, Canada.
4. **Chen, Z. K.** and An, C. Assessment of the end-of-life alternatives for post-consumer waste asphalt shingle. 7th International Conference of Recent Trends in Environmental Science and Engineering (RTESE 2023). June 5-7, 2022, Niagara Falls, Canada.
5. **Chen, Z. K.** and An, C. A review on the shoreline surface-washing agents for oil spill response. 71st Canadian Chemical Engineering Conference (CCEC 2021), October 24-27, 2021, Montreal, Canada.
6. **Chen, Z. K.** and An, C. Exploring the relationship between land use pattern and stream water quality: A case study in southern Alberta, Canada, 1st Virtual Atlantic and Eastern Canadian Symposium on Water Quality Research, November 1–3, 2021.
7. **Chen, Z. K.**, An, C. et al. (2021). An inexact optimization model for oily waste management in shoreline spill response. Multi-Partner Research Initiative (MPRI) Student Research Forum 2021. September 23-24, 2021.
8. **Chen, Z. K.**, An, C. et al. (2020). Investigating the potential application of biomass-derived nanoparticles in oiled beach cleanup. 70th Canadian Chemical Engineering Conference (CCEC 2020). October 25-28, 2020.
9. Bi, H., An, C., Chen, X., and **Chen, Z. K.** (2020). Performance of a surface washing agent impacted by environmental conditions. 70th Canadian Chemical Engineering Conference (CCEC 2020). October 25-28, 2020.
10. Hao, J., Lu, W., Bao, Z., **Chen, Z. K.**, Sikora, K., and Galobardes, I. (2018). Key Factors Affecting Construction Waste Recycling in China. The 33rd International conference on solid waste technology and management

proceedings. Annapolis, WA, USA, March 11-14, 2018.

11. Hao, J., **Chen, Z. K.**, et al. (2018). Quantifying Construction Waste Reduction Through the Application of Prefabrication in China. The 6th International Conference on Sustainable Solid Waste Management. Naxos, Greece, June 13-15, 2018.

REVIEWER FOR ACADEMIC JOURNALS

- Ambio (2023)
- BMC Chemistry (2023)
- CLEAN - Soil, Air, Water (2023)
- Environment (2024)
- Environmental Systems Research (2021, 2022, 2023)
- Journal of Environmental Management (2023)
- Marine Pollution Bulletin (2023)
- Microplastics (2023, 2024)
- Remote sensing (2023, 2024)
- Sustainability (2023, 2024)
- Water (2023, 2024)

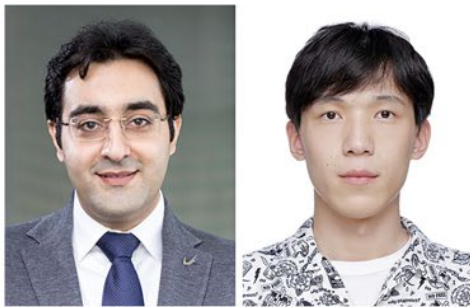
EXAMPLES OF RESEARCH IMPACT, HONORS, AND CERTIFICATIONS



Concordia sweeps the 2022 Northeastern Association of Graduate Schools Awards

Amir Hooshidar and Zhikun Chen take home prizes for outstanding PhD dissertation and outstanding master's thesis, respectively

May 17, 2022 | By Christian Durand



Amir Hooshidar and Zhikun Chen.

