

## **ACADEMIC**

- May/1997 – Present**     **Adjunct Professor –A.I., Energy and Environmental Modeling**  
Mechanical and Mechatronics Engineering  
**University of Waterloo, Waterloo, Ontario, Canada**
- Apr/2012 – Present**     **Adjunct Professor – Artificial Intelligence and Quantum Computing**  
Civil Engineering  
**University of Guelph, Guelph, Ontario, Canada**
- 2012 Present**     **Executive Editor Elsevier**  
**ENERGY Journal – Impact Factor > 7.15**
- 2012 Present**     **Editor-in-Chief ENN.COM: 1 million unique monthly visitors**  
**Environmental News Network**
- May/93**     Ph.D. (Mechanical Engineering – Computational Fluid Dynamics)  
**University of Waterloo, Waterloo, Ontario, Canada**  
Thesis in Numerical Simulation of Energy and Environmental Flows
- Jul/88**     M.Sc. (Operations Research, Combinatorics, and Optimization)  
Thesis in Control of Hydroelectric Power Plant Reservoirs
- 2003 Present**     **World leader in Emissions Inventory and Air Pollution Technologies**  
2021 Presentation at COP26 (Glasgow) and hundreds of others

## **WORK EXPERIENCE**

- Jun/95 - Present**     **Lakes Environmental Software Inc.**  
**President**

Founding partner and president, responsible for the air and environmental modelling engineering division. The objective of this division is to perform numerical prediction of fluid flow phenomena involving dispersion modelling of pollutants in the atmosphere and mathematical modelling of thermal processes. Responsible for new methodology for emissions inventory, including GHG and air toxics.

Senior author of the following emissions inventory systems: TEISS View (Tribal Emissions Inventory Software System), WISE View (Wyoming Inventory System for Emissions), EIIMS View (Clark County Emissions Inventory Information Management System), EINV View (Emissions Inventory for Nevada), CAC2003, MOBILE6 View, among others.

Senior author of Bowater View, CAM View, RMP View, ISC-AERMOD View, Screen3 View, BPIP View, SLAB View, AERMOD View, CALPUFF View, SCIPUFF View, and CALRoads View air dispersion modelling packages.

Senior author of IRAP-h View, a risk assessment software tool with air dispersion modelling and evaluation of cancer and hazardous risks.

Taught over 16 emissions inventory courses in the past 6 years. Dr. Thé is frequently invited as a guest speaker in international emissions inventory workshops.

Taught over 300 air dispersion modeling courses in the past 20 years. These courses were provided in Canada, USA, Europe, Brazil, Mexico, Japan, Ireland, United Kingdom, Italy, Spain, Belgium, and China.

Taught over 30 multi-pathway risk assessment courses in the past 6 years. Dr. Thé is frequently invited as a guest speaker in international risk assessment workshops.

Consistently rated “Outstanding Instructor” by students.

Co-Author of the U.S. Federal *Human Health Risk Assessment Protocol (HHRAP)*. U.S. Environmental Protection Agency Solid Waste and Emergency Response, July 1998. EPA530-D-98-001A. U.S. Environmental Protection Agency, Research Triangle Park, NC. This protocol is a unified and accepted way to conduct multi-pathway human health risk assessments.

Co-Author of the U.S. Federal *Screening Level Ecological Risk Assessment Protocol (SLERAP)*, U.S. Environmental Protection Agency Solid Waste and Emergency Response, July 1998. EPA530-D-99-001, U.S. Environmental Protection Agency, Research Triangle Park, NC. This protocol is a unified and accepted way to conduct multi-pathway ecological risk assessments.

Main author of the New Jersey risk-based environmental equity information technology system (NJEE View). This system conducts human health risk over the entire State of New Jersey and associate

impacts of emissions to air, soil, surface water with census data to assist permitting across the State.

Co-author of the Hazen Environmental Equity methodology. This methodology is a mandated New Jersey risk based approach that assists regulators in the permitting stages and in tracking toxic reduction.

## **AWARDS & SCHOLARSHIPS**

**Main author - US Patent 9,605,212 — “Ultra-Low Water Input Oil Sands Recovery Process – March 28, 2017**

**Main author - Three other patents covering oil sands processes – 2016-2020**

**CEO of “One of the 25 Best Risk and Compliance IT Companies in the World” by the CIO Magazine. 2017.**

**Most Advanced Scientific GIS publication Award, American Association of Remote Sensing. 2013.**

**Manager of the Most Innovative Company in South-western Ontario Award, 2004.**

**Best Environment Software Award, 1999, Japan’s MITI.**

**Full scholarship for the Ph.D. program, 1988-1992**

## **SCIENTIFIC EDITORIAL WORK**

**Executive Editor – Elsevier ENERGY Journal – Impact Factor: 7.15 - Top worldwide scientific Journal.**

**Executive Editor – Elsevier SMART Energy Journal - No impact factor yet.**

**Editor-in-Chief - ENN.COM – Environmental News Network**

## **GRAD STUDENTS**

**University of Waterloo – Doctoral and Post-Docs sample list**

1. Dr. Hesheng Yu
2. Mohammad Munshed
3. Kelly Zheng
4. Dr. Babak Geynani
5. Dr. Hossein Ordouei
6. Dr. Yaser Khojasteh
7. Dr. Ka-Hing Yau

8. Dr Loui Hamooda

**University of Guelph – Ph.D. - Co-supervision with Prof. B. Gharabaghi**

1. Dr. Lee Weiss:
2. Dr. Brian Freeman:
3. Dr. Kai Xiao
4. Yue Zhang

## MAIN PUBLICATIONS

### BOOKS

**Thé, J, Thé, C., Johnson, TRAQS User Guide – Volume 1, U.S. National Academy of Sciences, National Academies Press, 2018 - ISBN 978-0-309-48323-0 – DOI 10.17226/25228**

<https://www.nap.edu/catalog/25228/volume-1-traqs-user-guide>

**Thé, J, Thé, C., Johnson, TRAQS Combined Interface for Project-Level Air Quality Analysis – Volume 2, U.S. National Academy of Sciences, 2018 - ISBN 978-0-309-48326-1 – DOI 10.17226/25229**

<https://www.nap.edu/catalog/25229/volume-2-traqs-a-combined-interface-for-project-level-air-quality-analysis>

### TECHNICAL MANUSCRIPTS – BOOK LEVEL WITH ISBN

**Thé, J., C. Thé, “Industrial Source Complex - Air Dispersion Model - User’s Guide”, 1996-2013, [ISBN 0-9681806-0-4].**

**Thé, J., C. Thé, Karagiozis, A., “Screen3 View - Screening Model - User’s Guide”, 1996-2013, [ISBN 0-9681806-2-0].**

**Thé, J., C. Thé, “Industrial Risk Assessment Program – Ecological Risk - User’s Guide”, 1998-2013, [ISBN – Being Defined].**

**Thé, J., C. Thé, “Industrial Risk Assessment Program – Human Health Risk - User’s Guide”, 1998-2013, [ISBN – Being Defined].**

**Thé, J., C. Thé, “Slab View – Emergency Environmental Releases from Industry - User’s Guide”, 1997-2013, [ISBN – Being Defined].**

### Some Recent Peer Reviewed Manuscripts – Top International Journals

Kia, S., Nambiar, M., **Thé, J.**, Ghrabaghi, B., Aliabadi, A., 2022, “*Machine Learning to Predict Area Fugitive Emission Fluxes of GHGs from Open-Pit Mines*”, Atmosphere, MDPI. <https://doi.org/10.3390/atmos13020210>

Zhang, K., Cao, H., **Thé, J.**, Yu, H., 2022, “A hybrid model for multi-step coal price forecasting using decomposition technique and deep learning algorithms”, *Applied Energy*. <https://doi.org/10.1016/j.apenergy.2021.118011>

Wang, T., Zhang, K., **Thé, J.**, Yu, H., 2021, “Accurate Prediction of Band Gap of Materials Using Stacking Machine Learning Model (for solar panels)”, *Computational Materials Science*, Elsevier. <https://doi.org/10.1016/j.commatsci.2021.110899>

Tabrizi, S., Xiao, K., **Thé, J.**, Saad, M., Farghaly, H., Yang, S., Gharabaghi, B., 2021, “Hourly road pavement surface temperature forecasting using deep learning models”, *Journal of Hydrology*. <https://doi.org/10.1016/j.jhydrol.2021.126877>

Hamidreza Shamsi, Mohammad Munshed, Manh-Kien Tran, Youngwoo Lee, Sean Walker, **Jesse Thé**, Kaamran Raahemifar, and Michael Fowler, 2021, “Health Cost Estimation of Traffic-Related Air Pollution and Assessing the Pollution Reduction Potential of Zero-Emission Vehicles in Toronto, Canada”, *ENERGIES*, MDPI, <https://www.mdpi.com/1996-1073/14/16/4956>

Zhang K., **Thé, J.**, Xie, G., Yu, H., 2020, “Multi-step ahead forecasting of regional air quality using spatial-temporal deep neural networks”, *Journal of Cleaner Production*, [doi.org/10.1016/j.jclepro.2020.123231](https://doi.org/10.1016/j.jclepro.2020.123231)

Howard, D., Soria, R., **Thé, J.**, Schaeffer, R., Saphores, J., 2020, “The energy-climate-health nexus in energy planning”, *Renewable and Sustainable Energy Reviews Journal*, [sciencedirect.com/science/article/abs/pii/S1364032120303075](https://www.sciencedirect.com/science/article/abs/pii/S1364032120303075)

Freeman, B., Gharabaghi, B., **Thé, J.**, 2018, “Forecasting air quality time series using deep learning”, *Journal of the Air & Waste Management Association*, DOI: [10.1080/10962247.2018.1459956](https://doi.org/10.1080/10962247.2018.1459956)

Freeman, B., Gharabaghi, B., **Thé, J.**, 2018, “Estimating annual air emissions from nargyla water pipes in cafés and restaurants using Monte Carlo analysis”, *J. Int. J. Environ. Sci. Technol.* [doi.org/10.1007/s13762-018-1662-6](https://doi.org/10.1007/s13762-018-1662-6)

**Thé, J.**, Yu, H.S. 2017, “A critical review on the simulations of wind turbine aerodynamics focusing on hybrid RANS-LES methods”. *Energy*, 138: 257-289

Freeman, B., McBean, E., Gharabaghi, B., **Thé, J.**, 2017. “Evaluation of Air Quality Zone Classification Methods Based on Ambient Air Concentration Exposure”. *Journal of the Air & Waste Management Association*, DOI: [10.1080/10962247.2016.1263585](https://doi.org/10.1080/10962247.2016.1263585).

Yu, H.S., Tan, Z.C., **Thé, J.**, Feng, X.S., Croiset, E., Anderson, W.A., 2016, “Kinetics of the Absorption of Carbon Dioxide into Aqueous Ammonia Solutions”. *AIChE Journal*, 62: 3673–3684. [Awarded “Editor’s Choice”, Only eight award categories at AIChE Journal in 2016.]

Yu, H.S., **Thé, J.**, 2016, "Simulation of Gaseous Pollutant Dispersion Around an Isolated Building using the  $k$ - $\omega$  SST Turbulence Model", **Journal of the Air & Waste Management Association**, doi: [10.1080/10962247.2016.1232667](https://doi.org/10.1080/10962247.2016.1232667)).

Yu, H.S., **Thé, J.**, 2016, "Validation and Optimization of SST  $k$ - $\omega$  Turbulence Model for Pollutant Dispersion within A Building Array". **Atmospheric Environment**, 145: 225-238.

Yu, H.S., **Thé, J.**, Tan, Z.C., Feng, X.S., 2016, "Modeling  $SO_2$  Absorption into Water Accompanied with Reversible Reaction in a Hollow Fiber Membrane Contactor". **Chemical Engineering Science**, 156: 136–146.

Wu, D.H., Tan, Z.C., Yu, H.S., Li, Q.H., **Thé, J.**, Feng, X.S., 2016, "Use of nanofiltration to reject cobalt (II) from ammoniacal solutions involved in absorption of  $SO_2/NO_x$ ". **Chemical Engineering Science** 145, 97-107.

Freeman, B., Gharabaghi, B., **Thé, J.**, Munshed, M., Faisal, S., Abdullah, M., Aseed, A.A., 2016. "Mapping Air Quality Zones for Coastal Urban Centers", Journal of The Air & Waste Management Association.

Freeman, B., McBean, E.A., Gharabaghi, B., **Thé, J.**, 2016. "Evaluation of Air Quality Zone Classification Methods based on Ambient Air Concentration Exposure", Journal of The Air & Waste Management Association.

Y. K. Salkuyeh, A. Elkamel, **J. Thé**, and M. Fowler, "Development and techno-economic analysis of an integrated petroleum coke, biomass, and natural gas polygeneration process," *Energy*, vol. 113, pp. 861–874, Oct. 2016.

Weiss, L., **Thé, Jesse**, Gharabaghi, B., Stainsby, E., Winter, J., 2014, "A New Dust Transport Approach to Quantify Anthropogenic Sources of Atmospheric  $PM_{10}$  Deposition on Lakes", *Atmospheric Environment*.

Weiss, L., Stainsby, E.A., Gharabaghi, B., **Thé, J.**, Winter, J.G. (2013). "Mapping key agricultural sources of dust emissions within the Lake Simcoe airshed". *Inland Waters*, Issue 3, April 2013, Pages 153-166.

Núñez-Rodríguez, Y., Johnson, M., Raskin, I., **Thé, J.**, "Computing non-crossing smooth contours on triangulated meshes", *Journal of Photogrammetric Engineering and Remote Sensing*, 7(7):703-713, July 2012. **[Awarded Worldwide Best Scientific Paper in Electronic Mapping – GIS]**

Pratt, G., Dymond, M., Ellickson, K., **Thé, J.**, "A Comparison of Modeled and Monitored Estimates of Risks from Air Pollution", *Risk Analysis*, 2012

**Thé, J.**, Raithby, G., Stubbley, G., "A Surface-Adaptive Finite-Volume Method for Solving Free Surface Flows", *Numerical Heat Transfer - Part B: Fundamentals* Vol. 26, No. 4, 1995.

## Peer Reviewed Manuscripts

Freeman, B., Gharabaghi, B., **Thé, J.** 2015a. *“Estimation of mixed traffic densities in congested road using Monte Carlo analysis”*. EM: Air & Waste Management Association's magazine for environmental managers, April 2015:8-13.

Freeman, B., Gharabaghi, B., Faisal, S., **Thé, J.** 2015b. *“Vehicle I/M Programs for Developing Nations”*. EM: Air & Waste Management Association's magazine for environmental managers, April 2015:14-18.

Freeman, B., Gharabaghi, B., **Thé, J.**, 2015, *“Introducing a novel stochastic Monte Carlo method to estimate the number and type of vehicles on congested road sections.”* Environmental Manager, April 2015.

Matthews, B., Johnson, M., Munshed, M., Chamberlin, R., **Thé, J.**, *“Combined Interface for Project-Level Mobile Air Quality Analysis”*, Environmental Manager, April 2015.

Yu, H., Tan, Z., Tan, **Thé, Jesse**, *“Recent Advances in Simultaneous Desulfurization and Denitrification”*, Environmental Manager, Dec 2014.

Guerra, S., **Thé, Jesse**, Dec 2014, *“Innovative Dispersion Modeling Practices to Achieve a Reasonable Level of Conservatism in AERMOD Modeling Demonstrations”*, Environmental Manager, Dec 2014.

K.-H. Yau, K., **Thé, J.**, *“A Distributed Computing Solution for CALPUFF”*, in Air Pollution XV, 2007, WIT.

## SAMPLE TECHNICAL GUIDANCE – AUTHORED OR CO-AUTHORED

### **US National Academy of Science – US NAS**

Transportation Air Quality System

### **US Environmental Protection Agency - USEPA**

USEPA – Human Health Risk Assessment Protocol (HHRAP) for Air Toxics

USEPA – Screening Level Ecological Risk Assessment Protocol (SLERAP) for Air Toxics

### **Ministry of Environment – MOE (Ontario – Canada)**

Technical Guidance Ontario Regs 409-05 – Air Quality Standards

### **Other Technical Guidances Co-authored:**

California: USA

Oregon: USA

Saskatchewan – Canada

South Africa

São Paulo – Brazil (CETESB)