

City of London - Application for Appointment to City of London Community Advisory Committees

Application

Committee you are interested in serving on: **Integrated Transportation Community Advisory Committee**

Contact Information

Name: **Christopher DeGroot**

City: **London**

Province: **ON**

Postal Code: **N6G 5R5**

Experience and Qualifications

If you have experience on a London Advisory Committee, please provide dates and details. (max. 250 characters):

I was a member of the Cycling Advisory Committee from 2019 until it was dissolved.

What do you hope to contribute or learn as part of a Community Advisory Committee? (max. 250 characters):

I have save significant knowledge related to lifecycle assessment of transportation emissions as well as a thorough knowledge of best practices for designing all ages and abilities cycling infrastructure. I hope to contribute my expertise to help build better and more equitable transportation options for the City. I am motivated to apply at this moment in time because of the development of the mobility master plan, which I view as a critical component toward building a sustainable transportation system that works for everyone.

How will you support the work of a Community Advisory Committee? (max. 250 characters):

I am motivated to attend all committee meetings and join subcommittees as appropriate. Specifically, as an engineering professor, I have unique skills related to searching the scientific literature to find the current consensus of relevant experts. I will strive to continually do this background research in order to support the work of the committee and to be able to provide the best possible information and advice to Council.

We value the contributions of Londoners with diverse experiences and welcome applications from individuals who share our commitment. Please describe how your work, community or lived experience will enhance these efforts through Community Advisory Committee work. (max. 3000 characters):

I am an engineering professor who cycles year-round (both for commuting and for recreation). My work will help me in the committee work because I understand the engineering process as it relates to infrastructure design. I also have unique skills related to research, which I can apply to finding the best possible resources to inform the committee's work. As someone who has cycled all over the city (including in the winter) I understand the issues and obstacles that are encountered and can provide solutions to those issues. I also cycle with my children so I understand the fear of using unsafe infrastructure. I strongly value equity, diversity, and inclusion in all aspects of my life. These issues need to be considered more directly in transportation design, especially for active modes and public transportation systems. It is not equitable or inclusive to prioritize personal motor vehicles above all else. We need to do a better job of making options available for those that can't afford a car (or are unable to drive for other reasons) so that they can participate fully in their communities. There need to be more options available for people to get around the city and get to work. A good example of considering equity in transportation design is the use of the TVP as a main artery of the

cycling network. I've heard from many women and other vulnerable groups that they do not feel safe using the TVP at night, even if it is well lit. This needs to be considered as it means less women will be keen to cycle if the timing of their journey will have them cycling when the sun isn't up. This could be one reason why there are fewer female cyclists in London. I also think about newcomers to Canada that may not have a lot of money. A lack of low-cost transportation options can prevent them from exploring their new city. As a committee member I would always be looking to consider other perspectives and how to implement a transportation system that works for everyone (including drivers too).

Please describe additional experience, training, or community involvement that will help you in your role as a Community Advisory Committee Member. (max. 250 characters):

I am a Professional Engineer and a holder of a Certificate of Authorization from the Professional Engineers Ontario. I am an engineering professor whose research focuses on wastewater engineering, community disease surveillance, and circular economy.

Attach resume or other document here, if needed: **DeGrootCV.pdf**

Attach more files here, if needed:

Confirmations

I declare the following: **I am at least 18 years old.; I understand that the commitment may be up to 4 hours per month to attend meetings and prepare.; I understand that my application and any attachments will be included on a public agenda that is published on the City website.**

To help inform our outreach activities, please tell us how you heard about this opportunity: (optional):

If you selected 'Other', please specify:

Submitted on: **6/27/2023 12:52:50 PM**

Christopher T. DeGroot

Department of Mechanical & Materials Engineering
Western University
London, Ontario

EDUCATION

Ph.D. Mechanical & Materials Engineering, Western University, 2012
M.E.Sc. Mechanical & Materials Engineering, Western University, 2009
B.E.Sc. Mechanical & Materials Engineering, Western University, 2008

EMPLOYMENT HISTORY

2022– Assistant Professor, Tenure-Track
Department of Mechanical & Materials Engineering, Western University
2016–22 Assistant Professor, Limited-Term
Department of Mechanical & Materials Engineering, Western University
2014–15 Research Scientist
Research & Development, Trojan Technologies
2012–14 Postdoctoral Fellow/Software Developer
Numerics Team, Fluids Business Unit, ANSYS Inc.
Department of Applied Mathematics, University of Waterloo
2011 Lecturer
Department of Applied Mathematics, Western University

PUBLICATIONS

† denotes student author supervised by C.T. DeGroot

Bold font denotes primary investigator(s)

Peer-Reviewed Journal Articles

1. Maloth, R.[†], **Khayat, R.E., DeGroot, C.T.**, 2022, “Bubble Growth in Supersaturated Liquids.” *MDPI Fluids*, vol. 7(12), art. 365.
2. Sherratt, A.[†], **Stratman, A.G., DeGroot, C.T., Henning, F.**, 2022, “Investigation of a Non-Equilibrium Energy Model for Resin Transfer Molding Simulations.” *Journal of Composites Science*, vol. 6(6), art. 180.
3. Samadi, Z.[†], Mehdizadeh-Allaf, M., Saifi, R., **DeGroot, C.T., Peerhossaini, H.**, 2022, “Effects of Turbulent Mixing and Orbitally Shaking on Cell Growth and Biomass

- Production in Active Fluids.” *American Journal of Biomedical Science & Research*, vol. 15(4), pp. 396–404.
4. Morales, R.B., DeGroot, C.T., Scholes, G.C., **Gerhard, J.I.**, 2022, “Understanding, Controlling and Optimising the Cooling of Waste Thermal Treatment Beds Including STARx Hottpads.” *Waste Management & Research*, In press.
 5. Mehdizadeh-Allaf, M., Habibi, Z., de Bruyn, J., DeGroot, C.T., **Peerhossaini, H.**, 2021, “Rheological and Biophysical Properties of Living Fluids Under Shear: Active Suspensions of *Synechocystis* Sp. CPCA 534.” *Journal of Fluids Engineering*, vol. 144(2), art. 021208.
 6. Khalil, A.[†], Rosso, D., **DeGroot, C.T.**, 2021, “Effects of Flow Velocity and Bubble Size Distribution on Oxygen Mass Transfer in Bubble Column Reactors – A Critical Evaluation of the Computational Fluid Dynamics - Population Balance Model.” *Water Environment Research*, vol. 93(10), pp. 2274–2297.
 7. Khalil, A.[†], Santoro, D., Batstone, D.J., **DeGroot, C.T.**, 2021, “Uncertainty Analysis of Rising Sewer Models with Respect to Input Parameters and Model Structure Using Monte Carlo Simulations and Computational Fluid Dynamics.” *Water Science and Technology*, vol. 83(10), pp. 2486–2503.
 8. Fadlallah, H., Peerhossaini, H., DeGroot, C.T., **Jarrahi, H.**, 2021, “Motility response to hydrodynamic stress during the growth cycle in active fluid suspensions.” *Journal of Fluids Engineering*, vol. 143(7), art. 074501.
 9. Edmonds, B.P.R., DeGroot, C.T., **Trejos, A.L.**, 2020, “Thermal Modeling and characterization of twisted coiled actuators for upper limb wearable devices.” *IEEE/ASME Transactions on Mechatronics*, vol. 26(2), pp. 966–977.
 10. Kuska, M.H.[†], **DeGroot, C.T.**, **Siddiqui, K.**, 2020, “Investigation of Geothermal Energy Utilization for Thermal Regulation of Aquaculture Raceway.” *International Journal of Green Energy*, vol. 17(9), pp. 540–553.
 11. Boiocchi, R., Behera, C.R., Sherratt, A., DeGroot, C.T., Gernaey, K.V., Sin, G., **Santoro, D.**, 2020, “Dynamic Model Validation and Advanced Polymer Control for Rotating Belt Filtration as Primary Treatment of Domestic Wastewaters.” *Chemical Engineering Science*, vol. 217, art. 115510.
 12. Amaral, A., Gillot, S., Garrido-Baserba, M., Filali, A., Karpinska, A., Plosz, B., DeGroot, C.T., Bellandi, G., Nopens, I., Takács, I., Lizarralde, I., Jimenez, J., Fiat, J., Rieger, L., Arnell, M., Andersen, M., Jeppsson, U., Rehman, U.; Fayolle, Y., Amerlinck, Y., Rosso, D., 2019, “Modelling Gas-Liquid Mass Transfer in Wastewater Treatment: When Current Knowledge Needs to Encounter Engineering Practice and Vice-Versa.” *Water Science and Technology*, vol. 80(4), pp. 607–619.
 13. **DeGroot, C.T.**, 2019, “Convergence and Error Analysis of an Automatically Differentiated Finite-Volume-Based Heat Conduction Code.” *International Journal of Numerical Methods for Heat and Fluid Flow*, vol. 29(7), pp. 2389–2406.

14. Sherratt, A.[†], **DeGroot, C.T.**, Straatman, A.G., Santoro, D. 2019 “Numerical Modelling and Control of Solids Separation Using Continuously Moving Fine Mesh Sieves.” *Chemical Engineering Science*, vol. 195, pp. 881–893.
15. Sherratt, A.[†], **DeGroot, C.T.**, Straatman, A.G., Santoro, D., 2019 “A Numerical Approach for Determining the Resistance of Fine Mesh Filters” *Transactions of the Canadian Society for Mechanical Engineering, Transactions of the CSME*, vol. 43(2), pp. 221–229.
16. **DeGroot, C.T.**, 2018 “WEdiff: A Python and C++ Package for Automatic Differentiation.” *Journal of Open Source Software*, vol. 3(31), art. 820.
17. **DeGroot, C.T.**, 2018 “Automatic Differentiation of a Finite-Volume-Based Transient Heat Conduction Code for Sensitivity Analysis.” *Numerical Heat Transfer – Part B (Fundamentals)*, vol. 73(5), pp. 292–307.
18. DeGroot, C.T., **Straatman, A.G.**, 2018, “A Porous Media Model of Alveolar Duct Flow in the Human Lung.” *Journal of Porous Media*, vol. 21(5), pp. 405–422.
19. DeGroot, C.T., Wang, C., **Floryan, J.M.**, 2016 “Drag Reduction Due to Streamwise Grooves in Turbulent Channel Flow.” *Journal of Fluids Engineering*, vol. 138, art. 121201.
20. DeGroot, C.T., **Straatman, A.G.**, 2016, “A Conjugate Fluid-Porous Approach for Simulating Airflow in Realistic Geometric Representations of the Human Respiratory System.” *Journal of Biomechanical Engineering*, vol. 138, art. 034501.
21. DeGroot, C.T., **Straatman, A.G.**, 2012, “Numerical Results for the Effective Flow and Thermal Properties of Idealized Graphite Foam.” *Journal of Heat Transfer*, vol. 134, art. 042603.
22. DeGroot, C.T., **Straatman, A.G.**, 2011, “A Finite-Volume Model for Fluid Flow and Nonequilibrium Heat Transfer in Conjugate Fluid-Porous Domains Using General Unstructured Grids.” *Numerical Heat Transfer – Part B (Fundamentals)*, vol. 60(4), pp. 252–277.
23. DeGroot, C.T., **Straatman, A.G.**, 2011, “Closure of Non-Equilibrium Volume-Averaged Energy Equations in High-Conductivity Porous Media.” *International Journal of Heat and Mass Transfer*, vol. 54(23–24), pp. 5039–5048.
24. DeGroot, C.T., Gateman, D., **Straatman, A.G.**, 2010, “The Effect of Thermal Contact Resistance at Porous-solid Interfaces in Finned Metal Foam Heat Sinks.” *Journal of Electronic Packaging*, vol. 132, art. 041007.
25. Sultan, K., DeGroot, C.T., **Straatman, A.G.**, Gallego, N.C., Hangan, H., 2009, “Thermal Characterization of Porous Graphitic Foam – Convection in Impinging Flow.” *International Journal of Heat and Mass Transfer*, vol. 52(19–20), pp. 4296–4301.
26. DeGroot, C.T., **Straatman, A.G.**, Betchen, L.J., 2009, “Modeling Forced Convection in Finned Metal Foam Heat Sinks.” *Journal of Electronic Packaging*, vol. 131, art. 021001.

Book Chapters

1. DeGroot, C.T., Wicklein, E., Saunders, S., 2022, “Disinfection.” In: *CFD Modelling for Wastewater Treatment Processes*, edited by Laurent, J., Samstag, R., Wicks, J., Nopens, I., London, UK: International Water Association, pp. 153–170.
2. DeGroot, C.T., **Straatman, A.G.**, 2012, “Thermal Dispersion in High-Conductivity Porous Media.” In: *Numerical Analysis of Heat and Mass Transfer in Porous Media*, edited by Delgado, J.M.P.Q., Berlin, Germany: Springer, pp. 153–180.

Peer-Reviewed Conference Proceedings

1. Samadi, Z.[†], Johlin, E., **Peerhossaini, H.**, **DeGroot, C.T.**, 2021, “Modelling Optical Properties of Algae Using the Finite-Difference Time Domain Method.” *ASME 2021 Fluids Engineering Division Summer Meeting*, Virtual Conference.
2. Fadlallah, H., Peerhossaini, H., DeGroot, C.T., **Jarrahi, M.**, 2020, “Motility Response to Hydrodynamic Stress During the Growth Cycle in Active Fluid Suspensions.” *ASME 2020 Fluids Engineering Division Summer Meeting*, Orlando, USA.
3. Allaf, M.M., Habibi, Z., Samadi, Z.[†], DeGroot, C.T., Rehmman, L., de Bruyn, J.R., **Peerhossaini, H.**, 2020, “Physical and Rheological Properties of Active Fluids Under Shear Stress: Suspensions of Synechocystis.” *ASME 2020 Fluids Engineering Division Summer Meeting*, Orlando, USA.
4. Nielsen, P.[†], **DeGroot, C.T.**, **Straatman, A.G.**, 2019, “Validation of rhoCentralFoam for Numerical Modelling of Underexpanded Free Jets Impinging on Plates.” *Proceedings of the 27th Annual Conference CFD Society of Canada*, London, Canada.
5. Remler, B.[†], **DeGroot, C.T.**, 2019, “Evaluating Floc Strength Using CFD for Primary Wastewater Treatment.” *Proceedings of the 27th Annual Conference CFD Society of Canada*, London, Canada.
6. Sarkar, D.[†], **DeGroot, C.T.**, Savory, E., 2019, “CFD Modelling of Flow and Heat Transfer in a Thermosyphon.” *Proceedings of the 27th Annual Conference CFD Society of Canada*, London, Canada.
7. Khalil, A.[†], **DeGroot, C.T.**, 2019, “CFD-PBM Study of Bubble Column Reactor Integrated with Mass Transfer Calculations.” *Proceedings of the 27th Annual Conference CFD Society of Canada*, London, Canada.
8. Sherratt, A.[†], **DeGroot, C.T.**, **Straatman, A.G.**, 2019, “Permeability Tensor Orientation and its Effect of Resin Transfer Molding.” *Proceedings of the 27th Annual Conference CFD Society of Canada*, London, Canada.
9. Kuska, M.[†], **DeGroot, C.T.**, **Siddiqui, K.**, 2019, “Utilizing Geothermal Looping for Thermal Regulation of an Aquaculture Pond.” *Proceedings of 2019 CSME International Congress*, London, Canada.
10. Daynouri-Pancino, F., McLellan, A., Remler, B.[†], Wen, Y., Giaccherini, F., Sridhar, S., Santoro, D., 2018, **DeGroot, C.T.**, **Nakhla, G.** “Enhancing Carbon Capture in Primary Wastewater Using a Chemically-Enhanced Microsieving Technology.” *Proceedings of ecoSTP 2018*, London, Canada.

11. Khan, F., Sherratt, A.[†], Boiocchi, R., Giaccherini, F., DeGroot, C.T., Santoro, D., **Straatman, A.G.**, 2018, “A Standard Procedure for Sizing Rotating Belt Filters in Wastewater with Validation Against Experimental Data.” *Proceedings of ecoSTP 2018*, London, Canada.
12. Boiocchi, R., Giaccherini, F., Khan, F., DeGroot, C.T., Sherratt, A.[†], **Santoro, D.** “Dynamic Modelling and Validation of a Rotating Belt Filter for Primary Wastewater Treatment.” *Proceedings of ecoSTP 2018*, London, Canada.
13. **DeGroot, C.T.**, 2018 “Automatic Differentiation of a Finite-Volume-Based CFD Code: Verification for Transient Conduction.” *Proceedings of the 26th Annual Conference of the CFD Society of Canada*, Winnipeg, Canada.
14. Barry, E.[†], **DeGroot, C.T.**, Hülsen, T., **Batson, D.**, 2018, “A Multiphysics Approach to Understanding Photobioreactor Operation.” *Proceedings of the 26th Annual Conference of the CFD Society of Canada*, Winnipeg, Canada.
15. Sherratt, A.[†], **DeGroot, C.T.**, Santoro, D., Daynouri-Pancino, F., Mao, S., Straatman, A.G., 2017, “Development of a Volume-Based Filtration Model for Predicting Full-Scale Rotating Belt Filter Performance in Wastewater Applications.” *Proceedings of WEFTEC*, Chicago, USA.
16. DeGroot, C.T., **Straatman, A.G.**, 2016, “Development of a Porous Media Model for Flow in Alveolated Ducts within the Human Lung.” *Proceedings of the International Congress of Theoretical and Applied Mechanics*, Montréal, Canada.
17. DeGroot, C.T., Sheikholeslamzadeh, E., Soleymani, A., **Santoro, D.**, Batstone, D.J., Rosso, D., 2015, “Understanding Primary Treatment Performance and Carbon Diversion Potential of Rotating Belt Filters Using Computational Fluid Dynamics.” *Proceedings of WEFTEC*, Chicago, USA.
18. DeGroot, C.T., 2015, “Modelling Solids Separation in Rotating Belt Filters Using a Semi-Empirical Numerical Approach.” *Proceedings of the Canadian Congress of Applied Mechanics*, London, Canada.
19. DeGroot, C.T., Sheikholeslamzadeh, E., Soleymani, A., **Santoro, D.**, Batstone, D.J., Rosso, D., 2015, “Modelling Rotating Belt Filter Performance and Nutrient Diversion Potential Using Computational Fluid Dynamics.” *Proceedings of IWA Specialist Conference on Nutrient Removal and Recovery*, Gdansk, Poland.
20. Polihronov, J., **Straatman, A.G.**, DeGroot, C.T., 2014, “On the Thermodynamics of Angular Propulsion.” *Proceedings of the 10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics*, Orlando, USA.
21. DeGroot, C.T., **Williams, D.N.**, De Sterck, H., 2013, “Stress Closure at the Interface Between Fluid and Porous Regions in ANSYS CFX.” *Proceedings of the 21st Annual Conference of the CFD Society of Canada*, Sherbrooke, Canada.
22. DeGroot, C.T., **Straatman, A.G.**, 2012, “Towards a Porous Media Model of the Human Lung.” *Proceedings of the 4th International Conference on Porous Media and its Applications in Science, Engineering, and Industry*, Potsdam, Germany.

23. DeGroot, C.T., **Straatman, A.G.**, 2012, "Simulation of Flow in an Alveolated Duct Within the Human Lung with Application to Porous Media." *Proceedings of the 20th Annual Conference of the CFD Society of Canada*, Canmore, Canada.
24. DeGroot, C.T., **Straatman, A.G.**, 2011, "A Comparison of Thermal Dispersion Behaviour in High-Conductivity Porous Media of Various Pore Geometries." *Proceedings of the 7th International Conference on Diffusion in Solids and Liquids*, Vilamoura, Portugal.
25. DeGroot, C.T., **Straatman, A.G.**, 2011, "Interface Conditions for Finite-Volume-Based Models of Flow in Conjugate Fluid-Porous Domains." *Proceedings of the 19th Annual Conference of the CFD Society of Canada*, Montréal, Canada.
26. DeGroot, C.T., **Straatman, A.G.**, 2010, "A Finite-Volume Model for Flow in Conjugate Fluid-Porous Domains with Moving Grids." *Proceedings of the 18th Annual Conference of the CFD Society of Canada*, London, Canada.
27. DeGroot, C.T., **Straatman, A.G.**, 2009, "Closure of the Volume-Averaged Transport Equations for Flow Through High-Conductivity Porous Materials." *Proceedings of the 17th Annual Conference of the CFD Society of Canada*, Ottawa, Canada.
28. DeGroot, C.T., **Straatman, A.G.**, 2008, "Modelling Thermal Dispersion in 2D Cylinder Arrays." *Proceedings of the 16th Annual Conference of the CFD Society of Canada*, Saskatoon, Canada.
29. DeGroot, C.T., **Straatman, A.G.**, 2007, "Forced Convection in Aluminum Foam Finned Heat Sinks." *Proceedings of the 15th Annual Conference of the CFD Society of Canada*, Toronto, Canada.

Technical Reports

1. **DeGroot, C.T.** "Computational Fluid Dynamics Modelling of BioCord Reactor Performance." Technical report prepared for Bishop Water Technologies, Renfrew, Canada, March 2020.
2. Sherratt, A.[†], **DeGroot, C.T.**, Santoro, D., Daynouri-Pancino, F., Mao, S., Straatman, A.G. "1D Rotating Belt Filter and Column Test Model Development." Technical report prepared for Trojan Technologies, London, Canada, January 2017.
3. **DeGroot, C.T.**, Soleymani, A., Santoro, D. "Salsnes CFD Model Development." Technical report prepared for Trojan Technologies, London, Canada, July 2016.
4. Hassanzadeh, M., **DeGroot, C.T.**, Soleymani, S., Sheikholeslamzadeh, E., Santoro, D. "Sizing Tool Development and Validation." Technical report prepared for Trojan Technologies, London, Canada, June 2016.
5. **DeGroot, C.T.** "Thermodynamic Modelling of a Turbine Operating Between Two Tanks Filled With Gas." Technical report prepared for John Horak, USA, August 2015.

Magazine Articles

1. **DeGroot, C.T.** “Perspectives - How Can International Events Shape Thinking at the National Level? How Does this Help the Next Generation of Advocates for Water Change?” *The Source: The Magazine of the International Water Association*, December 2019.

MEDIA COVERAGE

Print Media

1. “New Year, New Variant?: Researchers Keeping Close Eye on Wastewater for Kraken,” *London Free Press*, January 13, 2023.
2. “COVID-19 in London wastewater stable but new variant detected,” *London Free Press*, October 24, 2022.
3. “Ontario’s COVID-19 Wastewater Signal is Going Up Again. Here’s What That Means,” *Toronto Star*, July 16, 2022.
4. “Wastewater Data Reveals New Pandemic Wave Has Arrived in London, Ont.,” *CBC News*, July 6, 2022.
5. “New COVID-19 Cases in Ontario Have Likely Plateaued Around 100,000 a Day, Says Science Table,” *Toronto Star*, April 13, 2022.
6. “‘Like Watching a Train Wreck in Slow Motion’ Says the Londoner Tracking the 6th COVID-19 Wave,” *CBC News*, April 5, 2022.
7. “Waste Water in London, Ont. is Showing High COVID Positivity,” *CTV News*, March 23, 2022.
8. “What Wastewater Testing is Telling us About COVID-19 in London, Ont.,” *CBC News*, January 20, 2022.
9. “Researchers See Drop in COVID-19-Causing Virus in London’s Wastewater,” *CTV News*, January 19, 2022.
10. “COVID-19 Wastewater Data Suggests London, Ont. Past the Peak of Omicron,” *CTV News*, January 19, 2022.
11. “Using Wastewater to Track COVID-19 Variants of Concern Around the Globe,” *CTV News*, August 17, 2021.
12. “Wastewater Detectives: Scientists Test Wastewater for Signs of Virus,” *Western News*, August 17, 2021.
13. “Wastewater Data Suggests COVID-19 Cases Soon to Reach Record Highs in London, Ont.,” *Global News*, April 8, 2021.
14. “An Early Warning System: Testing Wastewater for COVID-19,” *Western News*, April 1, 2021.

Radio and Television

1. “COVID-19 Assessment Centre to Relocate,” *CTV London News at Six*, August 18, 2022.
2. “Rising COVID Counts in Wastewater,” *London Morning with Rebecca Zandbergen*, April 5, 2022.
3. “Wastewater Holds Clues to the Spread of COVID-19,” *London Morning with Rebecca Zandbergen*, January 20, 2022.
4. “What’s Your Poo Telling You? Western University Engineers Test Wastewater to Detect COVID-19 in Community,” *The Morning Show with Devon Peacock*, April 8, 2021.

PRESENTATIONS

Note: only presentations where C.T. DeGroot was the presenting author are included.

Conference Presentations

1. Samadi, Z., Johlin, E., Peerhossaini, H., DeGroot, C.T., 2021, “Modelling Optical Properties of Algae Using the Finite-Difference Time Domain Method.” *Virtual oral presentation at the ASME 2021 Fluids Engineering Division Summer Meeting*.
2. Fadlallah, H., Peerhossaini, H., DeGroot, C.T., Jarrahi, M., 2020, “Motility Response to Hydrodynamic Stress During the Growth Cycle in Active Fluid Suspensions.” *Virtual oral presentation at the ASME 2020 Fluids Engineering Division Summer Meeting, Orlando, USA*.
3. DeGroot, C.T., 2018, “Automatic Differentiation of a Finite-Volume-Based CFD Code: Verification for Transient Conduction.” *Oral presentation at the 26th Annual Conference of the CFD Society of Canada, Winnipeg, Canada*.
4. Barry, E., DeGroot, C.T., Hülsen, T., Batsone, D., 2018, “A Multiphysics Approach to Understanding Photobioreactor Operation.” *Oral presentation at the 26th Annual Conference of the CFD Society of Canada, Winnipeg, Canada*.
5. DeGroot, C.T., Sheikholeslamzadeh, E., Santoro, D., Sarathy, S., Lyng, T., Wen, Y., Daynouri-Pancino, F., Rosso, D., 2016, “Dynamic Modeling of Rotating Belt Filters Enables Design Exploration and Advanced Sizing with Varying Influent Conditions.” *Oral presentation at WEFTEC, New Orleans, USA*.
6. DeGroot, C.T., Straatman, A.G., 2016, “Development of a Porous Media Model for Flow in Alveolated Ducts within the Human Lung.” *Oral presentation at the International Congress of Theoretical and Applied Mechanics, Montréal, Canada*.
7. DeGroot, C.T., 2015, “Modelling Solids Separation in Rotating Belt Filters Using a Semi-Empirical Numerical Approach.” *Oral presentation at the Canadian Congress of Applied Mechanics, London, Canada*.

8. DeGroot, C.T., Williams, D.N., De Sterck, H., 2013, "Stress Closure at the Interface Between Fluid and Porous Regions in ANSYS CFX." *Oral presentation at the 21st Annual Conference of the CFD Society of Canada*, Sherbrooke, Canada.
9. DeGroot, C.T., Straatman, A.G., 2012, "Towards a Porous Media Model of the Human Lung." *Oral presentation at the 4th International Conference on Porous Media and its Applications in Science, Engineering, and Industry*, Potsdam, Germany.
10. DeGroot, C.T., Straatman, A.G., 2012, "Simulation of Flow in an Alveolated Duct Within the Human Lung with Application to Porous Media." *Oral presentation at the 20th Annual Conference of the CFD Society of Canada*, Canmore, Canada.
11. DeGroot, C.T., Straatman, A.G., 2011, "A Comparison of Thermal Dispersion Behaviour in High-Conductivity Porous Media of Various Pore Geometries." *Oral presentation at the 7th International Conference on Diffusion in Solids and Liquids*, Vilamoura, Portugal.
12. DeGroot, C.T., Straatman, A.G., 2011, "Interface Conditions for Finite-Volume-Based Models of Flow in Conjugate Fluid-Porous Domains." *Oral presentation at the 19th Annual Conference of the CFD Society of Canada*, Montréal, Canada.
13. DeGroot, C.T., Straatman, A.G., 2010, "A Finite-Volume Model for Flow in Conjugate Fluid-Porous Domains with Moving Grids." *Oral presentation at the 18th Annual Conference of the CFD Society of Canada*, London, Canada.
14. DeGroot, C.T., Straatman, A.G., 2009, "Closure of the Volume-Averaged Transport Equations for Flow Through High-Conductivity Porous Materials." *Oral presentation at the 17th Annual Conference of the CFD Society of Canada*, Ottawa, Canada.
15. DeGroot, C.T., Straatman, A.G., 2008, "Modelling Thermal Dispersion in 2D Cylinder Arrays." *Oral presentation at the 16th Annual Conference of the CFD Society of Canada*, Saskatoon, Canada.
16. DeGroot, C.T., Straatman, A.G., 2007, "Forced Convection in Aluminum Foam Finned Heat Sinks." *Oral presentation at the 15th Annual Conference of the CFD Society of Canada*, Toronto, Canada.

Invited Talks

1. "Water Environment Federation Disinfection Webcast 2", delivered to virtual audience through Water Environment Federation Webinar Series, September 2022.
2. "Enrich the Student Experience – CityStudio London", delivered to Western Leader's Forum (senior University leadership group), November 2021.
3. "Fluid Mechanics and the COVID-19 Pandemic," delivered to Department of Physics and Astronomy, Western University, November 2020.
4. "Dynamic Modelling of Rotating Belt Filters for Primary Wastewater Treatment," delivered to Advanced Water Management Centre (AWMC), University of Queensland, May 2017.

5. “Rotating Belt Filter Modelling – Model Development and Future Directions,” delivered to Trojan Technologies and Salsnes Filter, February 2017.
6. “Rotating Belt Filter Modelling – Scaling from Bench-Scale Measurements to Full-Scale Predictions,” delivered to Trojan Technologies, September 2016.

OPEN SOURCE SOFTWARE PROJECTS

1. “pyODM – Tools for Working with Public Health Environmental Surveillance Open Data Model Files”
<https://github.com/DeGrootResearchGroup/pyODM>
2. “clarifierFoam – A CFD Solver for Secondary Clarification of Wastewater”
<https://github.com/maplekeylabs/clarifierFoam>
3. “asmFoam – A Multiphase CFD Solver with Coupled Activated Sludge Biokinetics”
<https://bitbucket.org/cdegroot/asmfoam>
4. “A Finite Volume CFD Framework with Automatic Differentiation”
<https://bitbucket.org/cdegroot/cfd-framework>
5. “WEdiff Automatic Differentiation Library”
<https://bitbucket.org/cdegroot/wediff>
6. “photoBio – A Finite Volume Discrete Ordinates Solver for Multiband Optical Radiation”
<https://gitlab.com/leboucher/photoBio>
7. “pamFoam – A Multiphase, Multiphysics CFD Solver with Coupled Radiative Transfer and Biokinetics”
<https://gitlab.com/leboucher/pamFoam>

RESEARCH FUNDING

Currently Awarded

- | | |
|------|---|
| 2023 | <p><i>Nature-Inspired Solutions for Carbon Transformation</i>
 Award Period: September 1, 2023 to August 31, 2024
 Program: Western Academy for Advanced Research
 Principal Investigator: C.T. DeGroot
 Co-Investigators: N. Klinghoffer, H. Peerhossaini
 Total Amount: \$295,000</p> |
| 2023 | <p><i>Development of Fabric Channels for Cooling of Smart Material Actuators</i>
 Award Period: January 1, 2023 to December 31, 2023
 Program: Western Innovation Fund
 Principal Investigator: A.L. Trejos
 Co-Investigators: C.T. DeGroot
 Total Amount: \$100,000</p> |

- 2022 *Computational Fluid Dynamics Modelling of Photobioreactors for Carbon Capture*
Award Period: April 1, 2022 to March 31, 2023
Program: Compute Canada Resource Allocation Competition
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Total Amount: 50 core years dedicated compute resources (value of \$6,175)
- 2021 *Surfing the Innovation Wave: Accelerate Development of Eco-efficient Technologies for Municipal and Industrial Water Treatment*
Award Period: May 1, 2021 to April 30, 2024
Program: Mitacs Accelerate (Cluster)
Principal Investigator: M. Ray
Co-Investigators: M. Carter, T. D'Silva, C.T. DeGroot, C. De Lannoy, K. Grolinger, E. Johlin, C. Ketola, J. Randall, M. Ray, B. Smith, K. Warriner
Industry Partner: Trojan Technologies
Total Amount: \$2,659,010
- 2021 *SARS-CoV-2 Wastewater Surveillance*
Award Period: March 1, 2021 to March 31, 2023
Program: Ontario Ministry of Environment, Conservation, and Parks
Principal Investigator: C.T. DeGroot
Co-Investigators: E. Arts, A. Poon
Total Amount: \$1,184,669
- 2017 *Computational Methods for Analysis and Optimization of Solar Thermal Energy Collection and Storage Technologies*
Award Period: April 1, 2017 to March 30, 2024
Program: NSERC Discovery
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Total Amount: \$147,000

Completed

- 2021 *Modelling and Analysis of Heat Pipes Under Various Operating Conditions Encountered in Mold Cooling Applications*
Award Period: May 7, 2021 to April 30, 2022
Program: Mitacs Accelerate
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Industry Partner: Acrolab Inc.
Total Amount: \$30,000
- 2021 *Computational Fluid Dynamics Modelling of Photobioreactors for Carbon Capture*
Award Period: April 1, 2021 to March 31, 2022
Program: Compute Canada Resource Allocation Competition
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Total Amount: 50 core years dedicated compute resources (value of \$6,067)

- 2020 *A Lab-Scale Sewer Simulator to Enable Wastewater Based Epidemiological Quantification of COVID-19 Infection Rates*
Award Period: July 1, 2020 to June 30, 2022
Program: Western Research Catalyst
Principal Investigator: C.T. DeGroot
Co-Investigators: D. Santoro
Total Amount: \$45,600
- 2020 *Emergency Ventilator System Using Additive Manufacturing*
Award Period: May 1, 2020 to April 30, 2022
Program: Western Research Catalyst
Principal Investigator: D. Holdsworth
Co-Investigators: G. Campbell, A.L. Trejos, C.T. DeGroot, J. Lacefield, C. Harle, M. Slessarev
Total Amount: \$49,700
- 2020 *Computational Fluid Dynamics Modelling of Photobioreactors for Carbon Capture*
Award Period: April 1, 2020 to March 31, 2021
Program: Compute Canada Resource Allocation Competition
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Total Amount: 60 core years dedicated compute resources (value of \$7,280)
- 2020 *Investigation of Chemical Treatments for Prevention of Sewer Odour and Corrosion*
Award Period: March 16, 2020 to March 15, 2021
Program: CHI University Grant Program
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Total Amount: Annual license of PCSWMM software (value of \$1,440)
- 2019 *Development of a Computational Fluid Dynamics Model of a Jet Nebulizer Device for Aerosol Drug Delivery*
Award Period: February 1, 2019 to July 31, 2019
Program: NSERC Engage Plus
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Industry Partner: Trudell Medical International
Total Amount: \$20,000
- 2018 *Computational Fluid Dynamics Modelling of Heat Pipes for Cooling Applications*
Award Period: May 1, 2018 to April 30, 2021
Program: Mitacs Accelerate
Principal Investigator: C.T. DeGroot
Co-Investigators: None
Industry Partner: Acrolab Inc.
Total Amount: \$90,000
- 2018 *Development of a Computational Fluid Dynamics Model of a Jet Nebulizer Device for Aerosol Drug Delivery*

Award Period: February 1, 2018 to July 31, 2018

Program: NSERC Engage

Principal Investigator: C.T. DeGroot

Co-Investigators: None

Industry Partner: Trudell Medical International

Total Amount: \$25,000

2017 *A 3D Lithography System for Metamaterials, Energy Materials and Biomedical Research*

Award Period: April 1, 2017 to March 30, 2018

Program: NSERC Research Tools and Instruments

Principal Investigator: J. Yang

Co-Investigators: C.T. DeGroot, Z. Ding, G. Franchini, L. Jiang, A. Price, J. Sabarinathan, A. Sun, R. Tutunea-Fatan

Total Amount: \$149,475

2016 *Municipal Wastewater Treatment Technology Innovation*

Award Period: September 1, 2016 to August 31, 2019

Program: NSERC Collaborative Research and Development

Principal Investigator: G.F. Nakhla

Co-Investigators: C.T. DeGroot

Industry Partner: Trojan Technologies

Total Amount: \$1,285,100

FELLOWSHIPS AND SCHOLARSHIPS

2014-15 NSERC Industrial Research and Development Fellowship (IRDF)

2012-14 Mitacs Elevate Postdoctoral Fellowship

2009-12 NSERC Alexander Graham Bell Canada Graduate Scholarship (CGS D)

2008-09 NSERC Postgraduate Scholarship (PGS M)

2007 NSERC Undergraduate Student Research Award (USRA)

2006 NSERC Undergraduate Student Research Award (USRA)

TEACHING EXPERIENCE

Undergraduate Courses

Year	Course No.	Course Title	Enrolment	Score ¹
2021/22	MSE 2214A	Thermodynamics ²	92	5.2/7
	MME 2204A	Thermodynamics I ²	137	4.8/7
2020/21	MSE 2214A	Thermodynamics	81	6.5/7
	MME 4499	Mechanical Engineering Design Project	76	N/A
	ES 1050	Foundations of Engineering Practice	46	5.5/7
2019/20	MME 3334B	Thermodynamics II	88	N/A
	MSE 2214A	Thermodynamics	76	6.5/7
	MME 4499	Mechanical Engineering Design Project	104	N/A
2018/19	MME 3307B	Heat Transfer II	102	6.0/7
	MSE 2214A	Thermodynamics	82	6.9/7
2017/18	MME 2234B	Heat Transfer and Dynamics	70	6.4/7
	MSE 2214A	Thermodynamics	74	6.7/7
	ES 1050	Introductory Design and Innovation	40	6.0/7
	ES 1050	Introductory Design and Innovation	43	5.4/7
2016/17	MME 2213B	Engineering Dynamics	116	6.0/7
	ES 1021B	Properties of Materials	265	5.2/7
	MSE 2214A	Thermodynamics	66	5.4/7
	ES 1021A	Properties of Materials	157	4.1/7
	MME 4499	Mechanical Engineering Design Project	74	N/A
	ES 1050	Introductory Design and Innovation	49	N/A
	ES 1050	Introductory Design and Innovation	48	N/A
2015/16	MME 3360B	Finite Element Methods in Mech. Eng.	125	6.1/7
	ES 1021B	Properties of Materials	273	5.7/7
2011/12	CALC 1000A	Calculus I	130	6.2/7

¹Based on response to question: "Overall, is an effective university teacher"

²Taught online due to family accommodation while most other classes were in-person.

Graduate Courses

Year	Course No.	Course Title	Enrolment	Score ¹
2020/21	MME 9710A	Advanced Computational Fluid Dynamics	9	N/A
2019/20	MME 9614A	Applied Computational Fluid Dynamics and Heat Transfer	23	6.6/7
2018/19	MME 9639B	Viscous and Boundary Layer Flow	12	6.7/7
	MME 9710A	Advanced Computational Fluid Dynamics	8	6.8/7
2017/18	MME 9710A	Advanced Computational Fluid Dynamics	11	6.9/7
2015/16	MME 9639B	Viscous and Boundary Layer Flow	17	6.4/7

¹Based on response to question: “Overall, is an effective university teacher”

Undergraduate Research Supervision

Name	Program	Topic	Year
Thomas Mathias	Dean’s Award	Optical properties of active fluids	2020
Brennan May	NSERC USRA	Characterization of heat pipes	2018
Luke Tambakis	Dean’s Award	Characterization of heat pipes	2018
Mengchen Zhao	Dean’s Award	Energy storage in phase change materials	2018
David Lionga	Dean’s Award	Energy storage in phase change materials	2018

Undergraduate Project Supervision

Name	Course	Topic	Year
Alek Ryan	MME 4410	Bubble column dynamics	2021-2022
Lyndon Bunio	MME 4410	Acoustic levitation and transport of oil	2017-2018
Brandon Power	MME 4499	Experimental apparatus for phase change material testing	2017-2018
Octavian Strashun			
Efrain Navas			

Graduate Research Supervision

Name	Co-Supervisor	Degree	Title/Topic	Status
Amin Hadizade		PhD	Virus transmission in indoor environments	In progress
Luning Chen	Bassi	PhD	Microalgae photobioreactor for stormwater treatment	In progress
Zahra Samadi	Peerhossaini	PhD	Development of a microalgae photobioreactor and numerical model	In progress
Dwaipayan Sarkar	Savory	PhD	Numerical modelling of heat pipes	In progress
Sameed Akber	Siddiqui	MESc	Numerical investigation of flow and thermal behaviour in channels with PCM-filled thermal energy storage columns for potential application in photobioreactors	Complete
Heena Shrestha	Trejos	MESc	Development of control system for open-source low-cost ventilators	Complete
Maryam Shams	Peerhossaini Voogt	MESc	Urban Heat Mitigation for Current and Future Conditions: A case study for downtown London ON	Complete
Ahmed Khalil		PhD	Numerical modelling of biological wastewater treatment processes	Complete
Raj Maloth	Khayat	MESc	Analytical modelling of gas-liquid mass transfer	Complete
Mitchell Kuska	Siddiqui	MESc	Energy modelling of a ground-loop heat exchanger for aquaculture Applications	Complete
Peter Nielsen	Straatman	MESc	Numerical modelling of a jet nebulizer devices	Complete
Brooke Remler		MESc	Numerical modelling and experimental validation of wastewater flocculation processes	Complete
Edward Barry	Batstone Hülßen	PhD	Numerical modelling of photobioreactors	Complete
Anthony Sherratt	Straatman	MESc	Computational fluid dynamics modelling of wastewater filtration Processes	Complete

Postdoctoral Supervision

Name	Title/Topic	Status
Ahmed Khalil	Wastewater process modelling for sewers and activated sludge reactors	In progress
Ahmed Badia	SARS-CoV-2 surveillance in municipal wastewater	Complete

Research Associate Supervision

Name	Title/Topic	Status
Michael Siemon	SARS-CoV-2 surveillance in municipal wastewater	In progress

GRADUATE COMMITTEES

Name	Degree	Role	Outcome	Date
Michael Davis	MESc	Examiner	Pass	2022 08 23
Dylan MacRiner	MESc	Examiner	Pass	2022 08 22
Siddharth Gupta	PhD	Examiner	Pass	2021 11 19
Arash Ashrafi	PhD	Examiner	Pass	2021 10 29
Jihao Wang	Comp	Examiner	Pass	2021 10 15
Zhaoran Xin	MESc	Examiner	Pass	2021 10 06
Mohamed Badr	MESc	Examiner	Pass	2021 09 22
Muveno Mucaza	MESc	Examiner	Pass	2021 09 14
Anika Wong	MESc	Examiner	Pass	2021 08 30
Abdelrahman Aly	PhD	Examiner	Pass	2021 07 16
Tiziana Venditto	PhD	Examiner	Pass	2021 04 22
Yitian Guo	PhD	Examiner	Pass	2021 02 26
Cesar Pedraza	PhD	Examiner	Pass	2021 02 05
Marilena Enus	PhD	Examiner	Pass	2021 01 28
Brandon Edmonds	PhD	Examiner	Pass	2020 12 16
Saleh Srabet	MESc	Examiner	Pass	2020 12 11
Ben Hamilton	Comp	Examiner	Pass	2020 12 10
Srdjan Cvijanovic	Comp	Examiner	Pass	2020 11 27
Kamran Ajirlo	MESc	Examiner	Pass	2020 11 23
Didulani Acharige	Comp	Examiner	Pass	2020 10 23
Glen DSouza	MESc	Examiner	Pass	2020 10 22
Kyle Graat	MESc	Examiner	Pass	2020 10 09
Seyed Miry	Comp	Examiner	Pass	2020 07 21
Garret Munch	PhD	Examiner	Pass	2020 07 06
Kira Toxopeus	MESc	Examiner	Pass	2020 07 03
Zahra Habibi	Comp	Examiner	Pass	2020 05 12
Kadeem Dennis	PhD	Examiner	Pass	2020 02 20
Wesam Mohamed	MESc	Examiner	Pass	2020 02 10
Jiahao Wang	MESc	Examiner	Pass	2020 01 09
Shoyon Panday	Comp	Examiner	Pass	2019 11 29
Tsinuel Geleta	Comp	Examiner	Pass	2019 11 22
Huirui Han	Comp	Examiner	Pass	2019 11 01
Mohammad Karami	PhD	Examiner	Pass	2019 10 10
Dwaipayyan Sarkar	Comp	Examiner	Pass	2019 08 19
Kyle Teather	Comp	Examiner	Pass	2019 07 31
Meseret Kahsay	PhD	Examiner	Pass	2019 05 29
Md Faisal	Comp	Examiner	Pass	2019 02 13
Ashraf Ashrafi	Comp	Examiner	Pass	2019 01 25
Mrinmoyee Mondal	MESc	Examiner	Pass	2018 12 14
Asma Khalil	MESc	Examiner	Pass	2018 12 06
Junayed Chowdhury	MESc	Examiner	Pass	2018 11 26
Steven Jevnikar	MESc	Examiner	Pass	2018 10 05
Yunfeng Liu	MESc	Examiner	Pass	2018 09 12
Tomek Jaroslowski	MESc	Examiner	Pass	2018 09 11

Name	Degree	Role	Outcome	Date
Shirzad Mohajerani	PhD	Examiner	Pass	2018 08 21
Tuntun Gaurav	MESc	Examiner	Pass	2018 08 02
Yanbei Wang	MESc	Examiner	Pass	2018 07 31
Sakib Shadman	MESc	Examiner	Pass	2018 04 23
Dwaipayan Sarkar	MESc	Examiner	Pass	2018 04 12
Huirui Han	MESc	Examiner	Pass	2018 02 13
Tanvir Hossain	MESc	Examiner	Pass	2017 11 27
Yitian Guo	Comp	Examiner	Pass	2017 10 02
Fakhruzzaman Arif	MESc	Examiner	Pass	2017 09 28
Hao Luo	MESc	Examiner	Pass	2017 09 18
Ahmed Mohamed	MESc	Examiner	Pass	2017 09 15
Asif Zobaer	MESc	Examiner	Pass	2017 09 12
Sarah Stevenson	MESc	Examiner	Pass	2017 08 31
Brandon Edmonds	Comp	Examiner	Pass	2017 08 30
Jeremy Vu	MESc	Chair	Pass	2017 08 15
Mahmoud Kassem	PhD	Examiner	Pass	2017 06 15
Abul Akon	PhD	Examiner	Pass	2017 03 03
Shady Ali	PhD	Examiner	Pass	2017 01 25

GUEST LECTURES

1. “Introduction to Computational Fluid Dynamics” for course “Advanced Topics in Computer Aided Engineering”, October 2022.
2. “Sustainability and Life Cycle Assessment in Mechanical Engineering Design” for course “Mechanical Engineering Design Project”, October 2021.
3. “Introduction to Computational Fluid Dynamics” for course “Advanced Topics in Computer Aided Engineering”, October 2021.
4. “Introduction to Computational Fluid Dynamics” for course “Advanced Topics in Computer Aided Engineering”, October 2020.
5. “Introduction to Computational Fluid Dynamics” for course “Advanced Topics in Computer Aided Engineering”, October 2019.
6. “Introduction to Computational Fluid Dynamics” for course “Advanced Topics in Computer Aided Engineering”, October 2018.
7. “Introduction to Computer-Aided Design” for course “Introductory Design and Engineering Studio”, October 2017.
8. “Introduction to Computational Fluid Dynamics” for course “Advanced Topics in Computer Aided Engineering”, October 2017.
9. “Introduction to Computer-Aided Design” for course “Introductory Design and Engineering Studio”, March 2017.

10. "Introduction to Computational Fluid Dynamics" for course "Advanced Topics in Computer Aided Engineering", October 2016.

SERVICE

Conference Organization

- 2018-19 Conference Co-Chair and Programme Chair, International Water Association Young Water Professionals Conference, Toronto, Canada, July 2019.
- 2018-19 Conference Co-Chair, 27th Annual Conference of the Computational Fluid Dynamics Society of Canada, London, Canada, June 2019.
- 2016 Volunteer Coordinator, 24th International Congress of Theoretical and Applied Mechanics, Montreal, Canada, held August 2016.
- 2011 Member of Organizing Committee, 19th Annual Conference of CFD Society of Canada, Montreal, Canada, held April 2011.
- 2010 Member of Organizing and Scientific Committees, 18th Annual Conference of CFD Society of Canada, London, Canada, held May 2010.

Conference Sessions Chaired

- 2021 "Flow Manipulation and Active Control," FEDSM 2021, Virtual Conference.
- 2018 "Algorithms/Methodology," 26th Annual Conference of the CFD Society of Canada, Winnipeg Canada.
- 2017 "Heat Transfer," 25th Annual Conference of the CFD Society of Canada, Windsor, Canada.
- 2016 "Porous Media," 24th International Congress of Theoretical and Applied Mechanics, Montreal, Canada.
- 2015 "Porous Media," Canadian Congress of Applied Mechanics, London, Canada.

Peer Review

1. Journal of Open Source Software (5 papers)
2. Transactions of the Canadian Society of Mechanical Engineering (4 papers)
3. Physics of Fluids (3 papers)
4. Water Science and Technology (4 papers)
5. Water Environment Research (2 papers)
6. Journal of Fluid Mechanics (2 papers)
7. International Journal of Heat and Mass Transfer (2 papers)
8. International Journal of Mechanical Engineering Education (2 papers)
9. International Journal of Numerical Methods in Heat and Fluid Flow (2 papers)
10. International Journal of Thermal Sciences (2 papers)

11. SoftwareX (1 paper)
12. Chemical Engineering Science (1 paper)
13. Computers and Fluids (1 paper)
14. Canadian Journal of Chemical Engineering (1 paper)
15. Archive of Mechanical Engineering (1 paper)
16. Engineering with Computers (1 paper)
17. Numerical Linear Algebra with Applications (1 paper)
18. Fluid Dynamics and Materials Processing (1 paper)

Grant Review

1. Compute Canada 2021 Resource Allocation Competition (6 proposals)
2. Mitacs Accelerate 2021 Competition (1 proposal)
3. Agence Nationale de la Recherche (France) 2020 Competition (1 proposal)
4. Mitacs Accelerate 2020 Competition (1 proposal)
5. NSERC Discovery 2019 Competition (1 proposal)
6. Mitacs Elevate 2019 Competition (1 proposal)
7. Mitacs Accelerate 2019 Competition (2 proposals)

Service to Department

1. Graduate Attributes Review Committee, 2022–Present
2. Undergraduate Committee, 2022–Present.
3. Graduate Professional Committee, 2021-2022
4. Capstone Design Showcase Judge, March 2017.
5. Undergraduate Curriculum Committee Member, 2016–2017

Service to Faculty

1. Acting Director, WesternWater Centre, January 2022–June 2022
2. Hiring Committee, Thompson Centre for Engineering Leadership and Innovation, 2021
3. Online Learning Task Force Member, 2020–2021
4. First Lego League Competition Judge and Guest Speaker, December 2019
5. Convocation Hooder, June 2019
6. First Lego League Competition Judge, December 2018
7. First Year Design Showcase Judge, April 2018.

8. First Lego League Competition Judge and Guest Speaker, December 2017
9. Fall Preview Day Volunteer, November 2017
10. First Year Design Showcase Judge, April 2017.
11. Western Engineering Competition Judge, January 2017.
12. Convocation Hooder, June 2016
13. Fall Preview Day Volunteer, November 2016
14. First Year Design Showcase Judge, April 2016.
15. March Break Open House Volunteer, March 2016.
16. Undergraduate Scholarship Selection Committee, 2016

Service to University

1. Lifelong Learning Working Group Member, 2020–2021

External Service

1. Member of Ontario Wastewater Surveillance Consortium, 2022–Present
2. Member of Wastewater Surveillance Technical and Research Advisory Table, Government of Ontario, 2022–Present
3. Vice Chair of International Water Association CFD Working Group, 2022–Present
4. President of CFD Society of Canada, 2021–Present
5. Co-Vice-Chair of Water Environment Program Research and Innovation Symposium, 2021–Present
6. Member of Water Environment Program Committee, 2018–Present
7. Member of International Water Association CFD Working Group, 2018–Present
8. Member of Board of Directors, CFD Society of Canada, 2017–Present.
9. Treasurer of Canadian Young Water Professionals Chapter, 2019–2020
10. Member of Modelling and Integrated Assessment Specialist Group Management Committee, International Water Association, 2016–2018.
11. Student member of Board of Directors, CFD Society of Canada, 2009–2012.

PROFESSIONAL AFFILIATIONS

1. Professional Engineers Ontario (PEO), registered as Professional Engineer since March 2015.
2. International Water Association (IWA), registered member since April 2016.
3. Water Environment Federation (WEF), registered member since July 2018.

COMMUNITY SERVICE

1. Chair of London Cycle Link Advocacy Committee, 2020–Present
2. Member of City of London Cycling Advisory Committee, 2019–Present