

Sobhan Aleyasin, Ph.D., P.Eng.

This is a summary of the Curriculum Vitae

PROFILE

I have a solid research background in Thermo-Fluids and collaborated with various industries and organizations including the Department of Fisheries and Oceans Canada (DFO) and the American Bureau of Shipping (ABS). My research experience spans studies on bar rack systems, spillways, clean energies, stilling basins, bluff-body aerodynamics, turbulent jets, and hydrokinetic turbines. Beyond my research and teaching role, I have extensively volunteered and provided professional and community services.

EDUCATION

Ph.D., Mechanical Engineering

University of Manitoba, Canada

2019

Thesis: “On the effects of initial conditions on statistical properties of single and twin turbulent jets using PIV”

Business English

Rose of York College, England

2014

M.Sc., Mechanical Engineering (Energy Conversion)

Amirkabir University of Technology

2009

Thesis: “Optimization of geometrical and hydrodynamical conditions of a stilling basin by acoustic Doppler velocimetry (ADV) according to entering conditions and baffles”

B.Sc., Mechanical Engineering (Thermo-Fluids)

Amirkabir University of Technology

2006

Thesis: “Experimental study of pressurized closed filter”

TEACHING EXPERIENCE

- Visiting lecturer, Marine Thermodynamics and Engineering Analysis, 2025, *Texas A&M University, U.S.*
- Lecturer, Heat Transfer and Mechanical Engineering Design 3, 2024, *University of New Mexico, U.S.*
- Guest lecturer, Theory of Turbulence, 2016, 2017, 2018 and 2020, *University of Manitoba, Canada*
- Guest lecturer, Fundamental of Fluid Mechanics, 2018, *University of Manitoba, Canada*
- Teaching Assistant and Laboratory Instructor, Fundamentals of Fluid Mechanics and Fluid Mechanics and Applications, 2015 – 2018, *University of Manitoba, Canada*

ACADEMIC AND INDUSTRIAL EXPERIENCE

Visiting Lecturer <u>Texas A&M University</u>	2025
Research Associate <u>University of Manitoba, Canada (Collaboration with the Department of Fisheries and Oceans Canada, DFO)</u>	2023 – 2024
Postdoctoral Fellow <u>University of Victoria, Canada</u>	2021
Postdoctoral Fellow <u>University of Windsor and University of Manitoba, Canada</u>	2020 – 2021
Postdoctoral Fellow <u>Simon Fraser University, Canada</u>	2019 – 2020
Ph.D. Student/ Researcher <u>University of Manitoba (Collaboration with Price Industries Limited, Canada)</u>	2014 – 2019
Project and Design Mechanical Engineer <u>Tosea Faragir Lavan (TFL) Company</u>	2011 – 2012
Project and Design Mechanical Engineer <u>Petrochemical Industries Design Equipment & parts Manufacturing Company (PIDEMCO)</u>	2009 – 2010

AWARDS / HONORS

• University of Manitoba Graduate Fellowship	2015 – 2018
• Faculty of Graduate Studies Travel Award, University of Manitoba	2015, 2018
• Edward R. Toporeck Graduate Fellowship in Engineering, University of Manitoba	2017
• International Graduate Student Scholarship, University of Manitoba	2015
• International Graduate Student Entrance Scholarship, University of Manitoba	2014
• The 1 st rank student during M.Sc. at Amirkabir University of Technology	2009

JOURNAL ARTICLES

- 1- “Effects of ramp width variation on the hydraulic conditions of spillway that affect downstream migrating fish”, 2025, *Scientific Reports*: In Press.
- 2- “Comprehensive study of the hydrodynamic effects of weirs installed in the bypass of bar rack systems to better guide downstream migrating fish”, 2024, *Ecological Engineering*: 201: 107206.
- 3- “On conjugate heat transfer in microchannel heat sinks”, 2024, *International Journal of*

Thermofluids: 22: 100658.

- 4- “Turbulent separations around a slanted back Ahmed body with square and rounded leading edge”, 2023, *Physics of Fluids*: 35 (4): 045129.
- 5- “Turbulent flow characteristics past elongated bluff bodies due to the variation in body shape and upstream conditions”, 2021, *Physics of Fluids*: 33 (12): 125106. **(Editor’s Pick)**
- 6- “Spherical particle migration evaluation in low Reynolds number Couette flow using smooth profile method”, 2021, *International Journal of Computational Methods and Experimental Measurements*: 9 (3): 261-275.
- 7- “PIV Measurements of Turbulent Jets Issuing from Twin Elliptic Nozzles with Various Orientations”, 2021, *Journal of Fluids Engineering*: 143 (2): 021501.
- 8- “Turbulent Properties of Triple Elliptic Free Jets with Various Nozzle Orientation”, 2020, *Journal of Fluids Engineering*: 142 (3): 031106.
- 9- “Statistical properties and structural analysis of three-dimensional twin round jets due to variation in Reynolds number”, 2019, *International Journal of Heat and Fluid Flow*: 76: 215-230.
- 10- “Experimental investigation of nozzle spacing effects on characteristics of round twin free jets”, 2019, *Journal of Fluids Engineering*: 141 (7): 071201.
- 11- “On the development of incompressible round and equilateral triangular jets due to Reynolds number variation”, 2018, *Journal of Fluids Engineering*: 140 (11): 111202.
- 12- “Efficiency enhancement of solar chimney power plant by use of waste heat from nuclear power plant”, 2018, *Journal of Cleaner Production*: 180: 407 – 416.
- 13- “Statistical properties of round, square and elliptic jets at low and moderate Reynolds numbers”, 2017 *Journal of Fluids Engineering*: 139(10): 101206.
- 14- “PIV measurements in the near and intermediate field regions of jets issuing from eight different nozzle geometries”, 2017, *Journal of Flow, Turbulence and Combustion*, 99 (2): 329-351.
- 15- “Numerical-analytical assessment on Manzanares prototype”, 2016, *Journal of Applied Thermal Engineering*, 102 (5): 243-250.
- 16- “Experimental study of the type VI stilling basin performance”, 2015, *Journal of Fluids Engineering*: 137 (3): 034503.

CONFERENCE PAPERS AND PRESENTATIONS

- 1- “Flow behavior around partial-width ramp installed upstream of spillway with inferences on downstream migrating fish guidance”, 2025, *CSCE Annual Conference*, Winnipeg, Canada.
- 2- “Effects of weir installed at the bypass entrance of bar rack systems on hydraulic conditions and behavior of downstream migrating fish”, 2024, *8th IAHR Europe Congress*, Lisbon, Portugal.
- 3- “Experimental investigation of flow around spillway ramps with varying spanwise widths towards successful downstream fish passage”, 2024, *8th IAHR Europe Congress*, Lisbon, Portugal.

- 4- “PTV study of turbulent flow separation induced by a forward-facing step: A Lagrangian perspective”, 2024, *13th International Symposium on Turbulence and Shear Flow Phenomena (TSFP13)*, Montreal, Canada.
- 5- “Experimental study of elevated bluff bodies mounted in turbulent boundary layers,” 2022, *CSCE Annual Conference*, Whistler, Canada.
- 6- “The effects of nozzle orientation on mixing characteristics of elliptic twin free jets”, 2019, *ASME-JSME-KSME Joint Fluids Engineering Conference (AJKFluids)*, San Francisco, USA.
- 7- “Experimental investigation of nozzle orientation effects on mixing characteristics of elliptic triple free jets”, 2019, *ASME-JSME-KSME Joint Fluids Engineering Conference (AJKFluids)*, San Francisco, USA.
- 8- “Comparative evaluation of single/twin round and elliptic jets using particle image velocimetry”, 2018, *ASME Fluids Engineering Division Summer Meeting (FEDSM)*, Montreal, Canada.
- 9- “Single Particle Behavior in Low Reynolds Linear Shear Flow”, 2018, *ASME Fluids Engineering Division Summer Meeting (FEDSM)*, Montreal, Canada.
- 10- “Nozzle spacing effects on statistical properties of twin elliptic jets”, 2017, *The 11th Pacific Symposium on Flow Visualization and Image Processing*, Kumamoto, Japan.
- 11- “Statistical properties of three-dimensional twin jets at low and moderate Reynolds numbers” 2017, *The 11th Pacific Symposium on Flow Visualization and Image Processing*, Kumamoto, Japan.
- 12- “Comparison of turbulent jets issuing from various sharp contoured nozzles”, 2017, *ASME Fluids Engineering Division Summer Meeting (FEDSM)*, Hawaii, USA.
- 13- “Numerical-experimental analysis of turbulent incompressible isothermal triangular and round jets”, 2017, *ASME Fluids Engineering Division Summer Meeting (FEDSM)*, Hawaii, USA.
- 14- “Computational assessment of double-inlet collector in solar chimney power plant systems”, 2017, *ASME Fluids Engineering Division Summer Meeting (FEDSM)*, Hawaii, USA.
- 15- “Low Reynolds number effects on jets issuing from round and elliptic orifices”, 2015, *8th International Symposium on Turbulence, Heat and Mass Transfer*, Sarajevo, Bosnia and Herzegovina.
- 16- “Effect of nozzle geometry on mixing in turbulent free orifice Jets” 2015, *8th International Symposium on Turbulence, Heat and Mass Transfer*, Sarajevo, Bosnia and Herzegovina.
- 17- “Characteristics of orifice jets at low Reynolds numbers”, 2015, *10th Pacific Symposium on Flow Visualization and Image Processing*, Naples, Italy.
- 18- “Stilling basin performance analysis by ADV” 2014, *American Physical Society Division of Fluid Dynamics*, San Francisco, USA.
- 19- “V&V exercise for a solar tower power plant”, 2014, *ASME Verification and Validation Symposium*, Las Vegas, USA

PATENT

- “Inflatable, free-standing solar updraft tower with optimal geometry and active control”, 2018, United States Patent 10006443. <http://www.freepatentsonline.com/10006443.html>

SERVICE

- Referee for peer-reviewed Journals and International Conferences
 - ✓ International Journal of Heat and Mass Transfer
 - ✓ Journal of Cleaner Production
 - ✓ Environmental Fluid Mechanics
 - ✓ Physics of Fluids
 - ✓ Energy and Buildings
 - ✓ Journal of Turbulence
 - ✓ International Journal of Heat and Fluid Flow
 - ✓ Experimental Thermal and Fluid Science
 - ✓ ASME Journal of Heat Transfer
 - ✓ ASME Journal of Fluids Engineering
 - ✓ Cleaner Energy Systems
 - ✓ Journal of Marine Science and Engineering
 - ✓ Engineering Applications of Computational Fluid Mechanics
 - ✓ Flow Measurement and Instrumentation
 - ✓ Journal of the Brazilian Society of Mechanical Sciences and Engineering
 - ✓ International Communications in Heat and Mass Transfer
 - ✓ Desalination and Water Treatment
 - ✓ Heliyon
 - ✓ ASME FEDSM 2018
 - ✓ ASME-JSME-KSME Fluids (AJKFluids) 2019
 - ✓ Verification, Validation, and Uncertainty Quantification (VVUQ) 2023