Masoud Akhshik

Ontario, Canada   647-960-8468   masoud.akhshik@mail.utoronto.ca

EDUCATION

University of Toronto; Toronto, Canada   2022
Ph.D. in Forestry and Environmental studies
Thesis: Machine Learning algorithm aided prediction of greenhouse gas emission of the automotive composite parts

University of Windsor; Windsor, Canada   2019
Entrepreneurship and Founders Program

University of Toronto; Toronto, Canada   2013
Certificate in High performance computing

Tarbiat Modares University; Tehran, Iran   2013
Ph.D. in Nanobiotechnology
Thesis: Novelle Food Packaging, a collagen templated copper hollow nanostructure synthesis: immobilization of lysozyme enzyme, microfluidic characteristics and the study of toxicity.

Isfahan University of Technology; Isfahan, Iran   2008
M.Sc. in Agricultural Biotechnology
Thesis: Expression of human growth hormone gene as pharmaceutical model in desert plant Artemisia sieberi.

University of Tehran; Tehran, Iran   2005
B.Sc. Eng. in Agricultural and Plant Breeding
Thesis: Perl the linking bridge between computer and plant molecular genetics.

PROFESSIONAL EXPERIENCE

University of Toronto,   2023 – Present
Lecturer, Introduction to biological data analysis - Bio259

University of Windsor   2022 – Present
Postdoctoral Research Associate, Machine learning in Life science and Environmental studies, designing new bio/nano sensors, *E. coli* remote detection using Machine learning

Ontario Centres of Innovations   2013 – Present
External Reviewer of the scientific projects

University of Toronto   2013 – 2021
Research Assistant, Machine learning, AI and Environmental assessments, biomaterials

Advanced Hi-Tech Centre Ltd.   2017 – 2021
Co-Founder, developed Microfluidic devices for detection of *E. coli, early food spoilage detection*

Ford Motor Company of Canada   2013 – 2018
Dyno Research Analyst Performed statistical evaluation of tests, Design of experiments, biomaterials

TMU University   2009 – 2013
Research Assistant, worked with nanomaterials, microfluidics, enzymes, aptamers, DNA, RNA, proteins

Gene Azma Persia Co   2010 – 2012
Phytosanitary Certificate – detection of produce diseases and R&D

National Institute of Genetic Engineering and Biotechnology   2008 – 2009
Researcher: Performed Molecular and cellular biology techniques, R&D for molecular detection techniques and kits

PROFESSIONAL MEMBERSHIPS

Water Environment Association of Ontario and Water Environment Federation   2014—Present
Agricultural and Natural Resource Engineering Organization   2010 – 2012
Genetic Society – Core Member of Biodiversity Committee   2003 – 2012
Biotechnology Society   2003 – 2012

Masoud Akhshik

PAST TEACHING EXPERIENCE

University of Toronto   2015-2020
NanoBiomaterials topics in material science and engineering

University of Toronto   2014-2020
Sessions in high performance computational biology

Tehran's High School for Talented Students;   2011 - 2012
Nanobiotechnology

Azad University, Shahre Quds Branch;   2008 - 2010
Biology and Biotechnology

PUBLICATIONS

Salehi, A., Naserzadeh, P., Tarighi, P., Afjeh-Dana, E., **Akhshik, M**., Jafari, A., ...   2023
Fabrication of a microfluidic device for probiotic drug's dosage screening: Precision Medicine for Breast Cancer
Treatment. Translational Oncology, 34, 101674.   Impact Factor: 5

Akhshik, M., Mozaffari, S., Singh, R., Rondeau-Gagné, S., & Alirezaee, S.   2023
 Pressure Sensor Positioning for Accurate Human Interaction with a Robotic Hand. In 2023 International Symposium on
Signals, Circuits and Systems (ISSCS) (pp. 1-4). IEEE.

Afjeh-Dana, E., Ashtari, B., **Akhshik, M**., Akbari, M., Haider, K.H.   2023
Cardiac Tissue Regeneration Based on Stem Cell Therapy. In: Haider, K.H. (eds) Cardiovascular Applications of Stem Cells.
Springer, Singapore. https://doi.org/10.1007/978-981-99-0722-9_9

Naserzadeh, P., Jafari, A., Shekarestalkhi, A.,..., **Akhshik, M**. & Ashtari, B.   2023
Cellular and Mitochondrial Toxicity of Raffinose Functionalized Graphene Oxide against Mouse Vital Organs. Journal of
Nanomedicine.   Impact Factor: 1.5

Singh, R., Mozaffari, S., **Akhshik, M**., Ahmed, M.J., Rondeau-Gagné, S., & Alirezaee, S.   2023
Human–Robot Interaction Using Learning from Demonstrations and a Wearable Glove with Multiple Sensors. Sensors
2023, 23(24), 9780; https://doi.org/10.3390/s23249780.   Impact Factor: 4.4

Prediction of greenhouse gas emissions reductions via machine learning algorithms: Toward an artificial   2022
intelligence-based life cycle assessment for automotive lightweighting   Impact Factor: 7.053
Journal of Sustainable Materials and Technologies, 31
M Akhshik, A Bilton, J Tjong , CV Singh, O. Faruk, M Sain

Cross-country analysis of life cycle assessment–based greenhouse gas emissions for automotive parts: 2020
Evaluation of coefficient of country   Impact Factor: 10.68
Renewable and Sustainable Energy Reviews, 110546
M Akhshik, S Panthapulakkal, J Tjong, A Bilton, CV Singh, M Sain

The effect of lightweighting on greenhouse gas emissions and life cycle energy for automotive composite parts. 2019
Clean Technologies and Environmental Policy 21 (3), 625-636   Impact Factor: 4.70
M Akhshik, S Panthapulakkal, J Tjong, M Sain

Electrically conductive nanomaterials for cardiac tissue engineering   2019
Advanced Drug Delivery Reviews 144, 162-179   Impact Factor: 17.87
K Ashtari, H Nazari, H Ko, P Tebon, **M Akhshik**, M Akbari, SN Alhosseini, et al.

Life cycle assessment and cost analysis of hybrid fiber-reinforced engine beauty cover in comparison   2017
with glass fiber-reinforced counterpart   Impact Factor: 6.12
M Akhshik, S Panthapulakkal, J Tjong, M Sain. Environmental Impact Assessment Review 65, 111-117

A comparative life cycle assessment based evaluation of greenhouse gas emission and social study: 2017
Natural fibre versus glass fibre reinforced plastic automotive parts
M Akhshik, S Panthapulakkal, M Sain, T Jimi. International Journal of Global Warming

Life Cycle Assessment of Lightweight Materials for Automotive Applications   2017
M Akhshik, J Tjong, M Sain. Lightweightand Sustainable Materials for Automotive Applications, 497 Pages

A Novel food preservation and packaging solution: Synthesis of Collagen templating copper nano structure,   2016
evaluation of Toxicity and immobilization of enzyme.
Akhshik M. Khajeh K. Sadeghizadeh M, Ashtari K. (Publication embargo until the end of 2023)

Cytology. Tehran University Press, Tehran, Iran. pp:505   2011
Omidi, M., R.Maali Amiri, O.Taghavian and **M.Akhshik**.

Expression of human growth hormone alters the shoot morphology in transgenic potato plant.   2011
Akhshik M., Hashemi Sohi H., Jourabchi E., Forouzan Boroojeni D. Trakia Journal of Sciences, Vol. 9, No 3, pp 17-20.

Toward Synthetic Biology in the Future: Terraforming Planet Mars by Designing New Life Forms.   2008
Akhshik M., Hashemi Sohi H. 4th International Conference on Synthetic Biology, Hong Kong.

Desert the putative factories for near future.   2006
Akhshik Masoud & Hashemi Sohi Haleh.

Necessity of using new method in plant disease detection in order to obey quarantine laws   2006
Hahsemi Sohi, H., **M. Akhshik** & M. Bakhshandeh. 2006. National symposium in method to improve production and enhance Iranian ornamental plant and flower export.

RECENTLY SUBMITTED ARTICLES

Enhancing biosensors with Artificial Intelligence   **2024**
Computers and Electronics in Agriculture (Under revision) Impact Factor: 8.3
Akhshik, M., Ashtari, B., Mozaffari, Alirezaee, S.

Machine learning aided predictions in life science   **2023**
Remote Sensing of Environment (submitted). Impact Factor: 13.5
Akhshik, M., Akhshik A.

Applications of Machine learning in food security   **2024**
Current Opinion in Food Science (Under revision). Impact Factor: 9.9
Akhshik., M., Akhshik A., Akhshik M.

An overview of SARS CoV2 virus, risk factors, vaccine immunity, diagnosis, treatment & cytotoxicity mechanisms   **2023**
Microbes and Infection *(submitted)* Impact Factor: 9.57
Behnaz Ashtari, Elham Afjeh-Dana; Parvaneh Naserzadeh; Ali Javad Mosavi; **Masoud Akhshik**

WORKSHOP LECTURES

Pressure Sensor Positioning for Accurate Human Interaction with a Robotic Hand,   2023
International Symposium on Signals, Circuits and Systems (ISSCS), 1-4

Quick LCA using Artificial Intelligent   2020
Congress on biomaterials University of Toronto

National Institute for Genetic Engineering and Biotechnoloy   2011
International workshop on "Bioinformatics and genome research"

International Centre for Genetic Engineering and Biotechnology   2009
International Workshop on "The Analysis of Agricultural Products for the Presence of Genetically Modified Organisms"

National Institute for Genetic Engineering and Biotechnology   2007
Workshop on Application of Genetic Engineering and Biotechnology in Medicinal plants.

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INVENTIONS AND PATENTS

Process of Transient Expression of Gene in Plants and Production of Recombinant Proteins   2008
Ref. No: 32/M/17619 Ir Invention Office

New Electrophoresis Buffer   2008
Ref. No: 32/M/17617 Ir Invention Office

AWARDS AND GRANTS

Greenhouse Technology network grant
MITACS Accelerate Internship Award
Bernhard Fernow Graduate Fellowship
Water Environment Association of Ontario Scholarship
Edward Elsworth Johnson Postgraduate Fellowships
Edward H. Buckley & Grace B. Buckley Graduate Scholarships
John A. & Rosamond M. Gillies Graduate Fellowship
Wallace A. Delahey Fellowship
University of Toronto Fellowship
University of Toronto Postgraduate Grant
University of Windsor Research grant
Mitacs E-accelerate award
Total $ 369,995