

## Curriculum Vitae

2024-10-02

EDUCATION	<b>University of British Columbia (UBC)</b> , Kelowna, Canada	Sep 2023 – Present
	<ul style="list-style-type: none"> <li>▪ M.Sc. in Operational Analytics GPA: 92.3/100 Thesis: <i>Analytical techniques for understanding and enhancing consumer sustainability behaviour</i> Adviser: <a href="#">Amir Ardestani-Jaafari</a></li> </ul>	
	<b>University of Tehran (UT)</b> , Tehran, Iran	Sep 2019 – Aug 2023
	<ul style="list-style-type: none"> <li>▪ B.Sc. in Engineering Science (Computer sub-field) GPA: 18.06/20 (90.3/100), Rank: 2<sup>rd</sup>/28 Thesis: <i>Dynamic Analysis of Information Propagation in Online Social Network: SEIR Model</i> Adviser: <a href="#">Ehsan Maani-Miandoab</a></li> </ul>	
	<b>National Organization for Development of Exceptional Talents</b> , Mashad, Iran	Sep 2016 – Aug 2019
	<ul style="list-style-type: none"> <li>▪ High School, Mathematics and Physics GPA: 19.73/20 (98.65/100)</li> </ul>	
SKILLS	<ul style="list-style-type: none"> <li>▪ Programming: Python, Matlab, C++, R</li> <li>▪ Frameworks: NumPy, Pandas, SKlearn, SciPy, Matplotlib, Seaborn, TensorFlow, PyTorch, Keras</li> </ul>	
TEACHING EXPERIENCE	Teaching Assistant, UBC	
	<ul style="list-style-type: none"> <li>▪ Introduction to Marketing, Role: Workshop instructor</li> </ul>	Fall 2024
	<ul style="list-style-type: none"> <li>▪ Operations Management, Role: Workshop instructor</li> </ul>	Fall 2024
	<ul style="list-style-type: none"> <li>▪ UBC Okanagan Global Summer Program, Role: Workshop instructor</li> </ul>	Summer 2024
	<ul style="list-style-type: none"> <li>▪ Marketing Strategy, Role: Course support</li> </ul>	Winter 2024
	<ul style="list-style-type: none"> <li>▪ Operations Management, Role: Workshop instructor (Online)</li> </ul>	Fall 2023
	Instructor, UT	
	<ul style="list-style-type: none"> <li>▪ Linear Algebra, Role: Workshop instructor</li> </ul>	Spring 2023
	Teaching Assistant, UT	
	<ul style="list-style-type: none"> <li>▪ Fundamentals of Dynamical Systems, Role: Final project instructor</li> </ul>	Spring 2023
RESEARCH	<ul style="list-style-type: none"> <li>▪ Discrete Mathematics, Role: Course support</li> </ul>	Fall 2022
	<ul style="list-style-type: none"> <li>▪ Physics 3, Role: Course support</li> </ul>	Fall 2022
	<ul style="list-style-type: none"> <li>▪ Fundamentals of Electrical Engineering, Role: Course support</li> </ul>	Fall 2022
	<ul style="list-style-type: none"> <li>▪ Professional English, Role: Course support</li> </ul>	Fall 2022
	<ul style="list-style-type: none"> <li>▪ Linear Algebra, Role: Course support</li> </ul>	Spring 2022
	Mazahir, S., Tehranchi, A., Ardestani-Jaafari, A., and Pazoki, M. "Made to be Remade Initiatives: Design for Reusability amid Product Innovations in a Circular Economy." Submitted to <b>Production and Operations Management Journal</b> .	
	<ul style="list-style-type: none"> <li>▪ Summary: Developed a model analyzing the balance between product reusability and innovation within *Made to be Remade* initiatives in the circular economy. The research highlights how reducing reliance on virgin materials and effective policy interventions can enhance environmental outcomes, while addressing potential risks associated with market expansion.</li> </ul>	
	Tehranchi, A., Taji, A., Ardestani-Jaafari, A., and Li, E. "Learning Generation Z and Millennial Preferences in Sustainable Fashion through Machine Learning" Presented at <b>CORS 2024, The 65th annual Canadian Operational Research Society conference</b> .	
	<ul style="list-style-type: none"> <li>▪ Summary: This research examines consumer behaviors and preferences related to sustainable practices and eco-friendly products. The study categorizes two groups of brands based on their sustainability performance, calculates sustainability scores for participants, and determines key motivators.</li> </ul>	

Ahmadi, S., \*Maani-Miandoab, E., and Tehranchi, A. “Dynamic Analysis of Information Propagation in Online Social Network: SEIR Model” Published in **CSANS 2022, Conference on Complex Systems with Focus on Network Science**.

- Summary: This paper analyzes the SEIR model for information propagation in online social networks by determining equilibrium points and examining their stability. Results show that system behavior can be controlled by adjusting parameters, significantly influencing the spread of information.

Yildirim, K., Tehranchi, A., Ahmadi Digebsara, A., and Ardestani-Jaafari A. “Applications of Operations Research in Wildfire Management: A Systematic Review” Presented at **ICIMP 2024, 1st International Conference on Industrial, Manufacturing, and Process Engineering**.

- Summary: This review examines the importance of Operations Research in enhancing wildfire management strategies. The analysis of 90 articles between 2000-2023 reveals a growing global awareness and a sense of urgency.

\*Mohammadi, S., Tehranchi, A., Azadvari, R., Ahmadi, S., and Sanaee, Z. “An Asymmetric Supercapacitor Using PANI as the Positive Electrode and Ti3C2Tx/PANI as the Negative Electrode” Published in **The 11th International Conference on Science and Nanotechnology Development, 2023**.

- Summary: This paper presents an asymmetric supercapacitor with PANI as the positive electrode and Ti3C2Tx/PANI as the negative electrode. By optimizing the MXene/PANI ratio, the study achieved a notable increase in specific capacitance, with the highest value of 108 F/g for the 80:20 ratio. The final supercapacitor configuration exhibited a specific capacitance of 96 F/g at 2 mV/s.

## HONORS & AWARDS

- The OR Diploma awarded by the Canadian Operational Research Society (CORS) *CORS, 2024*
- Research Team Visit (1,000 CAD) *Lululemon, 2024*
- Graduate Student Funding to Attend CORS 2024 (300 CAD) *CORS, 2024*
- Conference Presentation (1,000 CAD) *UBC, 2024*
- Fully funded graduate student in UBC (66,000 CAD) *UBC, 2023 and 2024*
- IGS Master’s Entrance Award (10,000 CAD) *UBC, 2023 and 2024*
- Global arrival scholarship (2800 CAD) *Homa Scholarship, 2023*
- Direct MBA Admission with Full Scholarship, Sharif University of Technology *SUT, 2023*
- 2<sup>nd</sup> place among Engineering Science bachelor’s students *UT, 2023*
- Ranked 3<sup>rd</sup> among undergraduate student Projects *UT, 2023*
- Ranked 2<sup>nd</sup> among undergraduate student Projects *UT, 2022*
- Ranked 4<sup>th</sup> among more than 100 participants *National Festival of Tanin Piano, 2018*

## SELECTED COURSES

- Computers and Systems  
Deep and Reinforcement Learning (A+) | Machine Learning (A) | Data Structures & Algorithms (A+) | Logic Circuits (A+) | Computer Architecture (A) | Fundamentals of Operating Systems (A+) | Foundations of Information Technology (A+) | Digital Image Processing (A+) | E-commerce (A+) | Digital Marketing (A+)
- Mathematics and Statistics  
Probability & Statistics (A) | Linear Algebra (A+) | Integer Programming (A+) | Operational Research 1 (A+) | Operational Research 2 (A+) | Discrete Mathematics (A) | Engineering Mathematics (A) | Dynamical Systems (A+) | Integer Programming (A+) | Probability and Stochastic Processes (TBC) | Advanced Statistical Modelling (TBC)
- Economics  
Game Theory (A+) | Engineering Economics (A+) | Econometrics (TBC)

## SELECTED COURSE UBC PROJECT

- *Deep and Reinforcement Learning*: developing a robust Image Captioning system by integrating Convolutional Neural Network for image feature extraction and Long Short-Term Memory network for generating descriptive captions. (*Python codes*)

- *Machine Learning*: Several Machine Learning models were developed, including Logistic Regression, K-Nearest Neighbors, and Fully Connected Neural Network to accurately predict whether a patient needs to be intubated or not based on relevant clinical data. [\(Python codes\)](#)
- *Integer Programming*: Created optimization models using techniques such as branch and bound, Reformulation Linearization Technique (RLT), and simulated annealing to solve complex problems like the Traveling Salesman Problem and minimum cost flow. Utilized YALMIP and Gurobi solvers for efficient computation. [\(MATLAB codes\)](#)
- *Simulation*: Developed several machine learning models, including Logistic Regression, K-Nearest Neighbors, and Fully Connected Neural Networks, to predict the need for patient intubation based on clinical data. [\(R codes\)](#)

#### Coursera

- *Deep Learning* specialization of DeepLearning.AI, In 180 hours. [\(Certificate\)](#)

#### UT

- *Data Structures* : Dynamic memory allocation for matrix operations using pointers, recursion for merge sort and palindrome checking, and operator overloading for vector/matrix arithmetic. Implemented binary search trees and depth-first traversal algorithms for tree data structures. [\(C++ codes\)](#)
- *Image Processing*: Designing and implementation of a JPEG compression algorithm, accompanied by a user interface for interaction. [\(MATLAB codes\)](#)
- *Linear Algebra*: Implementing an SVD-based image compression algorithm, processing an RGB image through decomposition and reconstruction at varying compression levels, and calculates the compression ratios for each level. [\(MATLAB codes\)](#)
- *Advance Programming*: Modeling a polymorphic messaging system in C++, where contacts manage diverse message types (text, image URL, voice URL, ID), supporting operations like add, delete, replace, and print for message handling. [\(C++ codes\)](#)

#### INTERNSHIP EXPERIENCE

- *Scrum Master*: Managed Android and UI/UX projects, including organizing Scrum ceremonies (sprint planning, daily stand-ups, retrospectives, and sprint reviews). I was responsible for managing the project backlog, scheduling, and monitoring the progress of tasks to ensure timely delivery. Additionally, I played a key role in maintaining team morale and cohesion by addressing conflicts and facilitating communication among team members. My duties also included gathering and implementing feedback to improve team productivity. *Bade Saba, January 2022*

#### VOLUNTEERING ACTIVITIES

- *President, UBCO Student Chapter, Canadian Operational Research Society*: Led student recruitment efforts and designed promotional materials for chapter events. Managed the preparation and coordination of conference presentations to ensure successful execution. *November 2023 - Present*
- *President, Interdisciplinary Graduate Studies Student Society, UBC Okanagan*: Facilitated student integration into the society, designed promotional posters, and managed the planning and organization of events for Interdisciplinary Graduate Studies (IGS) students. *April 2024 - Present*
- *Member, Students' Guild Council, University of Tehran*: Supported students by addressing their concerns, advocating on their behalf to university officials, and fostering communication between students and the administration. *June 2022 - June 2023*

#### REFERENCES

Available upon request.