Milad Ramezankhani

Data-efficient and uncertainty-aware machine learning for engineering systems

Contact

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https://miladramzy.github.io

Key Skills

Languages:
Python, MATLAB, SQL
C#, Julia, HTML

Software and Libraries:
JAX, TensorFlow, Keras, Numpy
Numpyro, BlackJax, Tableau
PyTorch, MSSQL

Research expertise:
Transfer learning, Meta-learning,
Scientific ML, Bayesian inference,
Applied AI in manufacturing
Computer vision

Selected Publications

Making costly manufacturing smart with transfer learning under limited data: A case study on composites autoclave processing.
Ramezankhani M, et al.
Journal of Manufacturing Systems

A Data-driven multi-fidelity physics-informed learning framework for smart manufacturing: A composites processing case study
Ramezankhani M, et al.
2022 IEEE 5th International Conference on ICPS

An active transfer learning (ATL) framework for smart manufacturing with limited data: Case study on material transfer in composites processing (**won best presentation award**)
Ramezankhani M, et al.
2021 IEEE 4th International Conference on ICPS

A multi-objective Gaussian process approach for optimization and prediction of carbonization process in carbon fiber production under uncertainty
Ramezankhani M, et al.
Advanced Composites and Hybrid Materials

I am a self-driven researcher skilled in conducting high-quality research in applied AI. My research focuses on data-efficient and uncertainty-aware machine learning in high-risk engineering systems with data paucity. This has led to the development of AI-assisted decision-making tools for advanced manufacturing.

Education

Ph.D., Mechanical Engineering, University of British Columbia, Canada – September 2018 - April 2023 *(anticipated)*
Dissertation: Data-Efficient and Uncertainty-Aware Hybrid Machine Learning in Advanced Composites Manufacturing.
Advisors: Dr. Abbas Milani and Dr. Seethaler

MASc, Mechanical Engineering, University of British Columbia, Canada – September 2015 - August 2017
Dissertation: Multi-objective Gaussian process approach for robust optimization and prediction of carbonization process.
Advisors: Dr. Abbas Milani and Dr. Seethaler

BASc, Mechanical Engineering, K.N. Toosi University of Technology, Iran – September 2010 - February 2015

Research/Work Experience

Graduate Research Assistant at the University of British Columbia, September 2015 – present

- Producing novel research on data-efficient and uncertainty-aware machine learning in advanced manufacturing.
- Conducting research on transfer learning, physics-informed learning, meta-learning and Bayesian inference.
- Leading several research projects in collaboration with industry partners toward developing AI-assisted decision-making tools for high-risk manufacturing applications.
- Mentoring younger graduate students and contributing to multiple bioinformatics research projects.

Sessional Lecturer at the University of British Columbia, September 2021 – December 2022

- Delivered one graduate an`d two undergraduate courses on multi-criteria decision-making, experimental design and mechanical vibrations.
- Responsibilities included designing curricula, preparing course materials and lecturing.

Data Analyst at QHR Technologies Inc., March 2018 – May 2019

- Developed SQL scripts for Electronic Medical Record data migration.
- Created analytics reports to optimize waitlist functionality of large-scale enterprises' using MSSQL and JasperSoft.