Mahyar M. Moghadam, PhD

Postdoctoral Research Fellow, Northwestern University

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Professional Summary

- **Data Analytics**, experienced in machine learning, data analysis, predictive modeling and probabilistic design to provide data-driven solution for critical business objectives and strategic planning.
- **Materials Science & Engineering**, more than eight years of experience in process/structure/properties multi-scale modeling (Monte Carlo, Molecular Dynamics, CFD, Level-set), proficient in analytical solution development for optimization, prediction and validation problems.
- Two years' experience in projects management and supervision over multi-disciplinary engineering design.
- One year industrial experience in data analysis, operation optimization and machine learning as a process analyst.

Education

- **Northwestern University; Evanston, IL, USA** **2015 – 2017**
  Postdoctoral Fellow, Computational Research
  - Thin film microstructure characterization using **Machine Learning techniques** and **Statistical Analysis**
  - **Mathematical Modeling** and **Numerical Simulation** of Indium Oxide phase transformation via Level-Set Method
  - 7 scientific papers and 2 conference talks

- **Lehigh University, Bethlehem, PA, USA** **2011-2015**
  Ph. D., Materials Science & Engineering
  - Atomistic simulation of multi-physics system via **Statistical Mechanics** and **Numerical Optimization**
  - **Analysis of network connectivity** and grain boundary **percolation** in polycrystalline diffusion
  - 3 scientific papers and 2 conference talks

- **University of Science & Technology, Tehran.** **2004 - 2007**
  M. Sc., Materials Science & Engineering
  - **Numerical simulation** and **mathematical modeling** of fluid flow & heat transfer under electromagnetic field
  - 1 scientific paper and 1 conference talk

- **Isfahan University of Technology, Isfahan.** **1999 - 2004**
  B. Sc., Materials Science & Engineering

Work Experience

- **Barsoo Engineering; Sr. Project Engineer** **2008 - 2010**
  - Supervision over multi-disciplinary engineering design
  - Process design and P&ID review, Project control
  - logistic analysis & progress forecasting

- **Isfahan Saman Energy/ HATCH Canada; Process Engineer** **2007- 2008**
  - Data-driven predictive model development for process performance & energy consumption
  - 10% energy consumption decrease via operation optimization and quantitative data analysis

- **SAPCO; Failure Analysis Internship** **May-Sep. 2004**
  - Failure analysis and fault detection in manufacturing plant
  - FMEA, Process optimization and QC planning

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Courses & Certificates

- **Machine Learning** by **Andrew Ng;** 11 weeks course on machine learning**, Coursera**.
- **Deep Learning Specialization** by **Andrew Ng;** 11 weeks course on deep learning**, Coursera**.
- **Career Track: Data Scientist with Python;** A series of 20 courses on Data Science, **DataCamp**.
- **Data Science Essentials;** 8 weeks course on data analysis and machine learning via Azure ML, **edX**.

Skills

Machine Learning & Data Analytics

- Deep learning & Neural network
- Regression & classification
- Clustering & Pattern recognition
- Statistical inference & Hypothesis testing
- Time series analysis & Forecasting
- Network analysis & Graph theory
- Interactive data visualization (Bokeh)
- Databases query & manipulation
- Big data solution with Spark

Materials Science & Engineering

- Reliability & life cycle prediction
- Failure analysis & optimization
- Process design & simulation
- Design for manufacturability

Computer & Programming

- Coding: Python, Fortran, C++
- Machine learning: SK-Learn, Keras, TensorFlow
- Software tools: MATLAB, Mathematica
- Relational databases: SQL

Workshops & Trainings

- **HPC 2014 Workshop;** Parallel programming and optimization for High-Performance Computing, Temple University, Philadelphia PA, Jul. 2014.
- **From Atoms to Materials, Predictive Theory and Simulations;** MD, Ab-Initio & DFT by Professor Ale. Strachan, Purdue University, nanoHUBU, Summer 2013.

Awards

- **Sherman Fairchild Fellowship;** Sherman Fairchild Center for Solid State Studies, 2013-2014.
- **PC. Rossin Graduate Research Fellowship;** Lehigh University, Graduate scholarships, 2012-2014.
- **GSS Travel Grants;** MS&T14 conference, Pittsburgh, USA, 2014.

Voluntary Activities

- **Technical Program Committee:** **February 2017**
  2nd Int. Conference on Advanced Material Science & Engineering, Shenzhen, China.
- **Journal Reviewer:** Acta Mater, ACS Appl. Mater., Comp. Mater. Sci. & Mater. Res. Let. **2015 - Present**
- **Finalist judge:** Chicago Public Schools District Science and Engineering Fair. **2016 – Present**

Hobbies

- Music, Photography, Reading, Hiking, Fishing, Swimming