Sina Mehdinia

Ph.D. Student and Graduate Research Assistant, Kaggle Expert
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EDUCATION

Portland State University	Portland, OR
Ph.D. in Civil Engineering - Structures, GPA: 3.96	*2018 – present*
University of Tehran	Tehran, IRAN
MS in Civil Engineering - Earthquake Engineering, GPA: 3.88	*2015 – 2018*
Babol Noshirvani University of Technology	Babol, IRAN
BS in Civil Engineering	*2009 – 2015*
National Organization for Development of Exceptional Talents	Babol, IRAN
High-school diploma in mathematics and physics	*2009*

EXPERIENCE

Kaggle Expert   2019 – Present
Kaggle   *US*
- Top 10% of more than 4000 competitors in an ongoing data science competition –Mechanism of Action Prediction.
- Received at least 5 bronze medals for sharing my data science python notebooks with the community (Rank 520 out of 148560).
- Mechanisms of Action (MoA) Prediction - classifying drugs based on their biological activity
- Cassava Leaf Disease Classification - Identifying the type of disease present on a Cassava Leaf image
- Titanic: Machine Learning from Disaster - Predicting survival on the Titanic
- Porto Seguro's Safe Driver Prediction - Predicting if a driver will file an insurance claim next year.
- Rainforest Connection Species Audio Detection - Automate the detection of bird and frog species in a tropical soundscape

Graduate Research Assistant   Sept 2018 – Present
Portland State University   *Portland, OR*
- Developing a comprehensive framework with deep neural networks to automate non-destructive testing using microwave signals.
- Developing a comprehensive methodology and proposing an algorithm to process radar and ultrasonic data as a diagnostic imaging tool for structural concrete.

Graduate Teaching Assistant   Sept 2018 – Dec 2018
Portland State University   *Portland, OR*
- Assisted undergraduate students with holding office hours to review materials and work on assignments, for the course elementary structural analysis.
- Instructed MATLAB programming for the course structural dynamics.

Graduate student   Sept 2015 – July 2018
University of Tehran   *Tehran, IRAN*
- Developed an unsupervised machine learning model to perform continuous structural health monitoring on vibration data (master's thesis).

PUBLICATIONS

- **S. Mehdinia**, T. Schumacher, X. Song, E. Wan. "A comprehensive methodology and quality metrics for fusion of radar and ultrasound images of structural concrete" *Journal of Nondestructive evaluation* (under review)
- **S. Mehdinia**, K.ST. Chopperla , A. Hafiz , T. Schumacher ,J.H. Ideker " Early-age detection of ASR in laboratory samples using ultrasonic coda wave monitoring" *16th International Conference on Alkali Aggregate Reaction in Concrete (ICAAR)*, 2021 Jun, Lisboa, Portugal (accepted)
- **S. Mehdinia**, Y. Hamishebahar, M. Bitaraf, A.K. Ghorbani-Tanha, M. Rahimian "Structural damage detection using K-means clustering algorithm under unknown environmental and operational conditions" *7th International Conference on Acoustics and Vibration*, 2017, Nov, Tehran, IRAN.
- **S. Mehdinia**, Y. Hamishebahar, M. Bitaraf, A.K. Ghorbani-Tanha, M. Rahimian "Structural Damage Identification Using Statistical Moments and Multi-Objective Linear Regression of Vibration Time Series" *7th International Conference on Acoustics and Vibration*, 2017, Nov, Tehran, IRAN.

Presentations

- **S. Mehdinia** "Enhanced imaging of structural concrete with a medical image fusion perspective" *The ACI Concrete Convention*, 2020 Oct, Virtual.
- **S. Mehdinia**, T. Schumacher, E. Wan, X. Song "Enhanced imaging of structural concrete through data fusion of ultrasonic and radar signals" *The ACI Concrete Convention and Exposition*, 2019 Oct, Cincinnati, Ohio.
- **S. Mehdinia**, T. Schumacher, E. Wan, X. Song "Diagnostic Imaging of Structural Concrete" *46th Annual Review of Progress in Quantiative Nondestructive Evaluation (QNDE)*, 2019 July, Portland, Oregon.
- **S. Mehdinia**, T. Schumacher, E. Wan, X. Song "Diagnostic Imaging of Structural Concrete Using Ground Penetrating Radar and Ultrasonic Array" *Student Research Symposium at Portland State University*, 2019 July, Portland, Oregon.

Extra-curricular Activities

International Student Mentor   June 2019 – June 2020
International Student Mentorship Program (ISMP) at Portland State University   *Portland, OR*
- Mentored more than ten international students in STEM fields
- Enhanced the experience of new international students at Portland State University in an inclusive diverse environment

Student Leader   Nov 2018 – Feb 2020
Student Activities and Leadership Program (SALP) at Portland State University   *Portland, OR*
- Organized several international cultural events at Portland State university with more than 500 attendees.

Innovation and Intellectual Property Researcher   Apr 2019 – Jun 2019
IIP Training Program at Portland State University   *Portland, OR*
- Performed product and market analysis for scientific patents at Portland State University

Honors and Awards

Outstanding Graduate Student   Jun 2020
Portland State University   *Portland OR*
- Award is given to the student who demonstrates through any combination of academic achievement, character, or presence as modeling the ideal Viking CEE graduate.

Laurels Graduate Award   Apr 2020
Portland State University   *Portland OR*
- The Award is instituted to provide recognition and financial support to the best and brightest students and to enhance enrollment diversity. The program provides an award to competitively selected, academically meritorious graduate degree students in all fields.

ACI-James Instruments Student Award for Research on NDT of Concrete   Feb 2020
American Concrete Institute (ACI)   *US*
- Best paper award for original research on nondestructive testing of concrete.

Intercultural Leadership Certificate   Fall 2019
Portland State University   *Portland, OR*
- For serving PSU by providing critical peer leadership and mentoring for international students

Certificate for Recognition of Excellence   Fall 2018, Fall 2019, and Winter 2019
Portland State University   *Portland, OR*
- In recognition of excellence in academic achievement and leadership

Top-selected Student in Iranian University Entrance Exam   Fall 2015
University of Tehran   *Tehran, IRAN*
- For ranking 60 (top 0.2%) at Iranian University Entrance Exam

Technical Skills

Python, Numpy, Pandas, Scikit learn, TensorFlow, Keras, PyTorch, OpenCV, Matplotlib, Seaborn, Plotly, MATLAB, C++, LaTeX, gprMax

Related Coursework

Graduate level courses (grade: A)   2019 - 2020
Portland State University   *Portland, OR*
- EE 510: Machine Learning Theory and Algorithms

- CS 510: Intro to Computer Vision

- CE 510: Python Programming

Coursera online courses (grade: 100%)   2019 - 2020
Coursera
- Machine Learning

- Neural Networks and Deep Learning

- Structuring Machine Learning Projects

- Improving Deep Neural Networks

- Hyperparameter tuning, Regularization and Optimization

- Convolutional Neural Networks in TensorFlow

- Convolutional Neural Networks

- AI for Medical Prognosis

- AI for Medical Diagnosis

- AI For Medical Treatment

- Introduction to TensorFlow for Artificial Intelligence Machine Learning, and Deep Learning