Alireza Nasiri

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ACADEMIC BACKGROUND

Ph.D. Computer Science May 2021
University of South Carolina, Columbia, SC
- Ph.D. research in audio analysis using Machine Learning and Deep Learning methods under direction of Dr. Jianjun Hu.

M.Sc. Computer Science December 2019
University of South Carolina, Columbia, SC

Graduate-level Courses in Computer Engineering 2012 - 2014
Marmara University, Istanbul, Turkey
- Transferred to University of South Carolina

B.Sc. Computer Engineering September 2010
Isfahan University of Technology, Isfahan, Iran

RESEARCH INTERESTS

- Audio Signal Processing Using Machine Learning and Deep Learning Techniques
- Developing Machine Learning and Deep Learning Algorithms in Computer Vision
- Application of Machine Learning Based Methods in Immunologyy
- Application of Deep Learning Techniques in Material Property Prediction

RESEARCH EXPERIENCE

Classification of Environmental Sound Events Using Contrastive Learning
- Using contrastive loss to improve the classification accuracy of the environmental sound events

Identifying The Degradation State of The Materials By Analyzing Their Acoustic Emissions
- Identifying the degradation stage in materials based on the analysis of their acoustic emission using random forest and convolutional neural networks
- Predicting the remaining useful strength in the material based on the analysis of their acoustic emission using random forest and convolutional neural networks

Audio Event Detection Using Deep Learning Techniques
- Using object-detection model from computer vision to identify the type and time-boundaries of rare audio events

Material Property Prediction Using Machine Learning Methods and Graph Convolutional Neural Networks

Using Deep Learning Models For Binding Prediction between HLA/MHC and Peptides
- Implementation of Pan-Specific Model For Class I and Class II HLA-Peptide Binding Affinity Prediction
- Implementation of Pan-Specific Model For Interpretable MHC-I Peptide Binding Prediction

TEACHING EXPERIENCE

Lecturer and Lab Instructor August 2015 - Present
Course: General Applications Programming
A course in Web Design with HTML/CSS/JavaScript
Department of Computer Science and Engineering, University of South Carolina

TECHNICAL SKILLS

Programming Languages
Python, C/C++, C#, HTML/CSS/JavaScript, SQL, R

Python Frameworks
Pytorch, Keras, Tensorflow, Scikit-Learn, Pandas, Numpy, Django

PUBLICATIONS

- **Alireza Nasiri**, *Steph-Yves M. Louis, and Jianjun Hu, "Disentangling Representations via Contrastive Learning in Supervised Environmental Sound Classification," To be submitted to IEEE/ACM Transactions on Audio Speech and Language Processing, 2021.*
- *Steph-Yves Louis*, **Alireza Nasiri**, *Fatima Rolland, Cameron Mitro, and Jianjun Hu, "NODE-SELECT: A Flexible Graph Neural Network Based on Realistic Propagation Scheme", Submitted to International Conference on Machine Learning, 2021.*
- *Steph-Yves M. Louis*, **Alireza Nasiri**, *Jingjing Bao, Donald Mccleeary, Xinyu Huang, and Jianjun Hu, "Remaining Useful Strength (RUS) Prediction of SiCf-SiCm Composite Materials Using Deep Learning and Acoustic Emission," Applied Sciences 10, no. 8, pp. 2076-3417, 2020.*
- *Yuqi Song, Joseph Lindsay, Yong Zhao*, **Alireza Nasiri**, *Steph-Yves Loius, Jie Ling, Ming Hu, and Jianjun Hu, "Machine Learning based prediction of noncentrosymmetric crystal materials," Computational Materials Science 183, p. 109792, 2020.*
- *Steph-Yves Louis, Yong Zhao,* **Alireza Nasiri**, *Xiran Wong, Yuqi Song, Fei Liu, and Jianjun Hu, "Global Attention based Graph Convolutional Neural Networks for Improved Materials Property Prediction," Physical Chemistry Chemical Physics, 2020.*
- **Alireza Nasiri**, *Yuxin Cui, Zhonghao Liu, Jing Jin, Yong Zhao, and Jianjun Hu, "AudioMask: Robust Sound Event Detection Using Mask R-CNN and Segment-Level Classifier," 2019 IEEE 31st International Conference on Tools with Artificial Intelligence (ICTAI), Portland, OR, USA, pp. 485-492, 2019.*
- **Alireza Nasiri**, *Jingjing Bao, Donald Mccleeary, Steph-Yves M. Louis, Xinyu Huang, and Jianjun Hu, "Online Damage Monitoring of SiCf-SiCm Composite Materials Using Acoustic Emission and Deep Learning," in IEEE Access, vol. 7, pp. 140534-140541, 2019.*
- *Zhonghao Liu, Yuxin Cui, Zheng Xiong,* **Alireza Nasiri**, *Ansi Zhang, and Jianjun Hu, "DeepSeqPan, a novel deep convolutional neural network model for pan-specific class I HLA-peptide binding affinity prediction," Scientific Reports 9, no. 1, pp. 1-10, 2019.*
- *Zhonghao Liu, Jing Jin, Yuxin Cui, Zheng Xiong,* **Alireza Nasiri**, *Yong Zhao, and Jianjun Hu, "DeepSeqPanII: an interpretable recurrent neural network mo- del with attention mechanism for peptide-HLA class II binding prediction," bioRxiv: 817502, 2019.*
- *Jing Jin, Zhonghao Liu,* **Alireza Nasiri**, *Yuxin Cui, STEPH-YVES M Louis, Ansi Zhang, Yong Zhao, and Jianjun Hu, "Attention mechanism-based deep learning*

pan-specific model for interpretable MHC-I peptide binding prediction," bioRxiv: 830737, 2019.

ACADEMIC SERVICES

Reviewer
Reviewed papers for IEEE Access and PLOS ONE journals

AWARDS

Second place in UofSC National Big Data Health Science Conference Case Competition 2020

LANGUAGES

Azerbaijani (Native), Farsi (Native), English (Fluent), Turkish (Fluent), Arabic (Basic)