Alireza Ganjdanesh

+1(412)610-3707 | alireza.ganjdanesh@pitt.edu | Alii-Ganjj | alireza-ganjdanesh

RESEARCH INTERESTS

Computer Vision | Efficient Deep Learning | Generative Modeling
Interpretable Machine Learning | Medical Image Analysis

EDUCATION

University of Pittsburgh — Aug. 2019 - Present
PhD in Electrical and Computer Engineering — *Pittsburgh, PA*
· Advisor: Heng Huang

University of Tehran — Sep. 2014 - May 2019
B.Sc. in Electrical Engineering — *Tehran, Iran*
· GPA: 3.99/4.00 (18.84/20) - **ranked 4^{th} among 148 students (top 3%)**

PUBLICATIONS

Don't Forget the Manifold: Compressing Generative Adversarial Networks Using Local Density Structures of Learned Manifold

Preprint
Alireza Ganjdanesh, Shangqian Gao, Hirad Alipanah, Heng Huang.

Interpretations Steered Network Pruning via Amortized Inferred Saliency Maps

To appear in European Conference on Computer Vision (ECCV 2022)
Alireza Ganjdanesh, Shangqian Gao, Heng Huang.

A Fully Differentiable Framework for Three-Dimensional Network Pruning

Under Review
Shangqian Gao, **Alireza Ganjdanesh**, Zeyu Zhang, Yanfu Zhang, Feihu Huang, Heng Huang.

Multi-modal Genotype and Phenotype Mutual Learning to Enhance Single-Modal Input Based Longitudinal Outcome Prediction

26th International Conference on Research in Computational Molecular Biology (Recomb 2022)
Alireza Ganjdanesh, Jipeng Zhang, Wei Chen, Heng Huang.

LONGL-Net: Temporal Correlation Structure Guided Deep Learning Model to Predict Longitudinal Age-related Macular Degeneration Severity

Proceedings of the National Academy of Sciences (PNAS Nexus).
Alireza Ganjdanesh, Jipeng Zhang, Emily Y. Chew, Ying Ding, Wei Chen, Heng Huang.

Predicting Potential Propensity of Adolescents to Drugs via New Semi-supervised Deep Ordinal Regression Model

In Proceedings of International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2020)
Alireza Ganjdanesh, Kamran Ghasedi, Liang Zhan, Weidong Cai, Heng Huang.

EXPERIENCE

· **Deep Learning Intern** — May 2021 - Aug 2021
Enlitic Inc. — *San Francisco, CA*
· Mentors: Amir Tahmasebi, Konstantin Dmitriev

· Designed a new multi-label classification model capable of leveraging visual and characteristic similarity of the disease during training to enhance the model's performance. Moreover, in close collaboration with Enlitic's radiology team, I designed a new augmentation pipeline that mimics the lightning situation that radiologists use in their daily decisions for each disease. The pipeline improved model training and the final model's accuracy.

Graduate Research Assistant August 2019 - Present
University of Pittsburgh *Pittsburgh, PA*

· Worked on theoretical and application aspects of deep learning and computer vision namely model compression and pruning, generative modeling, interpretability, and medical image analysis.
· Frameworks that I used: PyTorch, Tensorflow, PyTorch Lightning, NumPy, Pandas, MATLAB.

ONGOING PROJECTS

Efficient and Scalable Kernel Size Learning

· We aim to develop a method to efficiently learn proper kernel sizes for the prominent CNN architectures such as ResNet without the need for methods such as Neural Architecture Search.

Exploring Behaviors of a Model after Pruning

· Recent studies have found that network pruning and compression affect different sub-populations of data differently. We aim to explore such behavior with the lens of example difficulty and propose a method to alleviate such issue.

HONORS AND AWARDS

Winner of MICCAI 2020 NIH Award 2020
International Conference on Medical Image Computing and Computer Assisted Intervention

Ranked 4th among 148 (Top 3%) B.Sc. Electrical Engineering Students 2019
University of Tehran

Winner of FOE (Faculty Of Engineering) Award 2018
A certificate awarded to excellent students in two successive semesters in one year, University of Tehran

Entrance Exam Exemption for Graduate Studies in Electrical Engineering 2017
An opportunity awarded to top 10% of Electrical Engineering students of University of Tehran

TECHNICAL SKILLS

Programming Languages	Python, Java , MATLAB, C/C++
Deep Learning & ML	PyTorch, TensorFlow, Scikit-learn, Keras, Numpy, Scipy, Matplotlib, Pandas
Tools	Git, Vim, Jupyter, Tmux, LaTeX

PROFESSIONAL SERVICES

- Reviewer for CIKM 2021.
- Reviewer for KDD 2020.
- Research Track Program Committe Member of KDD 2020.
- Reviewer for American Journal of Human Genetics (AJHG) - 2020.

SELECTED COURSES

CS 2770, Computer Vision (4/4)
ECE 3195, Advanced Machine Learning (4/4)
(Undergrad), Advanced Programming (C++) (4/4)
STAT 2611, Theory of Multivariate Analysis (4/4)
ECE 2671, Optimization Methods (4/4)

- **Heng Huang**
  John A. Jurenko Endowed Professor in Computer Engineering
  · ECE Department
  · Department of Bioinformatics
  · University of Pittsburgh
  · JD Finance America Corporation
  · ✉ heng.huang@pitt.edu

- **Wei Chen**
  Professor of Pediatrics
  · Department of Pediatrics
  · Department of Biostatistics
  · University of Pittsburgh
  · UPMC Children's Hospital of Pittsburgh
  · ✉ wei.chen@chp.edu