

TAIHUI LI

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EDUCATION

University of Minnesota, Twin Cities

2016 - Present

Ph.D. in Computer Science & Engineering

Doctoral Minor in Health Informatics

Advisors: Prof. Vladimir Cherkassky and Prof. Ju Sun

Jilin University

2009 - 2016

B.S. and M.S. in Computer Science

Distinguished Graduate

Advisor: Prof. Liang Hu

RESEARCH INTERESTS

Machine Learning, Deep Learning, Computer Vision/Image Processing, AI in Healthcare

RESEARCH PROJECTS

Random Decoder for Efficient SIDGPs

Working with Prof. Ju Sun

Minneapolis, MN

- Developing an efficient mechanism for Single-Instance Deep Generative Priors (SIDGPs).
- Building more practical SIDGPs which show no/less overfitting and require less computational time.
- One research paper is under preparation to the submission of IJCV.

Early Stopping for SIDGPs

Working with Prof. Ju Sun

Minneapolis, MN

- Developing an early stopping mechanism for Single-Instance Deep Generative Priors (SIDGPs).
- Making SIDGPs be more practical (e.g., automatically stop without sacrificing its performance).
- One research paper has been accepted by the 32nd British Machine Vision Conference.
- One research paper is in submission to the CVPR 2022.

Collective Sparse Corruption Removal without Clean Images

Working with Prof. Ju Sun

Minneapolis, MN

- Restoring images directly from a bunch of noisy images.
- Extending the proposed method to manipulate other types of corruptions.
- One research paper has been accepted by the ICML workshop (2020).
- One research paper is under submission.

mIDH Glioblastomas Detection

Working with Prof. Ju Sun and Dr. Clark C. Chen

Minneapolis, MN

- Identifying Isocitrate Dehydrogenase mutated (mIDH) glioblastoma based on radiomic features derived from magnetic resonance imaging.
- One research paper has been accepted by the Neurosurgery.

COVID-19 Detection with Deep Neural Networks

Working with Prof. Ju Sun and Dr. Christopher Tignanelli

Minneapolis, MN

- Developing a deep learning model to automatically determine COVID-19 Positive/Negative cases by feeding with chest X-ray images.
- One research paper is under review by the Radiology: Artificial Intelligence.

PUBLICATIONS

Preprints

- Hengkang Wang, **Taihui Li**, Zhong Zhuang, Tiancong Chen, Hengyue Liang, Ju Sun. Early Stopping for Deep Image Prior. *In submission to CVPR2022*. 2021.
- **Taihui Li**, Hengkang Wang, Le Peng, Xiane Tang, Ju Sun. SNR-AE: Removing Sparse Noise Collectively without Clean Images. *Preprint*. 2021.
- **Taihui Li**, Zhong Zhuang, Ju Sun, Vladimir Cherkassky. Enhancing the Robustness of Image Classifiers to Common Corruptions and Perturbations: A Survey. *Preprint*. 2021.
- Le Peng, Hengyue Liang, Gaoxiang Luo, **Taihui Li**, Ju Sun. Rethink Transfer Learning in Medical Image Classification. *arXiv Preprint*. 2021.
- Ju Sun, Le Peng, **Taihui Li**, and et al..A Prospective Observational Study to Investigate Performance of a Chest X-ray Artificial Intelligence Diagnostic Support Tool Across 12 U.S. Hospitals. *medRxiv Preprint*. 2021.

Conferences and Journals

- **Taihui Li**, Zhong Zhuang, Hengyue Liang, Le Peng, Hengkang Wang, Ju Sun. Self-Validation: Early Stopping for Single-Instance Deep Generative Priors. The 32nd British Machine Vision Conference, 2021.
- Birra Taha, **Taihui Li**, Daniel Boley, Clark C. Chen, Ju Sun. Detection of Isocitrate Dehydrogenase Mutated Glioblastomas Through Anomaly Detection Analytics. Neurosurgery, 2021.
- **Taihui Li**, Rishabh Mehta, Zecheng Qian, Ju Sun. Rethink Autoencoders: Robust Manifold Learning. ICML Workshop on Uncertainty & Robustness in Deep Learning, 2020.
- Menghai Pan, Yanhua Li, **Taihui Li**, Zhi-Li Zhang, Jun Luo. Smart Cloud Commuting with Shared Autonomous Vehicles : A First Feasibility Study. The 7th International Workshop on Urban Computing, 2018.
- Liang Hu, **Taihui Li**, Nannan Xie, Jiejun Hu. False Positive Elimination in Intrusion Detection Based on Clustering. The 12th International conference on fuzzy systems and knowledge discovery (FSKD). IEEE, 2015.
- Nannan Xie, Liang Hu, **Taihui Li**. Lung Cancer Risk Prediction Method Based on Feature Selection and Artificial Neural Network. Asian Pacific Journal of Cancer Prevention (APJCP), 2014.

Copyrights and Patents

- Liang Hu, **Taihui Li**. The Analysis System of Multi-Step Attack's Preliminary Data Produced by Snort. Chinese Software Copyright with Certificate No.2015SR149738. 2015.
- Liang Hu, Nannan Xie, **Taihui Li**. Web Log Mining System using PSO-FCM Algorithm. Chinese Software Copyright Certificate No.2014SR021874. 2014.
- Liang Hu, **Taihui Li**, Nannan Xie. Web Service Interface Development of Multi-Step Attack Alarm Correlation. Chinese Patent with Certificate No. CN104219253A. 2014.

HONORS AND AWARDS

- ADC Graduate Fellowship, University of Minnesota
- Distinguished Graduate, Jilin University
- Graduate Student Fellowship, Jilin University
- Excellent Academic Scholarship (Graduate), Jilin University
- Distinguished Graduate Student Cadres, Jilin University
- Excellent Academic Scholarship (Undergraduate), Jilin University

PROFESSIONAL SERVICES

- Reviewer for Journals:
 - *International Journal of Numerical Modelling*
 - *Journal of Network and Systems Management*
- Reviewer for Conferences:
 - *Neural Information Processing Systems (NeurIPS)*
 - *International Conference on Machine Learning (ICML)*
 - *International Conference on Learning Representations (ICLR)*
- Volunteer for Conferences:
 - *Neural Information Processing Systems (NeurIPS)*
 - *International Conference on Machine Learning (ICML)*
 - *International Conference on Learning Representations (ICLR)*

TEACHING ASSISTANT

- CSCI 5980 Think Deep Learning
- CSCI 5801 Software Engineering
- CSCI 3081 Program Design & Development
- CSCI 1133 Introduction to Computing & Programming Concepts (Python)

TECHNICAL STRENGTHS

Programming Languages	Python, C++/C, C#, Matlab, SQL
Tools	Pytorch, TensorFlow, Keras, Scikit-learn, LIBSVM, Web Scraping