Minhao **Jiang**

Research Assistant · Machine Learning Researcher

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Research Area

Machine Learning, Data Mining, emphasizing on efficient, useful, explainable models for real-world applications.

Education

University of Illinois at Urbana Champaign — *Champaign, IL, USA*

B.S. in Computer Science, B.S. in Mathematics (GPA: 3.96/4.0) — *Aug. 2018 - May. 2022*

Research&Project Experience

Active Learning and Constrained Optimization

Champaign, IL

Research Assistant — *Jan. 2021 - Present*

- Conducted experiments and researches on topics related with active learning and optimization techniques, including **Frank-Wolfe** and **Iterative Hard Thresholding** method to solve Bayesian Coreset problem.
- Collaborated with Ph.D. students to discuss further directions of improving and resolving constrained optimization problems
- Advisor: Prof. Sanmi Koyejo

DARPA SocialSim Project

Champaign, IL

Research Assistant — *Nov. 2020 - Present*

- Worked on the DARPA project computational simulation of online social behavior project.
- Constructed models using data mining techniques including **BERT**, **WeSTClass**, etc., to collect data from Twitter and YouTube to predict the user activities on these social platforms.
- Responsible for a machine learning model implemented by Random Forest as a purpose of prediction.
- Advisor: Prof. Tarek Abdelzaher, Prof. Jiawei Han

Deep Learning in Medical Image Analysis

Champaign, IL

Research Intern at NCSA — *Jan. 2021 - Present*

- Implemented **deep learning models**, including *CNNs, GANs, Transformers*, and **image recognition topologies** including *AlexNet, GoogleNet, VGG, and Inception*, etc., to predict the survival of breast cancer patients, advised by Ms. Xiaoxia Liao at National Center for Supercomputing Applications (NCSA)
- Conducted ongoing experiments with proposal of using multiphoton histopathology for datasets in information extracted from the tumor microenvironment provided by NCSA.

MRI Brain Tumor Image Segmentation

Champaign, IL

Machine Learning Project — *Nov. 2020 - Dec. 2021*

- Utilized **3D U-net** and **Variational Encoder (VAE)** to achieve the image segmentation of gliomas from brain MRI with performance having dice coefficient of 0.78 in testing dataset.
- Implemented different data preprocessing techniques including one-hot encoding. Constructed the neural network model using Tensorflow on my own.

Travel Manager

Champaign, IL

Database Project — *Jun. 2020 - Aug. 2021*

- Implemented a website using React.JS and using Node.JS to construct API connecting relational SQL database in backend.
- Visualized PageRank algorithm to display and evaluate the traffic development level of cities in China.

Honors & Awards

2018-2020 **Dean's List**, College of Engineering and College of Libral Arts & Sciences, UIUC — *Champaign, IL*

Teaching Experience

Course Assistant CS 374: Algorithms and Models of Computation, UIUC, Spring 2021

Course Assistant CS 374: Algorithms and Models of Computation, UIUC, Fall 2020

Course Assistant CS 173: Discrete Structure, UIUC, Spring 2021

Relevant Coursework

Machine Learning	CS 440 (Artificial Intelligence), CS 446 (Machine Learning), CS 498 DL (Intro to Deep Learning), CS 498 RL (Reinforcement Learning), ECE 490 (Intro to Optimization)
Data Mining	CS 412 (Intro to Data Mining), CS 512 (Data Mining Principles)
Others	CS 225 (Data Structures), CS 411 (Database System), MATH 444 (Applied Real Analysis), MATH 482 (Linear Programming)

Skills

Language	English, Chinese
Programming Language	Python, C++, Java, JavaScript(ReactJS, NodeJS, ect.), SQL, HTML, CSS, MongoDB, Neo4J, Haskell, LaTeX
Machine Learning	Deep Learning (Computer Vision, Natural Language Processing, Graph Neural Networks), Reinforcement Learning (Markov Decision Process, TD-Learning, Deep Q-Learning, etc.)