Zheng Zhang

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Education

2021 - PRESENT PhD (Computer Science) at **Auburn University** (GPA: 3.8/4.0)
2016 - 2018 M.S. (Computer Science) at **Auburn University** (GPA: 3.7/4.0)

Projects

Network Intrusion Detection System 08/2022 - PRESENT Github

- Proposed heterogeneous ensemble deep architectures for network intrusion detection. XGBoost Transformer CNN
- The optimized ensemble model reports **SOTA results** on various network intrusion detection datasets.

An Inference Architecture for Drivers' Status Estimation in L3 Driving Mode 05/2018 - 08/2019 Github

- Led the development of three interconnected models - Behavior Model, Inference Model, and Cognition Model, to ensemble a deep learning-based architecture for estimating drivers' status in automated driving mode. Python VGG LSTM

End-to-end Neural-Symbolic Reinforcement Learning 09/2019 - 09/2022 Project, Github

- Established a Neural-Symbolic Reinforcement Learning model built on CaptionGAN, differentiable inductive logic programming, and policy gradient. Python Prolog CaptionGAN ∂ILP Reinforcement Learning Explainable AI

Auburn PAIR program 08/2018 - 12/2018 Project, Github

- Data analysis for the prototype framework of climate services for decision making. Pandas Numpy Sklearn netCDF4

Experience

Graduate Research Assistant - Auburn University 04/2018 - 12/2018, 08/2021 - 05/2022

- TIDES: Trustworthy Interactive DEcision-making Using Symbolic Planning. Link
- Drivers' status estimation in automated driving mode. South Korea Electronics and Telecommunications Research Institute (ETRI) Research Grant - 18TLRP-B131486-02.
- Auburn PAIR program - A Prototype Framework of Climate Services for Decision Making. Link

Graduate Teaching Assistant - Auburn University 01/2022 - PRESENT

- Introduction to Algorithms, Fundamentals of Computing (Java), Computer Organization and Assembly Language Programming, and Data Mining. Proficiently instructed more than 500 students in class through concise lectures, interactive discussions, practical exercises, and assessments.

Machine Learning Engineer - Inner Mongolia Power (Group) Co. Ltd., China 01/2019 - 07/2021

- Experienced ML Engineer specializing in advanced QA Systems. Proficient in end-to-end development, data processing, traditional and state-of-the-art models. Focus on real-world optimization, collaboration, ethics, and documentation. BERT GPT XGBoost Random Forest Pytorch Scikit-learn

Web Designer - Inner Mongolia Irrigation Center, China 03/2014 - 06/2016

- frontend and backend websites design, data maintenance and regular updates. HTML CSS JavaScript PHP Node.js

Publication

Zhang, Z., Das, A., Rahgouy, M., Bao, Y., &, Baskiyar, S. (2023). Multi-Label Classification of CS Papers Using Natural Language Processing Models. International Conference on Machine Learning and Applications. (acceptance rate: ∼25%).
Zhang, Z., Xu, L., Bao, Y., & Baskiyar, S. (2023). Towards the Diagnosis of Heart Disease Using an Ensemble Learning Approach. International Conference on Machine Learning and Applications. (acceptance rate: ∼25%).
Zhang, Z., Yilmaz, L., & Liu, B. (2023). A Critical Review of Inductive Logic Programming Techniques for Explainable AI. IEEE Transactions on Neural Networks and Learning Systems. (Impact factor: 10.5).
Das, A., Rahgouy, M., **Zhang, Z.**, Bhattacharya, T., Dozier, G., & Seals, C. (2023). Online Sexism Detection and Classification by Injecting User Gender Information. In The IEEE International Conference on Artificial Intelligence, Blockchain, and Internet of Things.
Cui, Y., Liu, H., Ming, Y., **Zhang, Z.**, Liu, L., & Liu, R. (2023). Prediction of strand-specific and cell-type-specific G-quadruplexes based on high-resolution CUT&Tag data. Briefings in Functional Genomics. (Impact factor: 4.8).

Skills

Skills: Python, Java, JavaScript, C, and R **Deep Learning framework:** Pytorch, Tensorflow, Fastai, Huggingface
Python Library: Numpy, Pandas, NLTK, Scikit-learn, SciPy, Statsmodels, OpenCV, Matplotlib, Seaborn, Flask, Django.