Wayne AI Research Initiative

Wayne Artificial Intelligence

Wayne State University | Detroit, MI

Web: ai.wayne.edu

OUR GROUP

We perform cutting-edge AI research and offer world-class AI education.

The Wayne AI research initiative was initiated by faculty members from the department of computer science in year 2020, led by Dr. Dongxiao Zhu, and with collaboration from other engineering departments, such as electric and computer engineering, civil engineering, and industrial engineering, college of liberal arts and science, and college of medicine across the campus.

New Faculty Spotlight

Zheng Dong
- Ph.D., University of Texas at Dallas
- Assistant Professor, Computer Science

Research interests: Real-time Systems, Safety-Critical Cyber-Physical System, Mobile Edge Computing, IoT

ZhiZhong Han
- Ph.D., Northwestern Polytechnical University
- Assistant Professor, Computer Science

Research interests: 3D Computer Vision, Digital Geometry Processing, Artificial Intelligence

RhongHo Jang
- Ph.D., University of Central Florida
- Assistant Professor, Computer Science

Research interests: Security & Privacy, Network Measurement, Software-defined Networking, Counting Algorithm, Applied Machine Learning

SELECTED RECENT PUBLICATIONS

General AI/ML

- Deng Pan, Xin Li, Dongxiao Zhu: Explaining Deep Neural Network Models with Adversarial Gradient Integration. IJCAI 2021: 2876-2883.
- Xin Li, Xiangrui Li, Deng Pan, Dongxiao Zhu: Improving Adversarial Robustness via Probabilistically Compact Loss with Logit Constraints. AAAI 2021: 8482-8490.
- Baorui Ma, Zhizhong Han, Yu-Shen Liu, Matthias Zwicker: Neural-Pull: Learning Signed Distance Functions from Point Clouds by Learning to Pull Space onto Surfaces. ICML 2021.

Computer Vision

- Chao, Chen, Zhizhong Han, Yu-Shen Liu, and Matthias Zwicker: Unsupervised Learning of Fine Structure Generation for 3D Point Clouds by 2D Projection Matching. ICCV (2021).
- Han, Z., Qiao, G., Liu, Y.S. and Zwicker, M., 2020, August. SeqXY2SeqZ: Structure learning for 3D shapes by sequentially predicting 1D occupancy segments from 2D coordinates. In European Conference on Computer Vision ECCV (pp. 607-625). Springer, Cham.

Information Retrieval

- Guang Wang, et.al., Record: Joint Real-Time Repositioning and Charging for Electric Carsharing with Dynamic Deadlines. KDD 2021: 3660-3669.

NEWS & NOTES

Job Opening: A tenure track faculty at the assistant professor level starting from Fall 2022, candidates working in Artificial Intelligence, Machine Learning, Data Science, Systems and Software, and related areas are especially encouraged to apply.

CS Ranking 2021: WSU is ranked at **75** in AI, and **82** in General AI (AI, Machine Learning, Computer Vision, Natural Language Processing, Information Retrieval).

Master program in Computer Science
- Concentrations on AI
- Concentrations on Autonomous Driving

Master program in AI

CONTACT

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SELECTED RECENT RESEARCH

- $500,000 NSF grant for “Enabling Real-time, Scalable and Secure Collaborative Intelligence on the Edge,” to design a real-time and scalable Network-On-Chip (NoC) for implementing real-time collaborative learning algorithms *(PIs: Zheng Dong, Ph.D.; Weisong Shi, Ph.D.)*
- The project “SCC-CIVIC-PG Track A: Leveraging AI-assist Microtransit to Ameliorate Spatiotemporal Mismatch between Housing and Employment” is funded by NSF *(PIs: Dongxiao Zhu, Ph.D.; Marco Brocanelli, Ph.D.; Daniel Grosu, Ph.D.; Tierra Bills, Ph.D.)*
- $150,000 NSF grant for “RAPID: CORPUS: An Edge Intelligence-Assisted Multi-Granularity COVID-19 Risk Predication and Update System,” to design and implement such an intelligent system for the individual to know their infection risk when traveling to a place in the foreseeable future *(PIs: Shi Weisong, Ph.D.; Ming Dong, Ph.D.)*
- $1,433,469 NIH grant for “Severity Predictors Integrating salivary Transcriptomics and proteomics with Multi neural network Intelligence in SARS-CoV2 infection in Children (SPITS MISC),” to develop a diagnostic modality to distinguish the varying phenotypes of disease and risk stratify disease *(MPI: Dongxiao Zhu, Ph.D.)*
- The project “CRII: III: Learning to Integrate Heterogeneous Data from Disparate Sources for Disease Subtyping” was funded by NSF to build innovative machine learning technologies to integrate knowledge collected from multiple repositories from different cohorts of multiple data types (e.g., genomic, clinical, and epidemiologic) for a more accurate and robust discovery of disease subgroups and/or patient subtypes *(PI: Suzan Arslanturk, Ph.D.)*
- The project “DeepWave, an AI acoustic analysis technology that can deliver sound element separation and audio enhancement in real time” was awarded by The Michigan Translational Research and Commercialization (MTRAC) Innovation Hub for Advanced Computing to to tackle deep technology opportunities in high impact sectors, such as artificial intelligence (AI)/machine learning, augmented reality (AR) and intelligent automation *(PI: Ming Dong, Ph.D.)*