Wenyi WANG

Phone: +1-(872)-806-9983 Email: WenyiWang2021@u.northwestern.edu

AREAS OF INTEREST

High-Performance Computing, Computer Systems, Parallel Computing, Machine Learning, Robotics

EDUCATIONAL BACKGROUND

Northwestern University *Evanston, U.S.*
M.S. in Computer Science, **GPA**: 3.913/4.0 Sep.2019 – Mar.2021
Research Topic: Paths to OpenMP in the Kernel
Advisor: Peter A. Dinda

University of California, Irvine *Irvine, U.S.*
Visiting Student & Research Assistant at Department of EECS, **GPA:** 4.0/4.0 Jul.2018 – Sep.2018
Research Topic: Intelligent Charging System for Electric Vehicle
Advisor: G.P. Li

Northeastern University *Shenyang, China*
B.E. in Software Engineering, **Major GPA:** 3.90/4.0 Sep.2015 – Jul.2019
Research Topics: Immersive and Intelligent Humanoid Robot Control System,
Chinese Poetry Teaching System for Children on ARCore Platform
Advisors: Tao Ren, Ruiyun Yu

Coursework: CS446 Low-level Development (P. Dinda), CS343 Operating Systems (P. Dinda), CS323 Code Analysis and Transformation (S. Campanoni)
Computer Skills : Python, C, C++, Java, HTML, JavaScript, C#, Matlab, OpenMP, LLVM, TensorFlow, PyTorch, Flask, JSP, SQL, MongoDB

PUBLICATIONS

J. Ma, **W. Wang**, A. Neilson, M. Cuevas, S. Campanoni, K. Hale, C. Liu, P. Dinda, **Paths to OpenMP in the Kernel.** (Accepted, The International Conference for High Performance Computing, Networking, Storage, and Analysis, SC21)

HONORS & AWARDS

- Computer software copyright registration, nationwide 2019
- **Gold Award**, China College Students' Entrepreneurship Competition in Liaoning Province 2018
- **Second Prize**, nationwide, "Innovation has a future" University AI Innovation Grand Competition 2018
- **Exceptional Funding of the Nation**, 5%, The 12th National Innovation Training Program for College Students 2018
- **Second-prize** Scholarship of Northeastern University (Academic Merit) 2018
- **Third-prize** Scholarship of Northeastern University (Academic Merit) 2016
- **Third Prize** in the Mathematics Competition of Chinese College Students, Liaoning Province 2016

RESEARCH EXPERIENCES

Massachusetts Institute of Technology: Project Us, Media Lab *Cambridge, MA*
Graduate Research Intern May.2021 – present

- Reconstructed a complete pipeline for audio preprocessing, voice emotion detection and real-time audio demonstration based on the method and dataset from the RECOLA paper. The model was improved to have a comparable performance with only half of the training data.
- Built a complete testbed for testing various parameters for face emotion recognition and voice emotion detection to achieve better user experience.

- Proposed solutions for exclusive Camera access issue with Windows OS, by testing and developing a total MS Teams App.
- Refactored and redesigned the website codebase and project database.
- Completed various tasks about Flask backend, Web frontend implementation, including backend audio/video data processing, Web UI implementation.

Carnegie Mellon University: Saliency Detection for Cryo-ET, Xu lab@CBD_SCS_CMU *Pittsburgh, PA*
Graduate Research Intern May.2021 – present

- Led the development of VS Code Remote SSH tutorial for AITom.
- Finished baseline experiments for the lab's new saliency detection algorithm.
- Conducted research on 3D saliency detection for Cryo-ET by trying different backbone networks and novel data preprocessing techniques.

Northwestern University: Porting OpenMP Runtime to HRM Kernel Nautilus, PLab *Evanston, IL*
Graduate Research Assistant Mar.2020 – Aug.2021

- Modified and compiled LLVM/OpenMP into static library 'libomp' that Nautilus can link to.
- Implemented the OSAL of pthread-embedded library (PTE) for libomp to function within Nautilus kernel.
- Benchmarked Gaussian elimination and discovered a Floating-Point logic error in Nautilus codebase.
- Ported different benchmarks including NAS Parallel Benchmarks.
- Gradually improved the performance of the implementation by benchmarking and inspecting runtime behavior.

University of California, Irvine: Intelligent Charging System for Electric Vehicle, Calit2 *Irvine, CA*
Assistant Jun.2018 – Sep.2018

- Designed the overall architecture of smart EV charging system and implemented corresponding modules, programmed to achieve the backend Data Collector module, fetching real-time energy blend data from California ISO and the Simple Predictor module, predicting power usage for the coming hours.

Northeastern University: Seismic Wave Recognition and Warning System *China*
Assistant Jan.2018 – Feb.2018

- Explored the possibility to use deep learning method to identify real-time seismic waves and judge and predict the magnitude.

Northeastern University: Immersive and Intelligent Humanoid Robot Control System *China*
Team Leader Nov.2016 – Nov. 2018

- Designed an algorithm to achieve human action and gesture recognition based on Kinect.
- Designed, implemented and debugged the entire robot control system with Windows SDK and Android SDK, finished 80% of the coding work.
- Proposed novel ideas about developing the robot's ability of "deduction" in accordance with the environment.
- Used COCO 2017 image data as our training and validation data set and tested several kinds of backbone networks.
- Implemented a system that can deduce and detect objects from image sequences according to the input so that it was able to highlight the bounding boxes to provide a good hint for finding the expected object even though the expected object had not been detected yet.