Wenyi WANG

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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

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

PUBLICATIONS

J. Ma, **W. Wang**, A. Neilson, M. Cuevas, B. Homerding, C. Liu, Z. Huang, S. Campanoni, K. Hale, P. Dinda, **Paths to OpenMP in the Kernel.** (Accepted, The International Conference for High Performance Computing, Networking, Storage, and Analysis, SC21; Main contributor to the code, experiments, data analysis, paper writing and graphs.)

HONORS & AWARDS

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

RESEARCH EXPERIENCE

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

- Led the effort of developing an AI-powered emotion recognition system that can provide real-time feedback from the cloud.
- Advanced work at all layers of the stacks including frontend and backend development, pushing the project to be ready to the client pilot stage while participating in the MIT delta v Program.
- Achieved comparable performance by improving and implementing an emotion recognition model, with only half of the training data from the RECOLA paper.
- Built a testbed including a complete pipeline for audio preprocessing, voice emotion detection and real-time audio demonstration, and developed a MS Teams App.

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

- Led the research on 3D saliency detection for Cryo-ET by applying attention mechanism and teacher-student model in an unsupervised manner.
- Researched and wrote *VS Code* Remote SSH tutorial for *AITom*, contributions can be found here.
- Contributed to baseline experiments and paper writing for the lab's new saliency detection algorithm.

Northwestern University: PLab, The Interweaving Project *Evanston, IL*
Graduate Research Assistant Mar.2020 – Aug.2021

- Achieved an average performance gain of 22% (geometric mean) across scales and benchmarks for *runtime in kernel* implementation by inspecting runtime behavior.
- Customized *LLVM/OpenMP* runtime library *libomp* and implemented *pthread-embedded library* (PTE) to make *libomp* function within *Nautilus* kernel.
- Discovered a Floating-Point logic error in *Nautilus* codebase by benchmarking Gaussian elimination.
- Ported different benchmarks including *NAS Parallel Benchmarks*.

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

- Led designing the overall structure of the control system and contributed 70% of project's code on three different platforms with five programming languages.
- Designed an algorithm to achieve body movement and gesture recognition based on Kinect and enable the robot to move more naturally and accurately.
- Proposed novel ideas about developing the robot's ability of "deduction" in accordance with the environment.
- Implemented that idea into a system that can provide hints for searching for objects that are not recognized by the object detection algorithm in the current camera capture frame.

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

- Designed the overall architecture of smart EV charging system and implemented corresponding modules.
- Implemented the backend Data Collector module that fetches real-time energy blend data from California ISO and the Power Predictor module that predicts future power usage.

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

- Exploited the possibilities to use deep learning methods to identify real-time seismic waves and evaluate and predict the magnitude.