Zhuoran Wang

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Date of birth: 11 May 2001

EDUCATION AND TRAINING	
[1 Sep 2023 – Current]	Master of Science in Computer and Embedded System Engineering
	Technische Universiteit Delft (TU Delft) https://www.tudelft.nl/
	City: Delft Country: Netherlands
[1 Sep 2019 – 1 Jul 2023]	Bachelor of Science in Automation
	Fuzhou University
	City: Fuzhou Country: China
[1 Sep 2019 – 26 Jun 2023]	Bachelor of Engieering in Robotics and Intelligent Devices
	Maynooth University (National University of Ireland, Maynooth) https:// www.maynoothuniversity.ie/
	City: Maynooth Country: Ireland Final grade: 1st Class Honours
PROJECTS	

[Nov 2023 – Jan 2024] Distributed Algorithms Labs

- Implemented Dolev's Reliable Communication algorithm and its five modifications described in the paper: Bonomi, G. Farina, and S. Tixeuil, "Multi-hop byzantine reliable broadcast with honest dealer made practical," Journal of the Brazilian Computer Society, vol. 25, pp. 1–23, 2019
- Implemented Bracha's reliable broadcast algorithm on the top of the fully-connected network topology that Dolev algorithm provided.
- Implemented a casual-order Byzantine broadcast algorithm using vector clock technique.

[Oct 2023 – Current] Extention and Modification of xv6 operating system

- Implemented Unix utilities in xv6, including sleep, find, xargs, gaining proficiency in system calls.
- Added trace and Sysinfo system call
- Optimized system calls and detected accessed pages.
- Implemented Copy-on-Write Fork in xv6.
- Developed an xv6 device driver for a network interface card (NIC).
- Redesigned code to increase parallelism, addressing high lock contention in xv6 memory allocator.
- Enhanced xv6 file system by adding support for large files and symbolic links.
- Implemented mmap and munmap system calls in xv6.

[Sep 2023 – Nov 2023] Advanced Computing Systems Labs

- Conducted profiling with gprof to identify bottlenecks; optimized matrix multiplication using SIMD (AVX) and multi-core parallelism (OpenMP), employing techniques including fine-tuning OMP directives and reordering multiplication to leverage cache locality.
- Analyzed CPU and CUDA implementations, identified bottlenecks through Nsight system profiling, and optimized by improving data transfer efficiency, leveraging shared memory, and fine-tuning grid and block dimensions.
- Accelerated the K Means algorithm using CUDA, implementing optimization strategies identified through profiling, including fine-tuning grid and block dimensions, and leveraging shared memory to reduce the data transfer overhead.

[Dec 2022 – Mar 2023]	Analysis of an efficient classification method based on density optimization
	 Investigated and optimized the classifier using a DPC-based data preprocessing method to address the problem of multi-classification unbalanced data. Analyzed three mainstream classifiers: random forest, decision tree, k-nearest neighbor, and support vector machine, with a focus on using the weighted KNN algorithm based on kernel function for prediction training. Utilized the DPC algorithm to select the cluster center and determine the optimal clipping
	threshold through experimentation, resulting in an optimized training set for the classifier. • Employed a cross test to test the accuracy of the model, and experimental results showed a well improvement in classifier accuracy using the optimization algorithm in most of cases.
PUBLICATIONS	
[2022]	Implement Deep Learning Networks with Transfer Learning to Develop Energy-friendly Applications Supporting Sustainability on Image-based Plant Disease Classification
WORK EXPERIENCE	
[1 Mar 2022 – 1 Jun 2022]	Software Development Engineer Intern
	Shandong University Tianyuan Digital Industry Research Institute
	City: Dongying Country: China
	 Collaborated in the creation of GIS (Geographic Information System) applications utilizing Spring Boot, Vue, and MySQL technologies Successfully participated delivering a fully functional e-commerce website utilizing Servlet, JSP, JDBC, MySQL, and Tomcat Made significant contributions to the organization's code base by implementing machine learning pipelines for image segmentation tasks
HONOURS AND AWARDS	
[2023]	Bronze Medal of Kaggle: AMP®-Parkinson's Disease Progression Prediction
[2021]	Silver Medal of Kaggle: Google Brain - Ventilator Pressure Prediction
[2021]	Second Prize (Fujian Province), Contemporary Undergraduate Mathematical Contest in Modeling
[2021]	Third-class Scholarship, Fuzhou University
[2020]	Third Prize (National-level), Contemporary Undergraduate Electrician Mathematical Contest in Modeling
[2020]	Third-class Scholarship, Fuzhou University
VOLUNTEERING	
[Nov 2019 – Jul 2022]	Volunteer Leader College Library, Fuzhou University
	 Held a position responsible for daily operations, ensuring efficient functioning of the organization. Served as a volunteer leader, overseeing volunteer management, communication of messages, and allocation of tasks.
[Apr 2022 – Apr 2022]	Volunteer English Teacher of the Online Tutoring Activity Online
	 Co-organized a one-to-one English language tutoring program in collaboration with Chi Ling Public Welfare Library and Fuzhou University. Took on the primary responsibility of teaching English, including instructing students in vocabulary, phonetic symbols, and grammar.
LANGUAGE SKILLS	Mother tongue(s): Chinese

Other language(s): English LISTENING C1 READING C2 WRITING C1 SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user