Zihan Wu

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SUMMARY

PhD candidate specializing in machine learning, computer vision, and data mining with strong research expertise. Experienced in co-clustering algorithms, privacy-preserving techniques, and unlearning methods. Published researcher with expertise in both theoretical and applied aspects of AI systems, focusing on scalable solutions for large datasets, statistical analysis, and computational optimization applicable to massive data modeling.

EDUCATION

City University of Hong Kong, Electrical Engineering — **Hong Kong SAR, China**
Ph.D Candidate, Electrical Engineering — 2020 – Present

University of Science and Technology of China — **Hefei Anhui, China**
Bachelor of Science, Double Major: Physics; Mathematics and Applied Mathematics — 2015 – 2020

PROFESSIONAL EXPERIENCE

City University of Hong Kong, Department of Electrical Engineering — **Hong Kong**
Research Assistant, Leading research on advanced machine learning techniques on data valuation — Nov. 2024 – Present

University of Oxford, Physics Department — **Oxford, UK**
Research Assistant, Single Molecular Semiconductor based on DNA structure — Jun. 2018 – Sep. 2018

PROJECTS

Machine Unlearning Research and Applications — **Hong Kong**
Machine Learning, Privacy — 2023 – Present

- Developed LMEraser system with adaptive prompt tuning techniques for large language model unlearning
- Prompt tuning on 86M parameters ViT and 88M parameters Swin Transformer
- Achieved 100-fold speedup in unlearning process with negligible performance loss
- Skills: PyTorch, Transformers, Prompt Engineering
- Publications: AISTATS 2025, IEEE Trans. on Emerging Topics in Computational Intelligence

Co-Clustering Algorithms and Applications — **Hong Kong**
Computer Vision, Data Mining, Computational Biology — 2022 – Present

- Designed scalable co-clustering algorithms with dynamic partitioning and hierarchical merging for large datasets (800K+ documents) with 83% less time
- Developed novel adaptive co-clustering for ellipse detection in real-world measurement systems
- Created convex-hull based method with manifold projections for detecting cell protrusions
- Skills: C++, MATLAB, Image Processing, Computational Geometry, Statistical Analysis
- Publications: IEEE SMC 2024, IEEE Trans. on Instrumentation & Measurement, Computers in Biology and Medicine

X-Shard: Transaction Processing for Blockchain — **Hong Kong**
Distributed Systems, Blockchain — 2023 – 2024

- Contributed to optimistic cross-shard transaction processing algorithms reducing commit latency by 37%
- Implemented threshold signature protocols for cross-shard commit with $O(n)$ communication complexity
- Assisted in developing transaction allocation methods minimizing cross-shard transactions based on historical patterns
- Evaluated system scalability on Amazon EC2 clusters demonstrating near-linear scaling in throughput
- Publication: IEEE Trans. on Parallel and Distributed Systems (Vol. 35, No. 4, April 2024)

SKILLS

Languages: English (TOEFL: 107/120, Speaking: 23); Mandarin Chinese (Native);

Programming Experience: C++, Python, MATLAB, PyTorch, TensorFlow, NumPy, OpenCV;

Research Areas: Machine Learning, Computer Vision, Natural Language Processing, Privacy-Preserving ML;

Technical Skills: Algorithm Design & Optimization, Statistical Analysis, Computational Geometry, Distributed Systems;

AWARDS & HONOURS

Hong Kong PhD Fellowship Scheme (HKPFS) — 2020–2024

National Encouragement Scholarship: *given by the Ministry of Education of the People's Republic of China (top 2%)* 2017–2018

Physical Activity Assessment System And Method: *Patent HK30081186* — May. 2023