

Yewen Li

Postdoctoral Fellow

AI Chip Center for Emerging Smart Systems (ACCESS), The Hong Kong University of Science and Technology

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ACADEMIC APPOINTMENTS

2024–Present	Postdoctoral Fellow AI Chip Center for Emerging Smart Systems (ACCESS), The Hong Kong University of Science and Technology Hong Kong SAR, China Advisor: Prof. Fengbin Tu.
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EDUCATION

2019–2024	Ph.D. in Computer Science Institute of Computing Technology, Chinese Academy of Sciences Beijing, China Advisor: Prof. Guangming Tan.
2015–2019	B.Sc. in Computer Science Minzu University of China Beijing, China Major: Internet of Things.

RESEARCH SUMMARY

My research spans computer architecture and computational biology, focusing on parallel algorithms, software, and domain-specific accelerators for biology and medicine. Current research topics include:

- **Genome analysis software:** TurboMap [BIBM'26], BWA-FastAlign [PPoPP'26], FastDup [Bioinformatics'25], and FastBWA [PPoPP'25].
- **Genome analysis hardware:** ShenNung [TCAD'26], NvWa [HPCA'23], FuHsi [JCST'25], and iSCoder [JCST'26].
- **Scientific-computing and AI acceleration:** BAG [ICPP'26], TriOoO [MICRO'26], HFSCIM [ICCAD'26], and D²CIM [CICC'26].
- **Data-compression accelerators:** MetaZip [DAC'22] and FEB3D [NPC'20].

PEER-REVIEWED PUBLICATIONS

[†] Corresponding author

- **Yewen Li**, Jia Chen, Zihao Xuan, Pingcheng Dong, Yonghao Tan, Xiao Huo, Guangming Tan, and Fengbin Tu. “Accelerating Long-Read Genome Polishing by Leveraging Sequence Similarity with Algorithm–Architecture Co-Design.” *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 2026.
- Haotian Ma, **Yewen Li**[†], Guangming Tan, Yinlong Xie, and Xin Liu. “TurboMap: GPU Extension Alignment that Preserves Split Reads for Long-Read Mapping.” *IEEE International Conference on Bioinformatics and Biomedicine*, 2026. [🔗 Code].
- Hegan Chen, Zihao Xuan, **Yewen Li**, Ning Lin, Jia Chen, Yan Zeng, Jichang Yang, Songqi Wang, Han Wang, and Zhongrui Wang. “HFSCIM: Hybrid FeFET–SRAM CIM Architecture for Continuous-Time Inference and Online Reinforcement Learning.” *IEEE/ACM International Conference on Computer-Aided Design*, 2026.
- Zihan Yan, Ning Kang, Guojun Yuan, **Yewen Li**, Yuanzhe Wang, Hao Zhang, Yachao Zhang, Guanglei Chen, Zejun Li, Dingwen Tao, Ninghui Sun, and Guangming Tan. “TriOoO: An Extensible DSA Framework for Machine Learning Molecular Dynamics.” *IEEE/ACM International Symposium on Microarchitecture*, 2026. [🔗 Code].

- Yao Liu, **Yewen Li**[†], Zhonghai Zhang, Erlin Yao[†], Guangming Tan, and Weile Jia. “BAG: Faster Matrix Multiplication on a Single GPU.” *International Conference on Parallel Processing*, 2026.
- Jia Chen, Zihao Xuan, **Yewen Li**, Zhuoya Yan, Zimu Li, Yat-Fong Yung, Yi Deng, Xiao Huo, Chi-Ying Tsui, Kwang-Ting Cheng, and Fengbin Tu. “D²CIM: A 28nm 53.3 TFLOPS/W Decoding Digital CIM Macro for Efficient FlashMLA-based LLM Inference.” *IEEE Custom Integrated Circuits Conference*, 2026.
- Zhonghai Zhang, **Yewen Li**[†], Ke Meng, Chunming Zhang, and Guangming Tan[†]. “Faster and Cheaper: Pushing the Sequence Alignment Throughput with Commercial CPUs.” *ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, 2026. [ Code] [ Bioconda: 1,188 downloads].
- Wanqi Liu, **Yewen Li**, and Guangming Tan. “iSCoder: Mitigating Genomic Sequencing Data Compression Bottlenecks via In-SRAM Computing.” *Journal of Computer Science and Technology*, 2026.
- Zhonghai Zhang, **Yewen Li**, Ke Meng, Chunming Zhang, and Guangming Tan. “FastDup: A Scalable Duplicate Marking Tool using Speculation-and-Test Mechanism.” *Bioinformatics*, 2025. [ Code] [ Bioconda: 1,454 downloads].
- Zhonghai Zhang, **Yewen Li**, Ke Meng, Chunming Zhang, and Guangming Tan. “FastBWA: Practical and Cost-Efficient Genome Sequence Alignment Pipeline.” *ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming Poster*, 2025. [ Code].
- **Yewen Li**, Guangming Tan, and Xueqi Li. “FuHsi: Shifting Base-calling Closer to Sequencer via In-Cache Acceleration.” *Journal of Computer Science and Technology*, 2025.
- **Yewen Li**, Xueqi Li, Ruihao Gao, Wanqi Liu, and Guangming Tan. “NvWa: Enhancing Sequence Alignment Accelerator Throughput via Hardware Scheduling.” *IEEE International Symposium on High-Performance Computer Architecture*, 2023.
- Tong Li, Xueqi Li, **Yewen Li**, Ruibao Song, and Xun Wang. “Crescent: A GPU-based Targeted Nanopore Sequence Selector.” *IEEE International Conference on Bioinformatics and Biomedicine*, 2022.
- Ruihao Gao, Xueqi Li, **Yewen Li**, Xun Wang, and Guangming Tan. “MetaZip: A High-Throughput and Efficient Accelerator for DEFLATE.” *ACM/IEEE Design Automation Conference*, 2022.
- Wanqi Liu, **Yewen Li**, Dawei Zang, and Guangming Tan. “FEB3D: An Efficient FPGA-Accelerated Compression Framework for Microscopy Images.” *IFIP International Conference on Network and Parallel Computing*, 2020. [ Code].
- **Yewen Li**, Wei Song, Xiaobing Zhao, Juan Wang, and Lizhi Zhao. “A Novel Image Tamper Detection and Self-Recovery Algorithm Based on Watermarking and Chaotic System.” *Mathematics*, 2019. [ Code].

HONORS & AWARDS

2026	Gold Medal, 51st Geneva International Exhibition of Inventions.
2025	Gold Medal with Jury Congratulations, 50th Geneva International Exhibition of Inventions.
2024–2026	Innovation and Technology Fund, Hong Kong SAR, China.
2022	Director’s Merit Scholarship, Institute of Computing Technology, Chinese Academy of Sciences. Merit Student, Institute of Computing Technology, Chinese Academy of Sciences.
2019	Outstanding Graduate, Beijing. Outstanding Graduate, Minzu University of China. Best Student Award, Minzu University of China. Self-Improvement Star Nomination Award, Minzu University of China.
2018	First Prize, Beijing Electronic Design Competition. National Encouragement Scholarship. First-Class Scholarship, Minzu University of China.
2017	National Encouragement Scholarship. First-Class Scholarship, Minzu University of China.

ACADEMIC SERVICE

2026	Reviewer, <i>Knowledge-Based Systems</i> . Artifact Evaluation Committee, <i>IEEE/ACM International Symposium on Microarchitecture</i> .
2025	Artifact Evaluation Committee, <i>International Conference on Parallel Architectures and Compilation Techniques</i> .
2023	Reviewer, <i>The Journal of Supercomputing</i> .