Benben LIU (劉犇犇)

Personal information

Name: Benben LIU

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Research/Professional Experience

2023---Now **Senior Researcher**, LSCM R&D Center, The University of Hong Kong

2022---Now **Visiting Research Fellow**, Hong Kong Polytechnic University

2021---2023 **Lenovo Enterprise Lecturer (企業講師)**, Lenovo Hong Kong Limited

2018---2023 **Advisory Researcher,** Lenovo Machine Intelligence Center, Lenovo Hong Kong Limited

- Cloud and distributed computing, cloud-based artificial intelligence

2015---2017 **Senior Research Associate**, CityU Architecture Lab for Arithmetic and Security, City University of Hong Kong

- Parallel and distributed computing for machine learning and data mining

2007---2008 **Student Research Assistant**, ASIC & System State Key Laboratory, Fudan University

- Hardware acceleration for video encoding and decoding algorithm

Education

2011---2017 **Doctor of Philosophy, Electronic Engineering**, City University of Hong Kong, Hong Kong

2008---2009 Electrical and Computer Engineering, University of Maryland, College Park

2004---2008 **Bachelor of Science, Microelectronics**, Fudan University, China

Publications

Book Chapters

1. Yao Xin, **Benben Liu**, and Ray C. C. Cheung, "High Performance and Customizable Bioinformatic and Biomedical VLSI Architectures", VLSI: Circuits for Emerging Applications, CRC Press, LLC, 2015.

Journal Papers

2. Zhaorui Zhang, Yao Xin, **Benben Liu**, Will X.Y. Li, Kit-Hang Lee, Chun-Fai Ng, Danail Stoyanov, Ray C.C. Cheung, and Ka-Wai Kwok, "FPGA-based High-Performance Collision Detection: An Enabling Technique for Image-Guided Robotic Surgery", Frontiers in Robotics and AI, 2016.
3. **Benben Liu**, ChiWai Yu, Doris Z. Wang, Ray C.C. Cheung, and Hong Yan, "Design Exploration of Geometric Biclustering for Microarray Data Analysis in Data Mining", IEEE Transactions on Parallel and Distributed Systems (TPDS), 2014.
4. **Benben Liu**, Yao Xin, Ray C.C. Cheung, and Hong Yan, "GPU-based Biclustering for Microarray Data Analysis in Neurocomputing", Neurocomputing Journal, Elsevier, 2014.

5. Yao Xin, **Benben Liu**, Biao Min, Will X.Y. Li, Ray C.C. Cheung, Anthony S. Fong, and Ting-Fung Chan, "Parallel architecture for DNA sequence inexact matching with burrows-wheeler transform", Microelectronics Journal, Elsevier, 2013.

Conference Papers

6. Alan W. Y. Lo, **Benben Liu***, and Ray C. C. Cheung, "GPU-based biclustering for neural information processing", in Neural Information Processing, Lecture Notes in Computer Science, Springer Berlin Heidelberg, 2012. (Oral Presentation)

Thesis

7. **Benben Liu**, "Task Mapping Methodology for Heterogeneous Multicore System", Ph.D Thesis, City University of Hong Kong, Hong Kong, 2017.
8. **Benben Liu**, "An 80-dB DC-Gain 400MHz-GBW Folded-Cascode Operational Amplifier for Pipeline ADC in 0.13-μm CMOS" (in Chinese), Bachelor's Thesis, Fudan University, Shanghai, 2008.

Teaching

1. EE5815: Topics in Security Technology
2. EE3207: Digital System Design
3. EE2311: Object-Oriented Programming and Design
4. EE2301: Basic Electronic Circuits
5. GE1314: Ironman: The Art and Science of Robots in Our Society
6. Summer Workshop 2014

Talks

1. Lenovo Machine Intelligence Center Biweekly Seminar, "A comprehensive review of high performance computing and distributed computing for deep learning", 2018
2. Friday's Postgraduate Research Seminar Series, "System Modeling and Dynamic Task Mapping Support for Heterogeneous Multi-core Architectures", City University of Hong Kong, Hong Kong SAR, April 2015
3. Croucher Foundation Summer Course, "Performance-Aware Programming using Application Accelerators", The University of Hong Kong, 2014
4. The 19th International Conference on Neural Information Processing (ICONIP2012), "GPU-based Biclustering for Neural Information Processing", Doha, Qatar, November 2012
5. EE8001 Project Presentation, "High-Performance Hardware Accelerator Design for DNA Sequence Alignment Using CUDA-enabled GPU and FPGA", City University of Hong Kong, April 2012

Academic Activities

1. Reviewer for IEEE Transactions on Parallel and Distributed Systems (TPDS), IEEE Transactions on Computers (TC), Neurocomputing (Elsevier), Expert Systems With Applications (Elsevier)
2. Active in many international conferences as committee member, session chair, reviewer, etc.
3. Member of IEEE (2017), Member of Hong Kong Computer Society (2017)
4. Student Member of IEEE (2010), Member of IEEE CityU Student Branch (2013)

Research/Professional collaborations

1. Research: CUHK, HKUST, Imperial College
2. Professional: Huawei, Nvidia, Lenovo

Honors and Awards

Lenovo Hong Kong Limited

2020/21	DIBG Outstanding Project Team (3 for DIBG)
2019/20	DIBG Technical Elite (9 for DIBG)
2018/19	LCIG Excellent Technical Article (1 for LCIG)

City University of Hong Kong

2013---2015	Research Tuition Scholarship for 2 consecutive years (for top 10%)
2012---2015	Outstanding Academic Performance Award for Research Degree Students for 3 consecutive years (for top 20%)
2012	ICONIP conference travel award
2011---2012 (B)	Good Performance in Teaching Students: First Steps (SG8001) course

Fudan University

2008	Fudan Outstanding Graduates (8 awardees out of 89 students in the department)
2005---2008	Second Prize of People's Scholarship for 3 consecutive years (for top 10%)
2006	Top 10 College-wide Excellent Students
2004---2005	First Prize of People's Scholarship - Samsung Scholarship (for top 1%)
2004---2008	University-wide Excellent Students for 4 consecutive years (for top 5%)