Peiqing Chen

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EDUCATION BACKGROUND

Boston University 2021-Present
Ph.D. in Electrical & Computer Engineering, Advisor: Alan (Zaoxing) Liu *Boston, USA*
Peking University 2017-2021
B.S in Computer Science and Technology *Beijing, China*
University of British Columbia 2019
Exchange Program in the School of Computer Science Vancouver, BC, Canada

RESEARCH INTERESTS

I am interested in computer network & systems research, specifically, using cache and probabilistic data structures to improve computer networks and data systems performance. Before entering Boston University, I worked on network measurement and analysis, data stream processing algorithms at Peking University.

RESEARCH PROJECTS

Accelerating drone's KV storage system Octomap

- Optimized Octomap, a mapping system for autonomous drones, to improve processing latency
- Implemented a cache for efficient pre-processing of sensor data and reduced memory access overhead
- Pipelined Octomap system by transferring bottleneck component to a separate CPU core
- Enhanced drone application efficiency, including package delivery

Multicore based Sketch measurement

- Developed a software monitoring framework for scaling sketches across multiple cores
- Achieved high online accuracy and throughput for a wide spectrum of sketches

Tight error bound for Sketches

- Improved error analysis for sketch algorithms in network traffic estimation
- Designed an online algorithm to closely approach the actual error bound
- Enhanced network functions such as load balancing and traffic engineering

Clock-Sketch for mining batch pattern in data stream

- Combined sketches and clock algorithm to build Clock-Sketch for mining recent batch patterns
- Enabled per flow burst detection and cache policy design in data streams
- Identified and analyzed batch patterns in time series data for improved efficiency and insights

PUBLICATIONS

1. **Peiqing Chen**, Yuhan Wu*, Tong Yang, Junchen Jiang and Zaoxing Liu, *Precise error estimation for sketch-based flow measurement,* IMC 2021
2. **Peiqing Chen**, Dong Chen, Lingxiao Zheng, Jizhou Li and Tong Yang, *Out of Many We are One: Measuring Item Batch with Clock-sketch,* ACM SIGMOD 2021

Awards & Scholarships

- National Scholarship, Peking University 2020
- Merit Student Honor, Peking University 2020
- Liwaiwing Scholarship, Peking University 2019

SKILLS

- Programming Languages C/C++ (highly skilled), Python, PHP
- Tools Latex, Git