Lingfan Yu

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Education

2016.9 - Present Computer Science PhD Program, New York University, United States
Advised by Professor Jinyang Li

2012.9 - 2016.6 Bachelor of Computer Science and Technology, Nanjing University, China
GPA: 1^{st} year: 4.62 / 5, rank 1 / 151
2^{nd} year: 4.57 / 5, rank 4 / 144
3^{rd} year: 4.68 / 5, rank 1 / 144

2015.9 - 2016.4 University Exchange Program, University of Waterloo, Canada

Publications

- Pin Gao, **Lingfan Yu**, Yongwei Wu, Jinyang Li. Low Latency RNN Inference with Cellular Batching (Eurosys 2018). [paper, talk, slides]
- Cheng Tan, **Lingfan Yu**, Joshua B. Leners, Michael Walfish. The Efficient Server Audit Problem, Deduplicated Re-execution, and the Web (SOSP 2017, Best paper award). [paper]

Research Experience

- **Deep Graph Library** **2018.5 - Present**
  - Ongoing project on building machine learning framework on graph-structured data
  - Provides intuitive and expressive interfaces and comprehensive system optimizations to make learning on graphs easy and efficient
  - Compatible with existing popular tensor frameworks (like PyTorch, MXNet)
  - Released as an open source project (homepage)
- **Low Latency RNN Inference System** **2017.5 - 2018.4**
  - Research project to build inference system for Recurrent Neural Network
  - Provides both low latency and high throughput
  - Published as a conference paper at Eurosys 2018
- **Audit Web Application By Efficient Re-execution** **2016.9 - 2017.4**
  - Research project on verifiable computation
  - Logs hints during online execution and uses techniques like SIMD-on-demand to speed up re-execution of computations
  - Published as a conference paper at SOSP 2017 (Best paper award)

Teaching Experience

Fall 2017 Teaching Assistant of Distributed System (CSCI-GA.3033-002)

Fall 2018 Recitation Leader of Computer System Organization (CSCI-UA.0201)

Other Selected Projects

- **Paxos-based Key/Value Store** **2016.9 - 2016.12**
  - Course project for Distributed System
  - Implemented a key/value store service on top of Paxos consensus protocol
  - Supported features like sharding, fault-tolerance and recovery
- **Simplified C Compiler** **2015.2 - 2015.6**
  - Course project for Compiler's Principle
  - Implemented building blocks of compilers: lexical analysis, syntax analysis, syntax-directed translation, intermediate code generation, and machine code generation
  - Implemented a compiler of simplified C language, which supports most C syntax except pointer
  - Applied code optimization algorithms to improve efficiency of results
- **Network Protocol Implementation** **2015.2 - 2015.6**
  - Course project for Computer Network
  - Implemented simplified version of TCP/IP protocol using C language to support data transmission between application layers
  - Implemented an efficient BitTorrent client for resource sharing
- **Optimization model for flat folding tables** **2014.9.12 - 9.15**
  - Problem from China's Undergraduate Mathematical Contest in Modeling (CUMCM)
  - Designed an optimization model to minimize cost of producing flat folding tables
  - Simulated dynamic folding process of folding tables
  - Won national first prize in contest
- **MIPS CPU Design** **2014.2 - 2014.6**
  - Course project for Computer System Organization
  - Implemented mono-cycle MIPS CPU and multi-cycle MIPS CPU on FPGA
  - Designed and implemented 32-bit MIPS pipelining CPU on FPGA
  - Implemented features like forwarding, 2-bit dynamic prediction, and exception handling to improve efficiency and robustness
  - The 32-bit pipelining CPU reached clock rate of 0.7 GHz
- **Nanos-based Operating System** **2014.2 - 2014.6**
  - Course project for Operating Systems
  - Implemented simplified operating system kernel that supports features like creation and switching of threads
  - Supported locking mechanism and message transferring among threads using message queue

Work Experience

- **Quantum Cube Corporation, Waterloo, Canada (part-time)** **2015.9 - 2015.12**
  - Company focus is commodity futures trading and developing research system for future trading analysis and automation
  - Designed and implemented backend system to provide support for the project

Honors & Awards & Scholarships

- Scholarship of No.14 Electronic Technology Institute of China for academic excellence, Nov 2015
- First Class Prize of Liu Jimin Scholarship for Exchange Program in the University of Waterloo, Jun 2015
- Scholarship of Nanjing Fujitsu Software Technology Co., Ltd for academic excellence, Dec 2014
- Outstanding Student of Nanjing University for academic performance, Dec 2014
- National First Prize of China Undergraduate Mathematical Contest in Modeling, Dec 2014
- Outstanding Student of Computer Science Department for academic performance, Dec 2013
- National Scholarship of China for academic excellence, Nov 2013
- Outstanding Member of the New Great Wall Self-Improvement Society of Nanjing University for positivity in activities and voluntary work, Jun 2013

Voluntary Experience

- **Volunteers Association of Computer Science Department** **2013.9 - 2014.6**
  - Served as minister of Project Department of the Volunteers Association
  - Organized and participated in many voluntary events held by Volunteers Association
- **Benefaction 100 Love Package** **2012.9 - 2012.11**
  - Charity event held by China Foundation for Poverty Alleviation (CFPA)
  - Aimed at raising awareness of caring about children living in poor conditions
  - Served as volunteer for more than 40 hours