

Yifei Liu

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RESEARCH INTERESTS

I am interested in file/storage systems, operating systems and machine learning for systems.

EDUCATION

Stony Brook University

Stony Brook, NY

08/2019 – Current

- Ph.D. in Computer Science
 - Courses: CSE505 Computing with Logic; CSE506 Operating Systems.
 - Cumulative GPA: 3.8 / 4.0

Huazhong University of Science and Technology

Wuhan, Hubei, China

09/2016 – 06/2019

- Master of Science (M.Sc.) in Computer System Architecture
 - Thesis: Research on Metadata Organization Approach for Image Storage Systems towards Content-based Semantic Similarity Query
 - Relevant Courses: Parallel Processing; Theory and Technology of Information Storage; Advanced Computer Architecture; Theory of matrices; Data Mining and Retrieval; Pattern Recognition.
 - Cumulative GPA: 85.02 / 100

Huazhong Agricultural University

Wuhan, Hubei, China

09/2012 – 06/2016

- Bachelor of Engineering (B.Eng.) in Computer Science and Technology
 - Thesis: Predicting Disk Failures based on Machine Learning Methods
 - Relevant Courses: Data Structure; Operating System; Principles of Computer Composition; Computer Networks; Compilers Principles; Algorithm Analysis and Design; Programming and Application of Linux.
 - Cumulative GPA: 3.43 / 4.00 Major GPA: 3.79 / 4.00 Rank: 9/118

EXPERIENCE

Stony Brook University

Stony Brook, NY

Teaching Assistant

08/2019 – Current

- TA for CSE376 Advanced Systems Programming in Unix/C (Spring 2020)
- TA for CSE306 Operating Systems (Fall 2019)

Wuhan National Laboratory for Optoelectronics

Wuhan, Hubei, China

Master's Student/Research Assistant

09/2016 – 06/2019

Advisor: Prof. Ke Zhou

- Used deep learning hash to design and implement a metadata system for integration of high-precision and low-latency semantic queries in storage systems
- Proposed a framework for assessing image “dark data” based on a novel semantic hash ranking (SHR) algorithm
- Performed theoretical analysis on hash-based graphs to facilitate rank algorithms and graph database operations

Tencent (#1 social media, Internet corporation in Asia)

Shenzhen, Guangdong, China

Backend Developer Intern

12/2015 – 08/2016

- Predicted disk failures with disk data collected via machine learning algorithms to achieve high precision and recall
- Built infrastructure for collecting long-term disk S.M.R.A.T. data from over 10,000 servers in Tencent data centers
- Tested cache replacement policies on Tencent application traces

Institute of Computing Technology, Chinese Academy of Sciences

Beijing, China

Intern/Visiting Student

11/2015 – 12/2015

- Explored the correlation between Apache Spark and Java Garbage Collection (GC) parameters

Chinasoft International Ltd

Guangzhou, Guangdong, China

Front-end Student Intern

07/2015 – 08/2015

- Collaborated with other interns to develop a catering website using jQuery, AJAX, Java Servlet

Supervisors: Prof. Jianxiao Liu and Prof. Ruifang Zhai

- Used Bayesian Network Reasoning to propose a web service recommendation approach for organizing and recommending a set of correlated services
- Designed an image line detection algorithm for automatically measuring character parameters of the rapeseed plant
- Developed a GUI for counting the number of cotton cells in microscopic images (for the Huazhong Agricultural University's College of Plant Science & Technology)

PUBLICATIONS

Journal Articles

- [1] Ke Zhou, Yangtao Wang, Yu Liu, Yujuan Yang, Yifei Liu, Guoliang Li, Lianli Gao, and Zhili Xiao. "A Framework for Image Dark Data Assessment." *World Wide Web Journal (WWWJ)*, 2020.
- [2] Yu Liu, Yangtao Wang, Ke Zhou, Yujuan Yang, and Yifei Liu. "Semantic-aware Data Quality Assessment for Image Big Data." *Future Generation Computer Systems (FGCS)*, 2020.

Conference Papers

- [1] Yu Liu, Hong Jiang, Yangtao Wang, Ke Zhou, Yifei Liu, and Li Liu. "Content Sifting Storage: Achieving Fast Read for Large-scale Image Dataset Analysis." In *Proceedings of the 57th Design Automation Conference (DAC)*, San Francisco, CA, 2020. (Accepted, To Appear)
- [2] Yangtao Wang, Yu Liu, Yifei Liu, Ke Zhou, Yujuan Yang, Jiangfeng Zeng, Xiaodong Xu, and Zhili Xiao. "Analysis and Management to Hash-Based Graph and Rank." In *Proceedings of the 3rd APWeb-WAIM joint conference on Web and Big Data (APWeb-WAIM)*, Chengdu, China, 2019.
- [3] Yu Liu, Yangtao Wang, Ke Zhou, Yujuan Yang, Yifei Liu, Jingkuan Song, and Zhili Xiao. "A Framework for Image Dark Data Assessment." In *Proceedings of the 3rd APWeb-WAIM joint conference on Web and Big Data (APWeb-WAIM)*, Chengdu, China, 2019.
- [4] Jianxiao Liu, Zonglin Tian, Yifei Liu, and Liang Zhao. "Research of Web Service Recommendation Using Bayesian Network Reasoning." In *Proceedings of the 15th International Conference on Services Computing (SCC)*, Seattle, WA, 2018.
- [5] Pujuan Shi, Yifei Liu, Yihang Fang, Chengda Lin, and Ruifang Zhai. "A new line detection algorithm - Automatic measurement of character parameter of rapeseed plant by LSD." In *Proceedings of the 4th International Conference on Agro-Geoinformatics (Agro-Geoinformatics)*, Istanbul, Turkey, 2015.

COMPETITION AWARDS

- Second Prize, National Postgraduate Mathematic Contest in Modeling, China 12/2016
- Finalist, Interdisciplinary Contest in Modeling (MCM/ICM), USA 04/2015
One of 52 awardees in the world. First winner of my university. (52/9773 ~0.53%)
- First Prize, National Postgraduate Mathematic Contest in Modeling, China 12/2014
Won the highest award of this contest, (120/4900 ~2.4%)
- First Prize, Contemporary Undergraduate Mathematical Contest in Modeling, China 11/2014
Won the highest award of this contest, (293/22233 ~1.3%)

ACADEMIC AWARDS

Huazhong University of Science and Technology

- APWeb-WAIM Best Paper Runner-Up 2019
- Outstanding Graduate Spring 2019
- Merit Graduate Student 2017 – 2019
- First-class Academic Scholarship 2016 – 2019

Huazhong Agricultural University

- Outstanding Graduate
- First Scholarship for Study
- Merit Undergraduate Student

Spring 2016
Spring 2015
2014 – 2016

**TECHNICAL
SKILLS**

Programming Languages

- ≥ 4 years: C/C++/Python
- ≥ 3 years: MATLAB/Bash/SQL
- $1 \sim 2$ years: JAVA/Cypher
- ≤ 1 year: JavaScript/Prolog

Softwares and Frameworks

- Parallel Computing: Hadoop, Spark
- File and Storage: OpenStack Swift, HDFS, Redis, Extended File System (ext)
- Databases: HBase, MySQL, Neo4j
- Deep learning platforms: Caffe, TensorFlow
- Tools: Linux, git, gcc, gdb, pdb, Makefile, Scikit-learn, Sqoop, \LaTeX

**PROFESSIONAL
TRAINING**

Machine Learning - Stanford Univeristy (2016), Coursera