JIAO ZIYANG

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Jilin Business and Technology College (JLBTC) **09/2015 - 06/2019**

Major: Electronics and Information Engineering

GPA: 3.75/4.0 Ranking: 1/80

Degree: Bachelor of Engineering

Washington University in St. Louis (WUSTL) **08/2019 – 08/2020**

Major: Computer Science and Engineering

GPA: 4.0 Ranking: NA

Degree: Master of science in computer science (expected in 2021)

Syracuse University(SU) **08/2020 – Now**

Major: Computer and Information Science and Engineering

GPA: 4.0 Ranking: NA

Degree: Ph.D. in computer science (expected in 2023)

Publications

Jiao Ziyang, *Application Analysis of Java Programming Language in Computer Software Development,* Digital Design, ISSN1672-9129, CN11-5292/TP

Languages

C, C++, Java, JavaScript, HTML, CSS, SQL, PHP, Python

WORK EXPERIENCE

Syracuse University, Research Assistant, Syracuse, NY Aug 2020 - Present

- Storage Systems Research. Currently working on NSF grant – CPR for Flash-Based Storage Systems under Prof. Bryan Kim.
- Studying the behavior of different Flash Translation Layer (FTL) algorithms and find a better way to exploit SSDs' potential.
- Researching ways to make distributed storage more resilient and intelligent to understand heterogeneity and ageing of SSDs.
- Developing mathematical models to predict SSD future states, including garbage collection, wear leveling, and data scrubbing.
- Developing high performance SSD simulator to accelerate the process of trace-driven simulation.

Washington University in St. Louis, Teaching Assistant, St. Louis, MO Jan 2020 – May 2020

- Course Link: CSE 417T - Introduction to Machine Learning
- Advisor: Prof. Chien-Ju Ho
- Topics: Generalization in finite and infinite hypothesis spaces; Model complexity, the VC bound, the bias-variance tradeoff; Linear models: the perceptron, regression, logistic regression; Nonlinear transformations of data; The problem of overfitting; Modern supervised learning techniques, including decision trees, neural networks, nearest neighbor methods, support vector machines, boosting, and random forests.

Chinese Academy of Sciences(CAS), Research Assistant, BeiJing Nov 2018 - Jan 2019

- Laboratory for Face Recognition Based on Matlab+PCA+SVM.
- Advisor: Prof. Chao Liu
- Designing and building data pre-processing and training system
- Dataset: ORL face database + Real face image data
- Feature Engineering: Correlation analysis + PCA
- Model: NN, SVM, GAN

ACADEMIC EXPERIENCES

Capacity Performance Reliability(CPR) for Flash-Based Storage Systems Oct 2020 – Sep 2023

Summary: exploiting tradeoffs among CPR and designing a capacity-variant interface that allows the SSD to maintain performance while gracefully reducing the capacity.

- link:nsf.gov/awardsearch/showAward?AWD_ID=2008453
- Quantify the error-induced performance degradation by building an SSD aging framework.
- Build a capacity-variant system and demonstrate the effectiveness of a capacity variant SSD.
- Build a Fast-forwardable SSD model that can predict future wear states
- Develop new filesystems and RAID systems to study how capacity-variance can be extended to a heterogenous set of SSDs

Creating Synergies between Memory, Disk and Log in Log Structured KV Stores Aug 2020 – Dec 2020

Summary: Improving the background I/O performance on LevelDB – an open sourced key value store by Google

- Study on LevelDB and analyze performance under different configurations
- Implement techniques discussed in TRAID on LevelDB
- Smarter categorizing and scheduling to amortize background IO costs in LevelDB
- Self-adaptive database adjusting to different workloads

Spam Email Detection Dec 2019 – Feb 2020

Summary: Spam Email classifier based on Naïve Bayes (NB)

- Implement a system that mitigate the spamming problem
- Python programming to classify emails received into three categories: safe, spam and suspicious email
- Based on naive Bayes method

Creative Programming and Rapid Prototyping Aug 2019 – Dec 2019

Summary: Web development

- Module description
- Github main page: https://github.com/ZiyangJiao
- Techniques: HTML5, CSS, AWS, MySQL, PHP, NodeJS, Git, Djiango, Python

Machine Learning Algorithm Optimization*(supervised learning)* Aug 2019 – Dec 2019

Summary: Implementing and optimizing ML models based on MATLAB

- Implementing modern supervised learning techniques, including decision trees, neural networks, nearest neighbor methods, support vector machines, boosting, and random forests.
- Feature engineering based on filter, wrapper, and embedded methods
- Improve model performance based on mathematical analysis, such as Hoeffding's inequality, VC-dimension and the bias-variance tradeoff.

CONFERENCES

FAST ’21: 19th USENIX Conference on File and Storage Technologies

OSDI ’20: 14th USENIX Symposium on Operating Systems Design and Implementation

SOCC ’20: 11th ACM Symposium on Cloud Computing 2020

HONORS AND AWARDS

University scholarship (school-level) 2015/2016/2017/2018

National scholarship 2016

EXTRA-CURRICULUM ACTIVITIES

WHO Program: COVID-19: methods for detection, prevention, response and control 2021

Member of College Students Association for Science and Technology 2015-2019

Volunteer for the Asia-Pacific Mathematical Contest in Modeling 2016