Kexin(Kathy) Zhu

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Education

University of Pennsylvania *May 2020*
Master of Science in Engineering: Computer & Information Science
Cumulative GPA: 3.61/4.0

Rensselaer Polytechnic Institute *May 2018*
Bachelor of Science: Computer Science dual Mathematics
Cumulative GPA: 3.97/4.0 (Summa Cum laude)

Work Experience

Twitch/Amazon *San Francisco, Jun-Aug. 2019*
Video Transcoder Team(Golang), *software engineering Intern*

- Parsed closed captions from live streaming video to text format and sent to viewers through WebRTC on server side, received and displayed closed captions with video on client side
- Triggered chrome to send transport feedback by adding extension header in RTP packet, parsed transport feedback from RTCP packet in WebRTC
- Implemented congestion control algorithm, analyzed feedback of RTT, REMB and Packet loss from browser to estimate the bandwidth in order to automatically switch renditions for viewers

Undergraduate Teaching Assistant *Troy, Sep. 2016-May. 2018*
Courses: Intro to Algorithm, Mathematical Statistics, Foundations of Computer Science and Beginning Prog for Engineers

Selected Projects

PennCloud (C/C++) *Oct-Dec. 2018*

- Built a cloud platform with its webmail and storage service, analogous to Gmail and Google Drive, users are able to register, log in, send/view emails and upload/download/delete files
- Built SMTP and POP3 multithreaded servers to send and receive emails as a normal mail client
- A distributed storage system in the backend, home to storage of all states and key-value store abstractions, guaranteed the consistency of storage with load balancing and fault tolerance

PennOS (C) *Mar-Apr. 2020*

- Implemented a User-level UNIX-like Operating System.
- A simple shell booted on PennOS simulator supported the following features: foreground and background processes with job control; synchronous child waiting; a complement of built-in functions, e.g., cat, nice, sleep, etc.; and redirection with truncation and append modes.
- PennOS ran as a single process on a host OS, while using ucontext library to implement a basic Round Robin priority scheduler to simulate multiprocessing.

Streaming Music Service (Python) *Apr-May. 2019*

- Designed a protocol to build a streaming music service for multiple clients via TCP
- Client could retrieve a list of songs available on the server, play the songs with its ID, download songs after receiving all the data, and switch between songs smoothly

Exploration of H1B Candidates for Compensation, Career, and Approval (R) *Apr-May. 2019*

- Analyzed the important factors and identified the keywords of job title which employers were able to get sponsored, receive higher salaries, and get H1B Visa approved
- Used regressions featuring LASSO selection, classification methods including random forest and neural network, and text mining tools to predict

Coursework/Skills

Advanced Mathematics& Statistics: Modern data mining, Mathematical Statistics, Mathematical Models of Operation Research, Computational Optimization, Linear Algebra
Advanced Computer Science: Software Systems, Database & Info Systems, Network, Big Data Analytics, Operating System, Machine Learning, Intro to AI, Programming Language, Natural Language Processing
Programming: Proficient in C/C++, Python, Golang, SQL, Java, Matlab, MongoDB, Neo4j, R, Haskell, Prolog