HENGKUAN LU

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EDUCATION

The University of Chicago, United States *Sep 2021 - Dec 2022 (expected)*
Master of Science in Computer Science
Coursework: *Computer Networks, iOS Development, Compilers, Web Development, Data Base, Cloud Computing*

Fudan University, China *Sep 2016 - June 2021*
Bachelor of Engineering in Electronic Engineering & Data Science
Coursework: *Machine Learning, Artificial Intelligence, Big Data Analysis, Computer Architectures, Data Structure*

TECHNICAL SKILLS

Programming:	Python, Java, C, C++, CSS, HTML, JavaScript, Swift, Golang, Matlab, Shell
Software & Tools:	AWS(EC2, S3, SNS, SQS, DynamoDB), Linux, Git, Sqlite, MySQL, MongoDB, REST API, Flask, AJAX, JSON, jQuery, Node.js, Angular, React, Hadoop, Spark, Hive, Pytorch, numpy, pandas, seaborn, faker, VirtualBox, Gdb, Latex, Markdown
Background:	Data Structure & Algorithms, Data Base, Cloud Computing, Web, Compilers, Architectures, Networks, Operating Systems, Parallel Programming, Big Data Machine Learning/Deep Learning

WORK EXPERIENCE

HYPERGRYPH Network Technology Co.,Ltd, China *Sep 2020 - Dec 2020*
Data Engineer
- Provided solutions to decrease illegal users by more than 50% in a season
- Processed data screening (**JSON** format) and data processing using **SQL**(MySQL)
- Wrote weekly auto test codes in **Python** filtering out abnormal users from TB level of data
- Implemented unsupervised learning algorithms (**K-means**, **Clustering**) and feature learning methods to classify users as legal and illegal using **Spark**

RECENT PROJECTS

GAS(genomics analysis service)
Provieded a server on **AWS** for users to run programs performing annotations of genome samples, tracing the job status and logging the input and output records. Kept the servers running using **tmux**. Made jobs operated asynchronously.

- Maintained two **EC2** instances for front-end and back-end and two **S3** buckets for input and output files.
- Wrote a **falsk** app to support a web server in the front-end. When users upload input files for annotation program, publish a notification message to the **SNS** topic and inserted an item to the **DynamoDB** when a job was requested.
- Implemented the back-end server to read messages from the **SQS** message queue, download files from input bucket, run the program and update the job status in the databases. Uploaded the output to the output bucket when a job is completed.

Golite Compiler (available here)
Designed a compiler with a complete structure for a Golang like language called Golite, using **Golang**.
- *Front End* phase: Constructed a scanner, a passer with Abstract Syntax Tree construction and Semantic Analysis
- *Middle End* phase(optimizer): Implemented the transformation of Intermediate Representation(IR to ILOC)
- *Back End* phase: Completed the code generation (ILOC to ARM assembly code)

Gomoku(available here)
Developed an **iOS** application called Gomoku based on **Swift Storyboard** where players can players a game with each other.
- Supported archive of unfinished games.
- Allowed time limit of each turn and regret of the moves in a game.
- Enabled multi-players, several players can compete with each other by their points in a serial of games.