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:	C, Python, C++, Java, Swift, Golang, SQL, CSS, HTML, JavaScript, Matlab, Shell
Software & Tools:	C socket, multi-thread programming in C/C++, AWS (EC2, RDS, SNS, SQS), Linux, Git, XML, JSON,Angular, Vue, jQuery, React, Node.js, MySQL, Hadoop, Spark(Pyspark), Hive, Gdb, Wireshark, Pytest, Pytorch, VirtualBox, Latex, Markdown, PPT, Excel, Word
Background:	Data Structure & Algorithms, Architectures, Compilers, Networks, Systems, Parallel Programming, Big Data, Data Base, Cloud Computing, Web

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

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)

Computer Networks (available here)

- **Internet Relay Chat:** Implemented a simple Internet Relay Chat (IRC) server called chirc in **C**. Supported channels and multi-clients.
- **Transmission Control Protocol:** Implemented most of the detailed description of the Transmission Control Protocol(**TCP**) in **C**. Supported communication on both reliable and unreliable situations (where out-of-order segments and time-out segments exist).
- **Routers:** Implemented a simple IP router being capable of routing IPv4 data frames between multiple networks. Implemented **ARP**(Address Resolution Protocol), **ICMP**(Internet Control Message Protocol) and IP forwarding.

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.