

# Hangfan Liu

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## EDUCATION

- **Loyola Marymount University** Los Angeles, CA  
*Masters of Computer Science* Aug 2022 - Jun 2024
- **Technical University of Kaiserslautern** Kaiserslautern, Germany  
*Bachelor of Computer Science;* Sep 2016 - Sep 2020

## SKILLS SUMMARY

- **Skills:** Java, Golang, Python, Scala, C++
- **Technologies:** Kafka, Redis, MySQL, HBase, Flink, RESTful-API, web crawler, Spring, gRPC, Protocol Buffer, BloomFilter
- **Tools:** Git, JIRA, Postman, Linux, Docker, Jenkins, Ansible, Shell, AWS

## PROFESSIONAL EXPERIENCE

- **Software Engineer, Golang** Aug 2021 - Aug 2022  
*Shopee Pte. Ltd* China
  - **Web Crawler:** Developed and maintained the **distributed web crawler** system using **GO**, which collects competitive product data on over **25** websites. The system updates at least **100M** weekly records. **3** teams benefit from it. My role was this project's owner.
  - **Database:** Designed and developed a storage layer using **TIDB**, **HBase**, and **GROM** (ORM framework in **Go**). Refactored HBASE tables achieved **50%** read/write throughput increases and **20%** storage cost decreases
  - **APIs Develop:** Designed and developed more than **10 APIs** using **gRPC** for data platform
  - **Pipeline Optimized:** Developed the deduplication module using **Redis**. Increased performance by over **25%**
  - **Messaging Middleware:** Applied **Kafka** to achieve asynchronous messaging between micro-services. Increased **30%** serialization performance by replacing JSON Protocol with **ProtoBuf**
  - **DevOps:** Maintained cronjob scheduler. Applied **CI/CD** pipeline using **docker** and **Jenkins**
- **Intern Software Engineer, Scala** Dec 2020 - Apr 2021  
*DiDi Chuxing Technology Co.* China
  - **Streaming Data ETL:** Conducted streaming **ETL** (Extract-Transform-Load) for real-time trajectory streaming data (1TB/Day) using **Kafka**, **Flink**, and **HBase**
  - **Database:** Designed **HBase** row keys using **salting** and **hashing** methods to reduce hot-spotting data
  - **RESTful-API Developed:** Developed and tested **5 RESTful APIs** using **SpringBoot** framework in **Scala**
- **Intern Computer Vision Engineer, Python** Feb 2020 - May 2020  
*DFKI* Germany
  - **Deep Learning:** Researched and developed object detection neural networks, and designed an attention module in CNNs
  - **Dataset Collection:** Applied **Unity3D** to simulate 10M artificial training data images
  - **Publication:** Published the paper as the lead author at the IEEE ISMAR2020 conference Link

## PUBLICATION

- Liu, Hangfan, Yongzhi Su, Jason Rambach, Alain Pagani, and Didier Stricker. "Tga: Two-level group attention for assembly state detection." In 2020 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct), pp. 258-263. IEEE, 2020. <https://ieeexplore.ieee.org/document/9288457>

## SELECTED PROJECTS

- **Course Project: Vehicle Routing Problem (Python):**
  - Optimized vehicle routing problem in **Python**. The objective function is the minimum total transport distance
  - Applied genetic algorithms to obtain a delivery plan approaching the optimal based on the principle of survival of the fittest
- **Course Project: Online Card Game (Java):**
  - participated in the development of a multiplayer online card game in **JAVA**
  - developed chat module using the observer-subscriber pattern and developed the data storage in **My-SQL**
- **Mushroom Image classification System (Python):**
  - Independently developed a mushroom classification system
  - Trained CNNs for extracting mushroom image features and classifying them. Developed an API to analyze mushroom pictures uploaded by users and address binary classification for poisonous versus edible mushrooms