# ZHIHAO WANG

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## EDUCATION

**Carnegie Mellon University, School of Computer Science**                                                     Pittsburgh, PA
*Master of Software Engineering*                                                                              Aug 2021 – Dec 2022
Teaching Assistant: 11-603 Practical Programming with Python (Summer 2022 Semester)
Research Assistant at LTI: Improved the infrastructure of *Sail()* platform for supporting CMU courses

**China University of Mining and Technology, Beijing, School of Science**                                     Beijing, China
*Bachelor of Science in Information and Computing Science*                                                    Sep 2013 – Jun 2017

**Peking University, National School of Development**                                                         Beijing, China
*Bachelor of Economics (double major)*                                                                       Sep 2014 – Jul 2017

## WORKING EXPERIENCE

**data.ai** (formerly App Annie)                                                                              Beijing, China
Senior Backend Software Engineer & Scrum Master                                                               Feb 2018 – Jul 2021
- Designed and built a new unified connection workflow to migrate 30+ platforms to microservices with a scalable solution to complete Apple and Google's Multi-Factor Authentication, reducing time cost by 50+% and improving success rate by 30+%.
- Migrated legacy data service from monolithic Django application to Flask and Go microservices to ECS by implementing unified query language translation, data aggregation and permission control, improving website & API performance by 50+%.
- Upgraded internal Node.js scraping framework by integrating puppeteer to support browser-based scraping; added Firebase integration by implementing data scraping and ETL tasks, making data.ai the 1$^{st}$ company to support Firebase in the industry.
- Designed and built internal troubleshooting tools and established monitoring dashboards and to quickly locate issues with user authentication, data scraping and ETL jobs, reducing Mean-Time-To-Repair by 50+% from 3+ days to 1~2 days.
- Built Connect Source Analysis Report and Ascend UI including visualizations, connection and user management using React.
- Led a Scrum team of 6+ as Scrum Master and facilitated team toward goals by coordinating with external teams, and hosting sprint planning meetings, daily Scrum meetings to manage projects, and retrospectives to help team locate issues.

**VIPKID**                                                                                                    Beijing, China
Software Engineer & Software Engineer Intern                                                                  Aug 2016 – Feb 2018
- Built microservices with Flask, gRPC, Java, SpringBoot to support VIPKID App, VIPKID School, internal systems, etc.
- Built asynchronous task system with Celery for Dino English App and its WeChat platform.

## SELECTED PROJECTS

**Troutwood Enterprise Portal**                                    Development Lead | CMU MSE Studio Project | Jan 2022 – Dec 2022
- Designed the architecture and led the software development including setting up GitHub and AWS infrastructures with CI/CD pipeline, and standardizing the working processes to support PoC, development, testing, and deployment. Tech stack: React, GraphQL, Lambda, Amplify, AppSync, S3, CloudFormation, EventBridge, Figma, etc.
- Implemented Scrum for the team of 5 by setting up Scrum process and norms with the toolchains and workflows.

**Resource Scheduling in Kubernetes**                                      CMU Advanced Cloud Computing | Mar 2022 – Apr 2022
Designed and implemented various k8s job scheduling policies using k8s scheduler extender and Gang scheduling with kube-batch scheduler. Optimized the performance of policies based on job completion time and computing resource preferences.

**ETL Processing on AWS using Apache Spark**                               CMU Advanced Cloud Computing | Feb 2022 – Mar 2022
Designed and implemented high-performance and cost-effective ETL jobs to process a large web-crawled corpus (~100GB before uncompressed) and ML training jobs using Apache Spark and HDFS on Amazon EC2.

**Distributed Bitcoin Miner**                                                      CMU Distributed Systems | Sep 2021 - Oct 2021
Built a TCP-like network protocol atop UDP; implemented bitcoin miner with failure handling and round-robin load balancing.

**Peking University Course Trading Market**                     Founder & Developer | Independent Project | Dec 2016 - Feb 2018
Created a third-party information exchange platform to facilitate course swapping with Flask and Node.js.

## SKILLS

**Programming Languages**: Python, Go, JavaScript, Java, C, SQL, R
**Data Storage**: MySQL, PostgreSQL, MongoDB, Redis, Amazon RDS, S3
**AWS**: *Certified Solutions Architect*, EC2, ECS, S3, Lambda, Amplify, Step Functions, CloudWatch, IAM, Terraform, etc.
**Tools & Frameworks**: Flask, Django, React, Spark, Docker, Kubernetes, Git, Jenkins, GraphQL
**DevOps**: Sentry, Kibana, New Relic, Datadog, Amazon CloudWatch