

# ZHIHAO WANG

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## EDUCATION

### Carnegie Mellon University, School of Computer Science

*Master of Software Engineering*

- Teaching Assistant: 11-603 Practical Programming with Python (Summer 2022)

### China University of Mining and Technology, Beijing, School of Science

*Bachelor of Science in Information and Computing Science*

### Peking University, National School of Development

*Bachelor of Economics (double major)*

Pittsburgh, PA

Aug 2021 – Dec 2022

Beijing, China

Sep 2013 – Jun 2017

Beijing, China

Sep 2014 – Jul 2017

## WORKING EXPERIENCE

### Language Technologies Institute, Carnegie Mellon University

Research Assistant

Pittsburgh, PA

May 2022 – Aug 2022

- Improving the infrastructure of *Sail()* platform, an interactive online learning platform, to support CMU courses.

### data.ai (formerly App Annie)

Beijing, China

Senior Backend Software Engineer & Scrum Master

Feb 2018 – Jul 2021

- Designed and built new unified connection workflows to migrate 30+ platforms to microservices with a scalable solution to complete Two-Factor Authentication, reducing time cost by 50% and improving success rate by 30%.
- Developed 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.
- Migrated legacy data service from monolithic Django application to Python (using Flask) and Go container-based microservices to Amazon ECS. Designed and implemented unified query language translation, data aggregation and data permission control.
- Upgraded internal Node.js scraping framework by integrating puppeteer to support headless browser-based scraping tasks and supported Google Firebase integration by implementing browser-based scraping tasks and ETL tasks.
- Built Connect Source Analysis Report and Ascend UI including visualizations, connection and user management using React.
- Built a service configuration management system using Apollo and won Best Engineering Excellence Award in the 4<sup>th</sup> Hackathon.
- Led a Scrum team of 6+ and facilitated team toward goals by coordinating with external teams in different time zones, 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

Full Stack Engineer, Construction Lead | CMU Studio Project | Jan 2022 - Dec 2022

- Designed the architecture and led the software construction including learning new tech stacks, setting up AWS infrastructure and standardizing the process to support PoC, development, testing, release, and defect management. Tech stack: React, GraphQL, AWS Lambda, AWS Amplify, AWS AppSync, Amazon S3, Amazon SNS, Figma, etc.
- Implemented Scrum for the team of 5 by setting up process and norms and all the toolchains and workflows.

### ETL Processing on AWS using Apache Spark

CMU Advanced Cloud Computing | Feb 2022 – Mar 2022

Implemented high-performance and cost-effective ETL jobs to process a large web-crawled corpus (~100GB before uncompressed) using Apache Spark on Amazon EC2.

### Distributed Bitcoin Miner

CMU Distributed Systems | Sep 2021 - Oct 2021

Built a TCP-like network protocol atop UDP that supports handling lost, duplicated, or corrupted Internet packets, and failing clients and servers; implemented bitcoin miner, client, and server with failure handling and round-robin load balancing atop the protocol.

### Peking University Course Trading Market

Founder & Developer | Independent Project | Dec 2016 - Feb 2018

Created a third-party information exchange platform with both website with Flask and WeChat Mini-Program with Node.js, which facilitated course swapping among students at National School of Development at Peking University.

## SKILLS

**Programming Languages:** Python, Go, JavaScript, Java, SQL

**Data Storage:** MySQL, PostgreSQL, MongoDB, Redis

**AWS:** *Certified Solutions Architect*, EC2, ECS, S3, Lambda, Step Functions, CloudWatch, IAM, Terraform, etc.

**Tools & Frameworks:** Flask, Django, React, Spark, Docker, Kubernetes, Git, Jenkins

**DevOps:** Sentry, Kibana, New Relic, Datadog, Amazon CloudWatch