

# Yuxuan Liu

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## Education

### University of Illinois Urbana-Champaign

Master of Computer Science - GPA: 4.0/4.0

Champaign, IL  
Dec 2023 (Expected)

### University of Wisconsin-Madison

B.S. in Computer Science & B.S. in Mathematics - GPA: 3.72/4.0

Madison, WI  
Sep 2017 – May 2021

## Skills

- Language: Java, Python, JavaScript, PHP, C#, C++, C
- Framework: Spring Boot, Spark, PyTorch, NumPy, ReactJS, .NET
- Database: MySQL, DynamoDB, AWS S3, Apache Hive, Redis, Elasticsearch
- Tool: Kibana, Linux, Git, AWS SNS, SQS, Lambda, CloudFormation

## Professional Experience

### SiriusXM

Software Engineer Intern

Champaign, IL  
May 2023 – Aug 2023

- Designed and implemented an event-driven monitoring pipeline for car tracking services using AWS Lambda, NodeJS, and CloudFormation
- Eliminated the need for Ops teams to schedule CloudWatch Insights queries manually, reduced cloud monitoring costs by 95%
- Implemented a serverless infrastructure for loading and preprocessing uploaded records from S3 buckets using AWS Lambda and SNS
- Collaborated with PM and customer to design Kibana dashboards and visualizations experience, developed analytics logic using KQL
- Successfully launched the system to track all API calls related to vehicle-driver mapping across the company

### Amazon.com

Software Development Engineer (Full-Time)

Seattle, WA  
July 2021 – July 2022

- Designed and implemented payments core back-end in Java and AWS, focusing on payment method management and payment processing
- Re-architected retail credit card reader registry service into extensible modular components to support flexible config-driven customizations
- Decomposed the card reader registry service into multiple RESTful micro-services, event processors, and NoSQL metadata stores
- Designed and executed Integration of payment processing back-end with Amazon's biometrics platform across software and hardware
- Launched core business logic within the "Just Walk Out" experiment to enable new store openings for Amazon Go, Amazon Fresh, and Whole Foods Market, supporting payment requests over 10K+ TPS, serving millions of retail customers worldwide

### PerBlue Entertainment, Inc.

Software Engineer Intern

Madison, WI  
May 2020 – Aug 2020

- Developed back-end features of a cross-platform mobile game using the C# Orleans framework
- Constructed modules of a support server in C#, facilitating real-time platform management and testing by developers and customer service
- Planned and executed testing across the full-stack web application, developed testing infrastructure to optimize testing productivity

### Baidu, Inc.

Software Engineer Intern

Beijing, China  
May 2019 – Aug 2019

- Developed a data pipeline across a diverse data stack, including Apache Hive, Redis, and MySQL, using HiveQL, SQL, and DataX
- Contributed to the Huiyan Data Analytics Platform, which supports business intelligence for thousands of retailers nationwide
- Designed front-end UX experience for reporting users in collaboration with PM to provide interactive user controls for analyzing data
- Implemented full-stack web application using JavaScript and PHP in MVC pattern, developed report drill-down, pivot and analysis features
- Redesigned Hive table partitioning strategies and refactored HiveQL scripts to optimize load balance for compute cluster nodes, reducing the runtime of daily scheduled petabyte-scale data mining jobs from 10 hours to 3 hours, while achieving a 40% decrease in peak cluster usage

### NavInfo Co., Ltd.

Software Engineer Intern

Beijing, China  
May 2018 – Aug 2018

- Developed a Kalman filter-based solution for filtering GPS signal noise in vehicle navigation systems using Java
- Implemented a route distance calculation service based on discrete coordinates stored in HDFS using Hadoop Java interfaces
- Optimized company-wide Elasticsearch instances used for Geoshape intersection determination

## Project Experience

### Computer Vision: [Android Weightlifting Form Correction App](#) - ([report](#), [video demo](#))

- Developed an Android mobile app that gives real-time audio feedback for weightlifting by analyzing camera footage and IMU sensors
- Implemented client-server image streaming using sockets, enabling the back-end computer vision model to perform 20 inferences per second

### Machine Learning: [Video Style Transfer](#) - ([report](#))

- Created a novel video style transfer model based on the Transformer architecture using PyTorch and OpenCV. This model excels in terms of stylization quality, temporal consistency, and computational efficiency. Moreover, it supports input frames of arbitrary dimensions

## Certifications and Achievements

[Oracle Certified Professional: Java SE 11 Developer](#), Mar 2021

[AWS Certified Solutions Architect – Associate](#), Jan 2023

UW-Madison Dean's List, 4 times, 2017 – 2021

Jeffrey McClelland Memorial Scholarship, Mar 2019