

Mark Zhang

Software Engineering Student from UWaterloo

Email: mark.zhang@uwaterloo.ca
LinkedIn: [linkedin.com/in/markyhzhang](https://www.linkedin.com/in/markyhzhang)
GitHub: github.com/markyhzhang
Website: markyhzhang.com

Skills

Languages

- o Java
- o Python
- o C/C++
- o JavaScript

Backend

- o Django
- o MySQL
- o PostgreSQL
- o Nginx
- o Redis

Frontend

- o HTML/CSS
- o Bootstrap
- o React

System Admin

- o Microsoft Azure
- o AWS
- o Bash
- o GNU/Linux

App Development

- o Android
- o iOS

Achievements


Facebook Global Hackathon Finalist:

Selected from a pool of **over 2500 teams** around the world to compete at FB HQ in Menlo Park with **20** other finalists.

Hack the North 2019

Finalist Winner: Built a non-Euclidean VR game. Selected from a pool of over **350 teams**.

MHacks 9 Winner:

Awarded C2 sponsor prize for **best drone management system**.  [DronesNet](#)

Experiences

Software Engineering Intern | [A Thinking Ape](#)

May 2019 – Aug 2019

- o Developed a **generic email verification** platform to enable streamlined email confirmations and password-less accounts through **magic login links**.
- o Architected and implemented a **multistage registration/login** system that serves over **80,000** requests per day. Made changes in Django server, Android and iOS client.
- o Designed and completed a **custom partition manager** for the **Django** ORM with **MySQL**. It enables automated partition creation (through **custom migrations**) and deletion (with support for all partition types). Currently being used in tables with up to **30 million** rows of **production** data.

Data Analyst Intern | [Decision Resources Inc.](#)

Aug 2017 – Sep 2017

- o Developed polynomial regression models with **52** input parameters **using R and Python (with NumPy)** to forecast price and demand of medical devices and products.
- o Created a page indexing and scraping software to automatically research, format, and compile medical device information using Python.
- o Effectively **increased cataloging efficiency** from ~300 product entries a day to **1000+**.
- o Managed large-scale enterprise databases with over **5,000,000+** entries using T-SQL.

Projects (30+ more on GitHub)

[MomentSync](#) | Python, Django, PostgreSQL, Nginx, Azure, Redis, JS, HTML, CSS

Jan 2019

- o An instant media sharing service that minimizes average photo and video syncing delay between devices to **less than 2.4 seconds**.
- o Implemented a **permission** system that enables private and public media sharing.
- o Adopted Secure Web Socket connections to deliver real-time media synchronizations for all authorized users on specified channels. **Serves 500+ concurrent connections**.
- o Images/videos are delivered by **Microsoft Azure CDN** to **decrease latency to <9ms**.
- o Deployed on Azure D4s v3 **Ubuntu** instance with **Nginx** proxy, Unicorn for **WSGI** (HTTP server) and Uvicorn for **ASGI** (socket server) at momentsync.net.

[Poppy Robot](#) | Java, Python, OpenCV, Android, Arch, Raspberry Pi

Nov 2018

- o A self-balancing, programmable, remotely controllable, Google Assistant robot.
- o Implemented a **multi-threaded server in Java** with custom **TCP socket** protocols, effectively decreased control and response latency to **less than 10ms**.
- o Applied Haar Cascade Classifiers with OpenCV for face tracking with **95% accuracy**.
- o Developed Android, Windows, Linux, and MacOS clients for remote control.

[Pather](#) | Java

Jun 2018

- o A **3D online multiplayer FPS** video game written in **pure Java** with no game engines.
- o Renders 3D graphics using **ray-casting** computational geometry technique.
- o Established server-client communications using **asynchronous multi-threaded TCP Sockets** for player interactions. Able to serve over **250 concurrent connections**.
- o Fabricated a procedurally generative maze algorithm using **Mersenne Twister** (a seeded pseudorandom number generator) and **DFS**.

Education

University of Waterloo

Candidate for Bachelor of Software Engineering

Sep 2018 – Apr 2023