

# Fang Han

in <https://www.linkedin.com/in/fang-han-368b1a124/>

🐙 <https://github.com/HanFa>

☎ +1-734-680-3913

✉ [hanfa@umich.edu](mailto:hanfa@umich.edu)

## 📖 EDUCATION

- **University of Michigan** Ann Arbor, MI  
*Computer Science B.S.E 3.85/4.00* Sept. 2016 – Dec. 2018  
Focus: Machine Learning, Web Systems, Embedding Systems, Operating Systems, Data Structure & Algorithms
- **UM-SJTU Joint Institute at Shanghai Jiao Tong University** Shanghai, China  
*Electrical and Computer Engineering B.S.E 3.60/4.00* Sept. 2014 – Aug. 2018  
Focus: Methods and Tools for Big Data, Cryptography, Computer Programming

## 👛 WORK EXPERIENCE

- **Affect LiDAR with EMI** Ann Arbor, MI  
*Research Intern | SPQR Lab* Jan. 2019 - Present
  - Exposed the vulnerabilities in LiDAR-based 3D obstacle detection algorithms when sensors are under electromagnetic interference. Simulate, predict, and confirm a decision alteration in high-level autopilot system. Deploy the simulation program using Docker containers in remote AWS servers.
  - Built a stand-alone visualization solution for point cloud files in the mainstream format (.pcd). Visualized the LiDAR traces and interference using OpenGL with the library Three.js.
- **Stack-structured L-Tage Branch Predictor** Ann Arbor, MI  
*Undergraduate Research Assistant | CADRE Lab* Jun. 2017 - Feb. 2018
  - Developed and validated a novel stack-based branch predictor inherited from L-Tage exploiting the computer architecture research platform (gem5). Achieved an average 3 % boosts with the SPEC2006 test suit in KIPS.

## ⚙️ PROJECTS

- **Game: Ultimate Opera Fight (MDE)** Oct. 2018 – Dec. 2018  
Developed, playtested, and showcased a multiplayer, first-person, rhythm shooting game with Unity3D (C#). Polished the game iteratively with feedbacks from project milestones. Managed and collaborated using Gantt charts and real-time dashboards.
- **Integrated Virtual Vehicle Simulation Platform on Android: Just Go (MDE)** Jun. 2018 – Aug. 2018  
Developed and presented an Android simulation platform to simplify the debugging process for location-related Carplay applications. Populated with plugins like the fake location generator, virtual driving dashboards, and joystick control driver.
- **Data Mining and Analysis on Big Data** Jun. 2018 Aug. 2018  
Structured, clean, and perform regression analysis on the 280GB Million Song Dataset within a 4-node HDFS cluster. Wrote a customized storage plugin for Apache Drill to extract data from .btf raw format.
- **Full Stack: Insta485** Jan. 2018 – Apr. 2018  
Developed and deployed a dynamic photo sharing websites with features like account management, a news feed, and infinite page scroll on AWS. Improved front-end experience with React components for like buttons and comment boxes. Designed a relational schema for the user, post, and like. Persisted user data by connecting the Flask framework to the SQLite database.
- **Deep Dive in Operating Systems** Jan. 2018 – Apr. 2018  
Implemented from scratch a multithreading library (mutex and cv), a paging memory management systems, and a multiuser, tree-structured, remote file system using sockets and POSIX threads. Our implementation passed 100% test cases.
- **Embedding System Design: Wanmei Package Sorting Robot** Oct. 2017 – Dec. 2017  
Built a package sorting robot with an Arm Cortex-M3 processor (SmartFusion FPGA). Enable UART communications among peripherals like motors (a conveyor belt and a bridge crane), LCDs and a camera. Won the best project award.

## >\_TECH STACK

**Languages:** Proficient in Python, C++, Javascript, SQL and Java. Familiar with MATLAB, R, Ruby and C#.

**Frameworks:** Android, Flask, Jinja, ReactJS, Electron, npm, Bootstrap, JQuery, Rails.

**DevOps:** Docker, Swarm, AWS, Git and Unix Bash.