## MINGHAO LI

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## EDUCATION

**Cornell University**
*Bachelor of Science*, Computer Science **May 2021 (Expected)**
GPA 4.187/4.3

## COURSEWORK

Practicum in Operating Systems (A+), Operating Systems (A), Computer Networks (A+), Embedded Systems (A+), Introduction to Analysis of Algorithms (A), Digital Logic and Computer Organization (A)

## RESEARCH INTERESTS

Systems and Networking, Security, Machine Learning

## AWARDS & HONORS

- Cornell University College of Engineering Undergraduate Research Funds **2020**
- Cornell University College of Engineering Dean's Honor List **2017 – 2020**

## PUBLICATIONS AND PAPERS

Duan, Y., Zhang, M., Zhao, X., Li, S., **Li, M.**, Xu, F. & Shi, E.
***Towards Transparency of Decentralized Applications via Automated UI-Logic Discrepancy Discovery***
Submitted to International Conference on Software Engineering **2020**
Contributed to the Model Checking Specification section, Evaluation section, and appendix.

Wu, H., Tian, X., **Li, M.**, Liu, Y., Ananthanarayanan, G., Xu, F. & Zhong, S.
***PECAM: Privacy-Enhanced Video Streaming & Analytics via Securely-Recoverable Transformation***
Submitted to International Conference on Mobile Computing and Networking **2020**
Contributed to all sections.

Wu, H., Tian, X., Gong, Y., Su X., **Li, M.** & Xu, F.
***DAPter: Preventing User Data Abuse in Deep Learning Inference Services***
Submitted to The Web Conference **2020**
Contributed to all sections.

## RESEARCH & RELATED EXPERIENCE

**Research Assistant (Advisors: Elaine Shi, Robbert Van Renesse)** **May 2019 – Present**
*Computer Science Department, Cornell University, Ithaca, NY*

- Currently working on analysis of smart contracts (computer programs that operate on blockchains) facilitated by static and dynamic information and Machine Learning, and security and privacy in Artificial Intelligence.
- Funded by the College of Engineering Undergraduate Research Funds Summer 2020 to accomplish a research project on recovering the business logic of smart contracts from function model graphs using

neural networks. Concluded that the technique was promising, but wouldn't outperform existing methods much by relying on static information only. The conclusion led to my current research project on incorporating dynamic information into smart contract analysis.

- Worked on the DApps (decentralized applications, which are applications that run on decentralized networks such as blockchains) security tool DAPPSCOPE, which automatically discovers the discrepancy between a DApp UI and its contract code. Defined the high-level specifications used by DAPPSCOPE to check against a DApp's function model. Researched the top 100 DApps on *Dapp.com Ranking* to ensure the real-life coverage of DAPPSCOPE. Collected 22 DApps for evaluation. Examined the evaluation results and recorded 17 novel safety issues found by the tool.
- Researched on constructing graphs from Ethereum data and applying node classification algorithms to the graphs. Evaluated the algorithms' performances by checking whether potentially malicious nodes were computed as similar.

**BookHub** **2019**

*Course Project*

- Developed BookHub, which is an application that generates book recommendations based on users' favorite books, preferred genres, and Goodreads reviews.
- Designed and implemented the information retrieval and book recommendation algorithms. In charge of the front-end development. Collected relevant information of over 10,000 books from Goodreads, and computed the similarity between books.
- The project is available at https://cu-bookhub.herokuapp.com/.

**Weather Station** **2019**

*Course Project*

- Built a mini weather station which gets and displays the real-time temperature and humidity of the environment using a DHT11 temperature-humidity sensor, an Adafruit 931 OLED display, and an FRDM-K64F board.
- Designed and implemented the hardware communication from scratch. Designed the wiring.
- The demo video is available at https://youtu.be/rXCpg2w4B9Q.

**Research Engineer Intern** **June – Aug 2018**

*Baidu, inc., Beijing*

- Read and discussed Machine Learning papers with the mentor. Solved basic Machine Learning problems such as predicting the possibility of survival of individuals in a disaster and small-scale facial recognition by applying the algorithms in the papers. Wrote presentations about Machine Learning.

## TEACHING EXPERIENCE

**Course Consultant – Operating Systems** **Fall 2020**

*Computer Science Department, Cornell University, Ithaca, NY*

- Hold weekly office hours to help students comprehend course materials and complete homework. Develop homework. Supervise study groups. Grade homework and exams.

**Course Consultant – Discrete Structures** **Fall 2018**

*Computer Science Department, Cornell University, Ithaca, NY*

- Held weekly office hours to help students comprehend the materials and develop sound proofs. Graded homework and exams.

## OUTREACH ACTIVITIES

**Instructor** **Jan – May 2019**

*Code-4-Kids, Cornell University*

- Taught second and third graders basic computational concepts using Scratch. Helped students develop their projects.

**Logistics Chair** **Aug 2018 – May 2019**

*Amber Dance Troupe, Cornell University*

- In charge of the management and the purchase of costumes and props.
- Participated in organizing the annual showcase that attracted more than one thousand viewers.

## LANGUAGES

- Chinese: Native language.
- English: Speak fluently and read/write with high proficiency

## HOBBIES & INTERESTS

- Exercising: Do sit-ups/curl-ups and push-ups almost every day for more than 6 years. Jog outside whenever my schedule and the weather permit.
- Going to the movies: Have been a huge fan of movies for 15 years.
- Drawing: Attended weekly lessons for 6 years. Draw in my leisure time.
- Broadway: Go to a Broadway show almost every time I travel to New York City.
- Cleaning: A bit obsessed with a clean and tidy environment.
- Disney World: Make and plan annual/biannual trips to Disney World.