

Yu MAO

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EDUCATION

Southwest Jiaotong University, CHN

Bachelor of Engineering in Telecommunication Engineering

09/2015-07/ 2019

✧ Cumulative GPA: 3.64/4.0

✧ Major Courses: Data Structure (A), Computer Network Security Technology (A) Java Programming (A-)

National University of Singapore

Summer Workshop

07/2018-08/2018

✧ Project: DOTA—Defense of the Ancients (A)

Johns Hopkins University

Master of Computer and Information System Security

08/2019-now

✧ First semester GPA: 3.575/4.0

RESEARCHES

Research on Network Security—Defense of the Ancients

Researcher & Group Leader, NUS

07/2018-08/2018

- Detected the security vulnerability of Simblee under professor's guidance as well as self-learning in the working and communication methods of Simblee microcontroller.
- Digested the development of IOS system rapidly within two days.
- Developed a safeguard device called CHAP and introduced Hash Function and random values to make up the security vulnerability of OTA Mode and Bluetooth.

College Students Research Training Program—Bluetooth Oven Thermometer

Researcher & Group Leader

05/2016-05/2017

- Aimed to realize real-time temperature monitoring to the oven through Bluetooth communication.
- Mainly responsible for Bluetooth communication transmission, MPU programming and part of the mobile APP programming.
- Received 2000 RMB fund support from the university.

Portable Heart Rate Monitor

Researcher & Group Leader

09/2017-10/2017

- Introduced the 430 microcontroller and carried Bluetooth module to the design of the monitor.
- Draw and made PCB circuit board all by ourselves.

TCP and TLS protocol rewriting

Researcher & Group Leader

09/2019-12/2019

- According to RFC793 and RFC5246 we create our own protocol by writing our own RFC.
- Rewriting the retransmission, sliding windows to ensure the correctness of transmission under unstable network and add nonce to increase TCP protocol's safety. Utilizing the ECDH algorithm to do key exchange, X.509 to do the verification work and RSA to generate premaster secret which will be used to generate session key afterwards.
- Creating an escape room and a bank to record payment and test security of our protocols.

Malicious URL Detection

08/2019-10/2019

Researcher & Group Leader

- Splitting every URL, Removing redundant feature and Using TD-IDF algorithm to preprocess the data.
- Using Logistic Regression ,SVM, Random Forest to classify both the benign and malicious URL.
- Training a model to classify the unknown URL and model's accuracy is about 90%.

Social Media Site

10/2019-now

● *Researcher & Group Leader*

- Using Django to do a social media site from Udemy. People can share interesting topics on it.

HONORS&AWARDS

✧ Grand Prize Scholarship, Southwest Jiaotong University (0.6%)	07/2018
✧ Merit Student Award & First Prize Scholarship, Southwest Jiaotong University (10%)	01/2018
✧ Honorable Mention Award, 2017 Interdisciplinary Contest in Modeling	11/2017
✧ Second Prize, 2017 Mathematical Contest in Modeling of Sichuan Province	10/2017
✧ Second Prize, 2017 May Day Mathematical Contest in Modeling	06/2017
✧ Second Prize, “Budding Plan” Science and Technology Innovation Training	05/2017
✧ Third Prize, 2016 Asia and Pacific Mathematical Contest in Modeling	04/2016

LEADERSHIP EXPERIENCES

Peer Counselor 09/2016-06/2018

- Provided voluntary academic tutoring for underclassman in School of Information and Technology.

Class Monitor 09/2015-Present

- Organized and supervised all kinds of activities within the class. Led the class to win the honor of “Advanced Class” for three times (10%).

Undersecretary in Science and Technology Innovation Center 09/2015-06/2017

- Took charge of hosting varied science competitions and activities in the university.

LANGUAGE&COMPUTING SKILLS

Computing Skills: Java, C Language, Objective C, Matlab, Python

Language Proficiency: Chinese(native), English (fluent)