YU MAO

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EDUCATION

Southwest Jiaotong University, CHN

Bachelor of Engineering in Telecommunication Engineering   *09/2015-07/ 2019*

✧ Cumulative GPA: <u>3.64/4.0</u>

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: <u>3.58/4.0</u>

RESEARCHES & PROJECTS

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. There is a window malicious users can utilize to hijack.
- Digested the development of IOS system rapidly within two days. Getting to know basic knowledge of Swift.
- Developed a safeguard device called CHAP using Xcode and introduced Hash Function and random values to make up the security vulnerability of OTA(Over the Air) Mode and Bluetooth which narrows the attack window size.

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, MCU programming and part of the mobile APP programming. Using C for MCU programming and java for mobile APP development.

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

- Spliting 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.

LEADERSHIP EXPERIENCES

Peer Counselor   *09/2016-06/2018*

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

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

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

Class Leader   *09/2015-06/2017*

- Organized and supervised all kinds of activities within class.
- Led the class win the honor of "Outstanding Class" for three times.