Yunyu Liu

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EDUCATION

Sep 2014 - Sep 2015 School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University
Sep 2015 - Jun 2018 Department of Electronic Engineering, Shanghai Jiao Tong University

Major: Information Engineering 3.43/4.3 Minor:Finance 3.57/4.3

Sep 2018 – Now College of Engineering, Northeastern University
Master of Science in Electrical & Computer Engineering
Major: Computer Engineering (Computer Network and Security)
Weighted GPA: 93.5/100
TOEFL: 104 (R29+L30+S22+W23) GRE: 326+3 (V156+Q170+AW3)

PUBLICATIONS & POSTERS

[TMM] Zhiyang Xia, Ping Yi, Yunyu Liu, Bo Jiang, Tiantian Xie, Wei Wang GENPass: A Multi-Source Deep Learning Model For Password Guessing, *IEEE Transactions on Multimedia* **(Under review)**

[ICC] Yunyu Liu, Zhiyang Xia, Ping Yi, Wei Wang, Yao Yao, Ting Zhu, Tiantian Xie GENPass: A General Deep Learning Model for Password Guessing with PCFG Rules and Adversarial Generation, *IEEE International Conference on Communications, ICC 2018* **(First Author)**

[VARA] Zhiyang Xia, Yunyu Liu, Ping Yi Password guess and analyze based on recurrent neural network, *The 10th Conference on Vulnerability Analysis and Risk Assessment, VARA 2017,* **(Second Author)**

SCIENTIFIC RESEARCH EXPERIENCE

Shanghai Jiao Tong University Wireless Network Attack and Defense Laboratory, Sep 2016 – Jun 2018
Supervisor: Prof. Ping Yi

Password cracking using deep learning

- Used Suffix Automaton(SAM), Aho-Corasick algorithm(AC Automaton) to analyze the passwords leaked from Chinese and English language environments
- Compared three different models'(BasicRNN, Long Short-Term Memory(LSTM) and Gated Recurrent Unit(GRU)) performances on password cracking
- Combined LSTM and Probabilistic Context Free Grammar(PCFG) models to create a more effective password guessing model(PL), which had a better performance than both LSTM and PCFG under the same circumstance.
- Implemented the idea of Generative Adversarial Net(GAN) and created a more general model(GENPass). GENPass learns from different datasets to generate a general wordlist which keeps a high matching rate in all datasets

Shanghai Jiao Tong University Undergraduate Innovation Project, Dec 2015 - Dec 2016

Supervisor: Prof. Ping Yi

Designed and accomplished an algorithm to detect and locate evil APs in the wireless network(using Linux, C)

- Researched and developed a detection algorithm in a small network based on MMSDU and a location algorithm based on the signal strength; a detection algorithm in a large network based on TTL
- Designed and accomplished an Android client for the large network(Android Studio)

Shanghai Jiao Tong University IIoT Research Center, Acemap, Jun 2017 - Jun 2018

Supervisor: Prof. Xinbing Wang, Post-Doctor Luoyi Fu

Analyzed the relationship of topics and authors

- Learned k-core and d-core(an algorithm extended k-core to directed graph)
- Designed an algorithm to create a directed graph depicting different topics in the Academic Network
- Used k-core algorithm, d-core algorithm and the directed graph to analyze the topics
- Used Gephi and javascript to visualize the relationship between different topics
- Analyzed the relationships of topics and authors

Northeastern University, Synergetic Media Learning Lab, Oct 2018 - now

Supervisor: Associate Prof. Yun Raymond Fu

Analyzed the EMG Signals

- Use Fourier Transform to preprocess the EMG signals
- Used LSTM algorithm to classifier the EMG signals

Learning from multi-views

- Use TSN and Dynamic-3D-Action-Recognition-on-Depth-Videos to extract features from RGB graph and depth graph
- Realize our model based on conditional GAN and triplet loss

PROFESSIONAL EXPERIENCE

Shanghai LiveSine Corporation, Internship, R&D, Jul 2016 - Sep 2016

Supervisor: Prof. Chunyu Zhao

Developed a Data Transfer Unit(DTU) with bluetooth and app.

- Designed an APP which can communicate with DTU by bluetooth protocol and with the server by TCP/IP protocol (using Delphi)
- Made sure that the communication will not be influenced by the electromagnetic field created by the strong direct current
- Designed the communication protocol
- Interpreted the data from DTU and showed them in a friendly user interface