

# Yunyu Liu

Email: [liu3154@purdue.edu](mailto:liu3154@purdue.edu)

Phone: +1 (857) 8919682

Website: <https://wenwen0319.github.io>

## EDUCATION

- 09/2018 – 05/2020 **Purdue University, Indiana, USA**  
*Ph.D., Major: Computer Science*
- 09/2018 – 05/2020 **Northeastern University (NEU), Boston, USA**  
*M.S., Major: Computer Engineering, GPA: 3.78*
- 09/2014 – 07/2018 **Shanghai Jiao Tong University (SJTU), Shanghai, China**  
*B.Eng., Major: Electrical Engineering, GPA: 3.40*  
*Minor: Finance, GPA: 3.57*

## PUBLICATIONS & POSTERS

- 08/2020 Yue Bai, Lichen Wang, **Yunyu Liu**, Yu Yin, Yun Fu, “Dual-Side Auto-Encoder for High-Dimensional Time Series Segmentation,” 20th IEEE International Conference on Data Mining (ICDM 2020)
- 07/2020 **Yunyu Liu**, Lichen Wang, Yue Bai, Can Qin, Zhengming Ding, Yun Fu, “Generative View-Correlation Adaptation for Semi-Supervised Multi-View Learning,” 16th European Conference On Computer Vision (ECCV 2020)
- 11/2019 Lichen Wang, **Yunyu Liu**, Can Qin, Gan Sun, Yun Fu, “Dual Relation Semi-supervised Multi-label Learning,” Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI 2020)
- 08/2019 Lichen Wang, Zhengming Ding, Zhiqiang Tao, **Yunyu Liu**, Yun Fu, “Generative Multi-View Human Action Recognition,” International Conference on Computer Vision (ICCV 2019) (Oral)
- 08/2019 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 (TMM)
- 05/2018 **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)
- 09/2017 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)

## SCIENTIFIC RESEARCH EXPERIENCE

**Northeastern University, Synergetic Media Learning Lab,**

**Oct 2018 - now**

Supervisor: Associate Prof. Yun Raymond Fu

Analyzed the EMG Signals

- Preprocessed the EMG signals using Fourier Transform.
- Employed a LSTM to classifier the EMG signals.

Multi-view Learning

- Utilized TSN and WDM to extract features from RGB graph and depth graph.
- Employed Generative models to fully explore multi-view information.
- Proposed a graph-based method to do the label-level fusion.

Semi-supervised Multi-View Learning

- Adapted domain adaptation methods to the multi-view learning.
- Employed Graph knowledge to help learning the representation.
- Utilized information entropy to help the fusion.

**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.

**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 the performances of three different models BasicRNN, Long Short-Term Memory (LSTM) and Gated Recurrent Unit(GRU) on dictionary attack.
- Combined LSTM and Probabilistic Context Free Grammar(PCFG) models to create a more effective password guessing model, 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 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 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).

## **WORKING EXPERIENCE**

**Shanghai LiveSine Corporation,**

**Jul 2016 - Sep 2016**

Supervisor: Prof. Chunyu Zhao

Position: Internship, R&D

Developed a Data Transfer Unit(DTU) with Bluetooth

- Designed and built a DTU with Bluetooth.
- Designed an APP which can communicate with the DTU by Bluetooth and with the server by TCP/IP (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.