

Yunyu Liu

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EDUCATION

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

PUBLICATIONS & POSTERS

- 04/2023 Peihao Wang, Shenghao Yang, **Yunyu Liu**, Zhangyang Wang, Pan Li, “Equivariant hypergraph diffusion neural operators,” ICLR 2023
- 12/2022 Yue Bai, Lichen Wang, **Yunyu Liu**, Yu Yin, Hang Di, Yun Fu, “Human motion segmentation via velocity-sensitive dual-side auto-encoder,” TIP 2023
- 01/2022 **Yunyu Liu**, Jianzhu Ma, Pan Li, “Neural Predicting Higher-order Patterns in Temporal Networks,” WWW 2022
- 10/2021 Lichen Wang, **Yunyu Liu**, Hang Di, Can Qin, Gan Sun, Yun Fu, “Semi-supervised Dual Relation Learning for Multi-label Classification,” TIP 2021
- 09/2021 Lichen Wang, Bo Zong, **Yunyu Liu**, Can Qin, Wei Cheng, Wenchao Yu, Xuchao Zhang, Haifeng Chen, Yun Fu, “Aspect-based Sentiment Classification via Reinforcement Learning,” ICDM 2021
- 01/2021 Yanbang Wang, Yen-Yu Chang, **Yunyu Liu**, Jure Leskovec, Pan Li, “Inductive Representation Learning in Temporal Networks via Causal Anonymous Walks,” ICLR 2021
- 08/2020 Yue Bai, Lichen Wang, **Yunyu Liu**, Yu Yin, Yun Fu, “Dual-Side Auto-Encoder for High-Dimensional Time Series Segmentation,” 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,” ECCV 2020
- 11/2019 Lichen Wang, **Yunyu Liu**, Can Qin, Gan Sun, Yun Fu, “Dual Relation Semi-supervised Multi-label Learning,” AAAI 2020
- 08/2019 Lichen Wang, Zhengming Ding, Zhiqiang Tao, **Yunyu Liu**, Yun Fu, “Generative Multi-View Human Action Recognition,” 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,” TMM 2019
- 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,” ICC 2018

SCIENTIFIC RESEARCH EXPERIENCE

Purdue University, CGV Lab

Jan 2022 – July 2023

Supervisor: Prof. Benes Bedrich

Terrain Generation using Single Image (Ongoing)

- Design an interactive user interface where users can input a terrain height field image along with sketches that denote ridges and valleys. Our model generates a terrain that follows the user's input sketches but visually similar to the input height field.

- Each sketch has a significant impact on the surrounding area. To accurately model the intricate interplay between each sketch and its corresponding region, we employ a graph-based model. This approach effectively disentangles various sketches and their associated influences.
- Additionally, generative models are applied to infuse further details into the terrain generation process.

Purdue University, GCOM

Sep 2020 – Dec 2021

Supervisor: Prof. Pan Li

High-order pattern in the temporal network

- Define the temporal hypergraph interaction expansion involving three nodes, referred to as a 'triplet'.
- Determine the nature of the interaction, the specific time at which it occurs, and the reasons behind its manifestation within this triplet.

Northeastern University, Synergetic Media Learning Lab,

Oct 2018 – Aug 2020

Supervisor: Prof. Yun Raymond Fu

Analyzed the EMG Signals

- Conducted preprocessing of EMG signals by applying the Fast Fourier Transform.
- Employed Long Short-Term Memory (LSTM) networks for EMG signal classification.

Multi-view Learning

- Utilized TSN and WDMM to extract features from RGB video and depth video.
- Employed generative models to comprehensively 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.
- Leveraged Graph knowledge to help learning the representation.
- Employed information entropy for fusion process.

Shanghai Jiao Tong University, IIoT Research Center, Acemap,

Jun 2017 - Jun 2018

Supervisor: Prof. Xinbing Wang, Prof. Luoyi Fu

Analyzed the relationship of topics and authors

- Designed an algorithm to create a directed graph depicting different topics in the Academic Network.
- Used k-core algorithm, d-core algorithm to analyze the 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

- 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.
- Design GENPass which learns from multisource datasets to generate a general wordlist.

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).