

# LU YAN

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## EDUCATION

### Shanghai Jiao Tong University

Undergraduate in Department of Computer Science and Engineering

Shanghai, China

September 2016 – Present

- Overall GPA: 84.43/100 GPA since Sophomore: 87.55/100
- Zhiyuan Honors Program of Engineering

## RESEARCH EXPERIENCE

### Neural Networks Guided Fuzzing Framework

July 2019 – Present

Advisor: Prof. Suman Jana

Columbia University

- Measured and compared the branch distance variation during the fuzzing process of American Fuzzy Loop (AFL) and our framework, providing compelling evidence in support of our method
- Assessed the reasons behind the outstanding performance of our method by ablation study of the benefits offered by seed selection and adaptive loss (two mutation strategies we proposed)
- Composed and submitted a paper to the 42nd International Conference on Software Engineering (ICSE'20) as third author

### Android Apps' Privacy Leakage Risk Evaluation

May 2019 – Present

Advisor: Prof. Haojin Zhu

Shanghai Jiao Tong University

- Proposed benign Apps with similar functions utilize common limited permission combinations while malwares tend to require more permissions independent of their functions, evaluated it by finding frequent term sets
- Established correspondence between Apps' requested permissions and private information listed in their privacy policies, based on which introduced a new metric to evaluate privacy leakage risk of Android Apps

### Dynamic Traffic Feature Camouflaging via GANs

June 2018 – July 2018

Advisor: Prof. Haojin Zhu

Shanghai Jiao Tong University

- Analyzed network flows using dpkt framework and identified each flow with 4-tuple (source address, source port, destination address, destination port)
- Transformed traffic data into normalized feature vectors; compared the effect of different generator and discriminator network structure on training result

## PUBLICATION

Jie Li, Lu Zhou, Huaxin Li, **Lu Yan** and Haojin Zhu "Dynamic Traffic Feature Camouflaging via Generative Adversarial Networks", in IEEE Conference on Communications and Network Security (CNS'19)

## SELECTED COURSE PROJECTS

### Machine Learning (taught by Prof. Quanshi Zhang) [[report](#)]

- Created positive and negative training/test samples from [FDDDB dataset](#), trained logistic regressor, Fisher model, SVM with 3 kernels, Xgboost, AdaBoost, and CNN for binary classification
- Designed and implemented a new face detection method utilizing morphological transformation operations, beating state-of-the-art selective search algorithm when combined with SVM classifiers on test set
- Analyzed and visualized features with PCA and t-SNE; personal project report achieved the highest recognition among all projects presented in the class

### Computer Networks (taught by Prof. Na Ruan) [[report](#)]

- Proposed the combination of Graph Neural Networks (GNN) and Generative adversarial Nets (GAN) to detect Sybil users in social networks
- Evaluated our method against 8 traditional ML models in [Cora](#) and real-world [Dianping](#) dataset, achieving  $2.27\times$  and  $1.61\times$  accuracy compared to KNN respectively

## HONORS & SCHOLARSHIPS

- Zhiyuan Honors Scholarship, Shanghai Jiao Tong University (top 5%)
- Zhiyuan Honors Research Program, Shanghai Jiao Tong University (The **only** EECS project out of 8 projects funded in 2018)

## ADDITIONAL INFORMATION

- **Standardized Tests:** TOEFL: 92 (R: 29, L: 21, S: 18, W: 24) GRE: 322 (V: 152, Q: 170) + 3.5
- **Volunteer Experience:** International Volunteer teacher in [Cambodia](#) (2017) and [Indonesia](#) (2018)
- **Interest:** Traditional Chinese folk dance, Calligraphy