

CONTACT INFORMATION Shawn Shan University of Chicago
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RESEARCH INTERESTS My primary research interest is the security and vulnerabilities of deep neural networks (DNN). I am particularly interested in develop robust systems against adversarial attacks on DNN and provide security on top of the backbox system. In addition, I worked on data-driven analysis of online social networks as well as online behavioral advertising in the HCI domain.

EDUCATION **University of Chicago** Sep 2016 - Present
B.S. Computer Science and Statistics Expected 2020

EXPERIENCE **Undergraduate Researcher** Sep 2017 - Present
SANDS Lab, University of Chicago
Co-advised by Prof. Ben Y. Zhao and Prof. Heather Zheng.

- *Defended Against Backdoor Attacks on DNNs:* Involved in building a robust defense system to detect backdoor attacks on deep neural networks.
- *Modeling User Behaviors:* Collected and analyzed user behavior on penny auction platforms with LSTM. Built a reinforcement learning agent which out-performs normal users.
- *Automated Text Generation:* Designed sequence to sequence models to transfer the style of existing writings. Generated adversarial text to examine possible attacks on Yelp review platform.

Undergraduate Researcher Feb 2017 - Present
SUPER group, University of Chicago
Advised by Prof. Blase Ur.

- *Online Tracking Transparency:* Investigated user's reaction to online third-party tracking through controlled surveys. Built a browser extension, including an LSTM real-time inferencing algorithm, that collects all of the tracking information during users' browsing. Use the extension to provide transparency of online tracking.

Undergraduate Researcher April 2017 - Oct 2017
The University of Chicago Booth School of Business
Advised by Prof. John Barrios.

- *Data-Driven Analysis on Economic Policy:* Crawled all of Environmental Protection Agency (EPA)s environment reports from 1963 to 2017. Parsed labor statistics from the 700+ differently formatted environmental report PDF documents.
- *Accountant Quality Analysis:* Parsed more than 20K LinkedIn profiles with Selenium. Store parsed data in a SQL database for faculty members. Analyzed the influence that CPA certificates have on peoples careers with regression models

PUBLICATIONS

1. Bolun Wang, Yuanshun Yao, **Shawn Shan**, Huiying Li, Bimal Viswanath, Haitao Zheng and Ben Y. Zhao. “Neural Cleanse: Identifying and Mitigating Backdoor Attacks in Neural Networks” *To Appear: Proceedings of IEEE Symposium on Security and Privacy (SP’19)*
2. Xinyi Zhang, **Shawn Shan**, Shiliang Tang, Haitao Zheng and Ben Y. Zhao. “Penny Auctions are Predictable: Predicting and profiling user behavior on DealDash” *Proceedings of ACM Conference on Hypertext and Social Media (HT)*. Baltimore, MD, July 2018
3. Claire Dolin, Ben Weinshel, **Shawn Shan**, Chang Min Hahn, Euirim Choi, Michelle L. Mazurek, Blase Ur. “Unpacking Perceptions of Data-Driven Inferences Underlying Online Targeting and Personalization” *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)*. Montreal, QC, Canada, April 2018
4. Y Li, J Zhao, Y Li, X Xu, L Cui, B Zhang, **S Shan**, Y Geng, J Li, B Li, Y Gao “Studies on the environmental health effects and ecotoxicology of mercury by synchrotron radiation-based techniques” *Scientia Sinica Chimica* 45 (6), 597-613.

CONFERENCE PARTICIPATION

ACM Conference on Computer and Communications Security (CCS 2018), October 2018
USENIX Security Symposium (USENIX 2018), August 2018
ACM SIGCHI Conference on Human Factors in Computing Systems (CHI 2018), April 2018
Symposium on Usable Privacy and Security (SOUPS 2017), July 2017

HONORS AND AWARDS

2017 SOUPS’17 Distinguished Poster Award
2017 Travel Grant for SOUPS’17
2017 University of Chicago’s Dean’s List

REFERENCES

Ben Y. Zhao
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