Yankai Jiang

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Education

Northwestern University IL, USA

Master of Engineering in Computer Engineering *Sept. 2021 – Jun. 2023 (expected)*

- Overall GPA: **3.95/4.0**
- Courses: Computer Network, The Design and Analysis of Algorithms, Operating System, Kernel and Other Low-level Software Development, Computer Architecture, Distributed System, Advanced Computer System Security, Machine Learning, Programming Language, Data System Seminar

Xi'an Jiaotong University Xi'an, China

Bachelor of Engineering in Automation (Youth Program, equivalent to Honors Program) *Aug. 2016 – Jun. 2020*

- Overall GPA: **84.84/100**, 4.3-Scale GPA: **3.43/4.3**.
- Honorary Graduate of Qian Xuesen College.

Experience

Research Assistant Xi'an, China

Control Theory and Control Engineering Research Institute - Xi'an Jiaotong University *Feb. 2020 – Aug. 2020*

- Advisors: Qingyu Yang, Professor, School of Automation Science and Engineering, Xi'an Jiaotong University; Dou An, Associate Professor, School of Automation Science and Engineering, Xi'an Jiaotong University.
- Bachelor's thesis: "*Research on Privacy Protection Mechanism of Electric Energy Transaction via Blockchain*".
- Researched on cross-domain privacy protection via blockchain based on undergraduate thesis.
- Deployed a distributed computer system and simulated transaction processes via blockchain.

Research Intern Singapore

National Cybersecurity R&D Laboratories - National University of Singapore *Jul. 2019 – Aug. 2019*

- Advisor: Ee-Chien Chang, Associate Professor, School of Computing, National University of Singapore.
- Simulated Address Resolution Protocol (ARP) attacks in Oracle VM VirtualBox to display security of system.
- Implemented distributed system and SPLUNK platform to simulate ARP attacks for NUS teaching; created 10,000 Linux sessions for system evaluation.
- Designed two attacking scenarios to reproduce vulnerability CVE-2017-7494, CVE-2019-12735, CVE-2019-13272.
- Participated in a paper work: *WATSON: Abstracting Behaviors from Audit Logs via Aggregation of Contextual Semantic"(NDSS 2021)*

Research Assistant Xi'an, China

Laboratory of Intelligent Network and Network Security - Xi'an Jiaotong University *May 2018 – Apr. 2019*

- Advisors: Pinghui Wang, Professor, School of Automation Science and Engineering, Xi'an Jiaotong University; Jing Tao, Associate Dean, School of Cyber Science and Engineering, Xi'an Jiaotong University.
- Created a system for retrieving Packet Capture (PCAP) and conducted software correlation analysis.
- Developed scripts to enable unattended installation for quick system restoration in virtual environments.
- Obtained isolated PCAP in virtual machines with Sniffer (packet analyzer) and Monkey (monkey testing tool).
- Applied Random Walks Algorithm on Directed Graph and analyzed software similarity from PCAP data.

Course Projects

Supervised Part-of-Speech Tagging based on Hidden Markov Model (HMM) and Viterbi Algorithm

- Used HMM and Viterbi algorithm to conduct supervised training, and achieved 0.966 prediction accuracy.
- Ranked 1st among 45 students in the Machine Learning (MATH525207) course project.

Single Voice Recognition System

- Extracted Mel Frequency Cepstrum Coefficient (MFCC) features with Python from 500 people's voice data.
- Used Dynamic Time Warping (DTW) to classify MFCC features with accuracy of 84.32%, compared to accuracy of machine learning algorithms: KNN (60.13%), CART (58.33%), Bayes (74.21%), and RNN (95.23%).
- Achieved an accuracy of 95.23% based on the voice input of number 0 through 9 in Chinese.

Teaching

CS340 Introduction to Computer Networks Peer Mentor, Fall 2022

Technical Skills

Programming: Python, C++/C, C#, Java; SQL; MATLAB; Verilog, VHDL; LaTeX, Markdown
OS: Windows, Linux, MacOS
Applications: SPSS, LabVIEW, Microsoft Office, Autodesk Inventor, IDA, Altium Designer, Vensim