Yankai Jiang

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Education

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**
- Courses: Computer Network (86/100), Network and Information Security (88/100), Database Knowledge and Application (92/100), Parallel Programming and Optimization (90/100), C++ Programming (97/100), The Design and Analysis of Algorithms (94/100), Digital Electronics (89/100), Wireless Sensor Network (87/100)

Experience

Research Assistant Xi'an, China

Control Theory and Control Engineering Research Institute - Xi'an Jiaotong University *Feb. 2020 – Oct. 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 three 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 based on training set augmentation.
- 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.

Technical Skills

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