Shangzhi Xu

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EDUCATION

Beijing University of Posts and Telecommunications (BUPT) Beijing, Sep. 2019 - Jul. 2023
Bachelor of Engineering in Computer Science (GPA: 3.56/4.0)
Honors: University Third-Class Scholarship (Academic Year of 2019-2020)
Outstanding Class Cadre (Top 1 among 30 candidates)

PROJECTS

Fuzz Test on Binary software Beijing, Aug. 2022 – Present
Research Intern, supervised by Prof. Chao zhang from Tsinghua University
Description: Conduct fuzzing test on close source software like WPS office by using ZAFL
Responsibilities:

- Improve the performance and code coverage of fuzz test
- Base on ZAFLto carry out the fuzz test

Java Program's Vulnerability Mining and Intrusion Detection (JVD) Beijing, Feb. 2021 - Jul. 2022
Researcher, supervised by Prof. Weiping Wen from Peking University
Description: The project aimed at developing a set of vulnerability scanner for Huawei, to detect vulnerabilities like Deserialization, XSS, SQL Injection, and Null Pointer Call in the system. We also adopted RASP to block malicious inputs.
Responsibilities:

- Converted Java code to jimple code based on Soot, found the vulnerabilities according to IFDS algorithm and improved scanner performance via Def-use graph
- Realized the detection and interception of hostile attacking stream based on the established vulnerability database and Baidu open software OpenRasp

Python NLP Project: Chat_bot and Search Engine Beijing, Sep. 2021 - Jun. 2022
Researcher, supervised by Prof. Yulong Wang & Prof. Xiuquan Qiao from BUPT
Description: Realized NLP with python, designed a Chat_bot program and a Search Engine program with improved properties that could be better used in reality.
Responsibilities:

- Based on NLTK and Parse, designed the Chat_bot script, realizing functions like automatic testing, key words stemming, sentence analysis, spelling correction, synonym matching etc.
- Based on NLTK, used Django and realized a demo of search engine, used Selenium to crawl news, tf-idf algorithm to extract key words, NLTK to extract input info on the user's end, and cosine similarity to determine final matching

Achievements: Chat_bot program scoring 96/100 (ranking Top 5/170+)
Github: https://github.com/ShangzhiXu/Programming-practice-chat_bot
Search Engine program scoring 94/100
Github: https://github.com/ShangzhiXu/Searching-Engine

Mini OS Project Beijing, Jan. 2022 - Jun. 2022
Researcher, Supervised by Prof. Wensheng Li from BUPT
Description: Realized with C++, in the Mini OS operating system, a series of basic functions like process management, memory management, UI design and device management etc.
Responsibilities:

- Designed the file system, process management, and memory module by referring Linux, realized the memory manager module's Safe Stack function by referring Fuchsia OS

Achievements: Scored 93/100 and ranked Top 1 in terms of group members' contribution

INTERNSHIP

Hillstone Corporation Beijing, Jul. 2021 - Sep. 2021

Security R&D Intern

- Conducted analysis work on Binary virus' behavior and wrote reports
- Applied tools like IDA, x32dbg, ollydbg to achieve virus' decrustation and analysis
- Used C++ to develop a program of finding blank space in PE file's, adopted windows API to fill the blank space with random bytes and generated new virus, thus remedied the defect of new virus' detouring of searching engines
- Compiled the work with an article published on the *Network Security Technology & Application Journal*. Issue 2, 2022

PUBLICATIONS & PATENTS

[1] Shangzhi Xu, Guangzong Gui: Limitation and Verification of Certain Virus Detection Engines, *Network Security Technology & Application Journal*. Issue 2 (2022)

[2] Software Copyright Registration Certificate for Red Bull App V 1.0, registration ID: 2021SRE019061

Patent Certificate: application in progress

SKILLS

Language: TOEFL 105

Computer: C/ C++, Python, Java

Experience: experienced in html/css/js, MatLab;,web Spider, Assembly Language, IDA, x32dbg, ollydbg, Vulnerability Mining and Data Processing Skills, Binary Vulnerability Mining, System Security

Achievements

1. Won *the 1st Prize Group Award* (university-level) among 600+ teams,
2. Won *the 2nd Prize Award* (provincial level of Beijing) among 1024 teams in the 7th Internet+ Competition;
3. Won *the 2nd Prize of the 17th Challenge Cup* in Beijing among over 500 teams;
4. A project was issued with a patent and software copyright certificates, and whole system has been contracted and applied by 6 breeding enterprises with earned profit exceeding 300,000RMB till now.