Chaoqun Guo

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Ph.D Candidate in Software Engineering Beijing Jiao Tong University (BJTU)
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Pursuing a Ph.D. in Software Engineering with a focus on Industrial Control Network Intrusion Detection. Contributed to multiple funded research projects, advancing security methodologies for industrial control networks. Expert in Linux and Python, with skills in project management, data analysis, machine learning, and software development. Experienced in designing security solutions, conducting threat analyses, and developing detection algorithms.

Education

September 2020 - Present
School of Software Engineering, **Beijing Jiao Tong University**, Ph.D. Candidate in **Software Engineering**

September 2018 - June 2020
Department of Information Institute, **Captal University of Economics and Business**, Master's Degree in **Software Engineering**

September 2014 - June 2018
School of E-commerce and Logistics Management, **Henan University of Economics and Law**, Bachelor's Degree in **E-commerce**

Research Experiences

Research Projects

Industrial Control Network Intrusion Detection — Developed a novel intrusion detection system for industrial control networks, addressing the long-tailed problem through the divide-then-conquer paradigm. Achieved a 95% detection rate and 0.1% false positive rate, outperforming existing solutions by 10% in detection rate and 0.2% in false positive rate.

Publications

Guo C, Wang N, Sun Y, et al. DTC: Addressing the long-tailed problem in intrusion detection through the divide-then-conquer paradigm[C]//2023 IEEE 29th International Conference on Parallel and Distributed Systems (ICPADS). IEEE, 2023: 1319-1326.

Competences & Languages

Technical Skills

Programming Languages — Proficient in Python, Shell.
Software Development — Comprehensive understanding of the software development lifecycle, with experience in Agile and Waterfall methodologies.
Algorithms and Data Structures — Advanced knowledge with a focus on code optimization.
Version Control — Experienced with Git, GitHub, and GitLab.
Data Analysis & Machine Learning — Proficient with tools like Pandas and NumPy. Experienced with Scikit-Learn, PyTorch.

Project Management & Collaboration

Project Management — Skilled in planning, execution, and coordination using tools like JIRA.
Collaboration Tools — Familiar with Confluence and Microsoft Teams for team collaboration.

Tools & Frameworks

IDEs — Proficient with Visual Studio Code, PyCharm.
Automation Tools — Knowledgeable in Docker, and docker-compose for automation and continuous integration.
Development Frameworks — Experienced with Django, Flask.

Soft Skills

Problem-Solving — Demonstrated ability to analyze complex problems and propose effective solutions.
Communication — Excellent communication skills, capable of conveying technical information clearly and writing comprehensive technical documentation.
Teamwork — Proven track record of effective collaboration within multidisciplinary teams, coordinating resources and tasks efficiently.

Languages

English — Reading & Writing (good) with a CET-6 certificate; Listening & Speaking (conversant)

Computer Skills

- DragonFly BSD operating system developer: 200+ code commits; kernel and system utilities; participate in discussions and anwser questions in mailing lists and the IRC channel.
- Use Ansible to manage a VPS running DragonFly BSD that serves personal email, authoritative DNS, website, Git, IRC, etc.
- Built and administrate the workstations, a 4-node computer cluster, and network facilities for the team.
- Participated in building and testing the SKA high-performance cluster prototype (1 login node + 1 data node + 4 computing nodes) in Shanghai Astronomical Observatory.
- Designed and developed the whole website (Django, Bootstrap, jQuery) for "The 1st China–New Zealand Joint SKA Summer School" in 2014.

Personal Projects

- `atoolbox`: (Python, Shell) Various tools collected over the years, to help manage systems, do daily tasks, analyze data, etc.
- `dfly-update`: (Shell) A simple tool to update a DragonFly BSD system.
- `openrcs`: (C) Enhance `OpenBSD RCS`, to make it compatible with `GNU RCS`.

Research Achievements

- Developed the low-frequency radio sky image simulation software: `FG21sim`.
- Developed a suite of utilities to semi-automate the X-ray astronomical data analysis: `chandra-acis-analysis`.

Internships

September 2019 – December 2023
Data Analyst @ Artificial Intelligence Research Institute of Beijing Lenovo Software Co., Ltd.,Beijing

- Search and scrape product and advertising data from Amazon web (Python, Requests, BeautifulSoup).

July 2013 – September 2013

Web Developer @ 97 Suifang (startup company),Shanghai

- Developed the back-end (Django) to support user registration, data storage and search.
- Developed the front-end (jQuery, AJAX) to visualize the temporal variations of a patient's examination indicators.