

JUNMING LIU

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EDUCATION

- Zhejiang University** Sept. 2022 – Present
Master of Engineering in Electronic and Information Engineering
- **GPA:** 89.4 / 100
 - **Advisors:** Prof. Wenhai Wang and Dr. Peiyu Liu
- University of Science and Technology Beijing** Sept. 2018 – Jun. 2022
Bachelor of Engineering in Automation
- **GPA:** 91.4 / 100 (3.91 / 4.00), **Ranking:** 4 / 170 (Top 3%)
 - **Graduation Project:** Remaining Useful Life Prediction Based on Particle Filter Algorithm

PUBLICATIONS

Paper (*equal contribution)

- [1] Peiyu Liu* (advisor), **Junming Liu***, Lirong Fu, Kangjie Lu, Yifan Xia, Xuhong Zhang, Wenzhi Chen, Haiqin Weng, Shouling Ji, Wenhai Wang. “Exploring ChatGPT’s Capabilities on Vulnerability Management.” [pdf] *In Proceedings of the 33rd USENIX Security Symposium (USENIX Security)*, 2024.

Patents

- [2] Wenhai Wang (advisor), **Junming Liu**, Peiyu Liu, Lirong Fu. “Kernel Data Race Detection Based on Patch and Concurrent Behavior Pattern Analysis.” Chinese Patent No. CN118171284A, 2024.
- [3] Wenhai Wang (advisor), **Junming Liu**, Bin Xu, Peiyu Liu, Qiuting Wang, et al. “Vulnerability Type Adaptation Program Slicing Method and Device, Electronic equipment.” Chinese Patent No. 202410956135.9, 2024.
- [4] Wenhai Wang (advisor), Tong Ye, Xuhong Zhang, Peiyu Liu, Bin Xu, **Junming Liu**. “Method and Device for Automatic Generation of Annotations for Binary Code Text.” Chinese Patent No. CN117170673B, 2023.

Software Copyrights

- [5] **Junming Liu**, Mohan Jing, Huiyuan Tan, Yuting Zeng, Guoqiang Zhang, Fangyu Lei. “Data-Driven Industrial Process Monitoring and Fault Detection System.” Chinese Software Copyright No. 2021SR0315424, 2021.

RESEARCH EXPERIENCE

- Large Language Models Assisted Vulnerability-related Program Slicing** 2024 – Present
Project Leader, Advisor: Dr. Peiyu Liu and Prof. Wenhai Wang Zhejiang University
- **Overview:** A novel program slicing method integrating LLMs and static analysis tools, where LLMs analyze vulnerabilities, develop slicing strategies, and assess result completeness, while static tools identify precise dependencies, leading to improved performance in downstream tasks.
 - **Contribution 1:** Proposed and implemented the integration of LLMs’ semantic analysis with static analysis tools’ precise data and control flow tracking, innovating a new approach to vulnerability-related program slicing.
 - **Contribution 2:** Applied the program slicing method to improve the reliability and accuracy of downstream tasks such as vulnerability detection and patch correctness assessment.
 - **Achievement:** Authored a patent, highlighting the approach’s potential to advance cybersecurity practices ([3]).

