Jinyuan Liu

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Education

Shandong University Sep. 2020 - Jun. 2024
School of Cyber Science and Technology *GPA Ranking: 1/70*

- **Main Courses:** Computer Composition and Principles, Basic Mathematics of Public Key Cryptography, Discrete Mathematics, Data Structures and Algorithms, Introduction to Cryptography.
- **Awards:**
  - National Scholarship 2021, 2022
  - The First Prize Scholarship 2021, 2022
  - Merit Student of Shandong University 2021, 2022
  - Special Merit Scholarship for Sports 2021, 2022
  - Special Merit Scholarship for Research and Innovation 2022
  - Special Merit Scholarship for Aesthetic 2021

Research Interest

- **Prompt Engineering:** The realm of prompt engineering has captivated my attention as a dynamic and pivotal aspect within the domain of language models. My research interest lies in meticulously refining the art of constructing prompts to not only elicit desired responses but also to influence the model's behavior effectively. By investigating diverse techniques in prompt design, I aspire to unlock the full potential of language models in understanding context, generating coherent content, and tackling nuanced tasks.
- **RLHF and Cryptography:** I am deeply intrigued by the intersection of Reinforcement Learning with Human Feedback and cryptography. This unexplored territory presents a unique opportunity to delve into the fusion of two cutting-edge fields. My research interest lies in leveraging RLHF techniques to enhance the LLM's ability to generate cryptographic algorithm or solve cryptographic problems.

Skills

Program languages: Python, C/C++, HTML/CSS, LaTeX
Languages: English (CET-4: 579 CET-6: 525)

Projects

CCF-Huawei Poplar Forest Fund | *Member* Oct. 2022 – Jun. 2023

- Contributed two patents to Huawei with the team, and one paper is under writing
- Solved the insufficient memory reliability of Huawei Kunpeng processors by using static multidimensional variable hazard analysis
- By constructing CFG and TCFG from the assembly code of C programs, I conducted loop analysis, cache analysis and access heat analysis
- Completed the algorithm design for read-write feature analysis

A Lattice-based Multi-keyword Fuzzy Public Key Searchable Encryption | *Leader* Sept. 2022 – Mar. 2023

- Designed a public key searchable encryption scheme based on ring LWE and ring SIS and completed the code implementation of this scheme
- Proposed an accurate method for multi-key fuzzy search
- The four steps of the scheme: Key generation, Trapdoor generation, Searchable ciphertext generation, and Test are millisecond - level performance

Academic Competitions

Mathematics Competition of Chinese College Students | *National first prize* Mar. 2022
http://www.cmathc.cn/

China Collegiate Algorithm Design and Programming Challenge Contest | *Gold medal* Mar. 2022
https://www.saikr.com/adpc/2022winter

National Cryptography Technology Competition | *National third prize* Mar. 2023
Designed a new lattice-based multi-keyword fuzzy public key searchable encryption scheme. Completed the design of the entire PEKS algorithm and conducted security proofs

English Competition of Chinese College Students | *National third prize* May 2021
http://www.chinaneccs.cn/

MCM/ICM | *Honorable Mention* Feb. 2022
Designed an algorithm for calculating carbon sequestration of American forest, so as to make a regression prediction of the carbon sequestration of American forest in the next 50 years