

Xiao Li, Ph.D. Candidate

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Research Objective

- 📖 I'm a fourth-year Ph.D. candidate and my research interest spans over the theory and practice of **computer security**, **programming languages** and **formal methods**. I'm particularly interested in **program synthesis** and its applications in **distributed systems** and **blockchains**.

Education

- 2019 – Present 📖 **Ph.D. Candidate, University of California, Riverside, USA** in Computer Science. GPA: 3.88/4
- 2017 – 2019 📖 **M.Sc., University of California, Riverside, USA** in Computer Science. GPA: 3.88/4 (Transferred to Ph.D. program)
- 2013 – 2017 📖 **B.E., Huazhong University of Science and Technology, China** in Information Security. GPA: 3.65/4 (Outstanding Graduates)
- 2016 📖 **Summer School, The University of Singapore, Singapore**. GPA: A+

Employment History

- 2019 – Present 📖 **Graduate student researcher.** Department of Computer Science and Engineering, UC Riverside.
- 2021 Fall 📖 **Teaching assistant (Compiler Project).** Department of Computer Science and Engineering, UC Riverside.



Research Projects

- 2021 – Present 📖 **Open Membership in Heterogeneous Quorum Systems** Advisor: Prof. Mohsen Lesani
- 2020 – 2021 📖 **Hamraz: Resilient Partitioning and Replication** (published in *SecP 2022*) Advisor: Prof. Mohsen Lesani
Our project enforces end-to-end confidentiality, integrity and availability policies for distributed systems in the face of Byzantine attacks. We present a security-typed object-based language and an information flow type inference system to automatically synthesize trustworthy-by-construction distributed system.
- 2019 – 2020 📖 **Hampa: Solver-aided Recency-Aware Replicated Objects** (published and artifact evaluated in *CAV 2020*) Advisor: Prof. Mohsen Lesani
Given a sequential object with its integrity and recency requirements, our project automatically synthesizes a correct-by-construction replicated object that guarantees convergence, integrity and recency properties with as little coordination as possible.
- 2016 – 2017 📖 **Research and Implementation of Identification Authentication System Based on Face Recognition** (Bachelor Thesis) Advisor: Prof. Yongquan Cui
I implemented one facial recognition system based on Principal Components Analysis and Linear Discriminating Analysis.
- 2014 – 2015 📖 **Conditional Identity-based Broadcast Proxy Re-Encryption and Its Application to Cloud E-mail** Advisor: Prof. Peng Xu
Participated in the implementation of the prototype for a cloud email system based on CIBPRE and obtained *3rd Prize* in the 8th National College Student Information Security Contest as team leader.





Publications

- 1 Li, X., Houshmand, F., & Lesani, M. (2022). Hamraz: Resilient partitioning and replication, In *S&P'22 (IEEE Symposium on Security and Privacy)*.
- 2 Li, X., Houshmand, F., & Lesani, M. (2020). Hampa: Solver-aided recency-aware replication, In *International conference on computer aided verification*. Springer.

Conference Presentations

- 05/2022  "Hamraz: Resilient Partitioning and Replication". S&P 2022 Session 11B
- 07/2020  "Hampa: Solver-aided Recency-Aware Replicated Objects". CAV 2020 Session 3B

Technical Skills

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| Programming Languages |  Java, Python (Advanced), C, C++ (Intermediate). |
| SMT Solvers(SMT-LIB) |  Z3, CVC4. |
| Databases |  SQL (PostgreSQL). |
| Other |  Version Control (Git), \LaTeX , MATLAB. |

Awards and Achievements

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| 2022 |  GSA Travel Award , University of California, Riverside. |
| |  Student Travel Award , 2022 IEEE Symposium on Security and Privacy. |
| 2019 |  Department Fellowship Award , University of California, Riverside. |
| 2017 |  Outstanding Graduates , Huazhong University of Science and Technology. |
| 2016 |  Outstanding Academic Award , Huazhong University of Science and Technology. |
| 2015 |  Third Prize , in the 8th National College Student Information Security Contest. |
| 2014 |  Public Welfare Scholarship , Huazhong University of Science and Technology. |