Xiling Li

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Research Interests

My research focuses on secure and private data management and its applications including verifiable query evaluation, oblivious outsourced querying and privacy-preserving machine learning, and works extensively with secure multiparty computation, zero-knowledge proofs and differential privacy.

Education

Ph.D. Computer Science, Northwestern University — Jun 2021 - Present
- Advisor: Dr. Jennie Rogers

M.S. Computer Science, University of Washington — Dec 2020
- Advisor: Dr. Martine De Cock
- Thesis: *Privacy-Preserving Filter-based Feature Selection with Secure Multiparty Computation*

B.S. Computer Science, University of California, San Diego — Dec 2016

Research Experience

Research Assistant, Northwestern University — Jun 2021 - Present
- *ZKSQL* (VLDB 2023) - *30+ Citations*: Proposed the first work [2] on verifiable and efficient query evaluation with zero knowledge proofs for ad-hoc SQL queries in an operator-at-a-time fashion.
- *RESCU-SQL* (VLDB 2023 demo): Proposed the first pragmatic OLAP system [1] with all-but-one malicious security for ad-hoc SQL queries.

Research Assistant, University of Washington @PPML Group — Sep 2019 - May 2021
- ICML 2021 - *70+ Citations*: Proposed the first general secure multiparty computation protocol [3] for FFS with malicious security and honest majority, and instantiated feature score protocol with MS-GINI.
- UbiTtention 2020 Workshop (UbiComp-ISWC 2020): Proposed Mean-Split Gini Impurity algorithm (MS-GINI) [4] for Filter-based Feature Selection (FFS).

Teaching Experience

Guest Lecturer
- *Database Architecture and Query Evaluation*, COMP_SCI 339, Northwestern University — Fall 2023
- *Relational Algebra*, COMP_SCI 339, Northwestern University — Spring 2024

Teaching Assistant
- *COMP_SCI 339: Intro to Database Systems*, Northwestern University — Spring 2023-2025

Industrial Experience

Research Intern, Dolby @ATG Experience Delivery — Sep 2025 - Dec 2025
- Conducted research on multimodal feature representations with masked latent prediction.
- Prototyped vector-oriented multimodal data management workflow.

Data Scientist, IBM @Watson IoT — Jan 2018 - Aug 2019
- Built a knowledge graph with Neo4J for a reasoning module in a disaster prevention platform.
- Integrated an image pre-processing module with OpenCV into a vision system for manufacturing.
- Developed a millisecond-level face recognition module using FaceNet for warehouse management.

Android Developer, Shenzhen Das Intellitech Co., Ltd @R&D Department — Jul 2017 - Dec 2017
- Developed an Android module for door access control by voice within an intelligent building system.

Services

Reviewer: ICML 21-25; NeurIPS 21-25; ICLR 22-26; AISTATS 25-26; AAAI 26; Asiacrypt 25

Technical Skills

C++, Python, EMP-toolkit, PyTorch, MP-SPDZ, AWS EC2, Ubuntu, Docker

Open Source Artifacts

Xiling Li, Chenkai Weng, Yongxin Xu, Xiao Wang, Jennie Rogers. *ZKSQL: Verifiable and Efficient Query Evaluation with Zero-Knowledge Proofs*. https://github.com/vaultdb/zksql, Feb 2023.

Invited Talks

Efficient Oblivious Database Joins, *Northwestern Database Reading Group*, May 2025.
ZKSQL, *Northwestern Database Reading Group*, Jan 2025.
Privacy + Machine Learning, *Northwestern AI Journal Club*, Nov 2021.

Selected Publications

[1] **Xiling Li***, Gefei Tan*, Xiao Wang, Jennie Rogers, Soamar Homsi. *RESCU-SQL: Oblivious Querying for the Zero Trust Cloud*. In Proceedings of the VLDB Endowment (PVLDB), Volume 16, No. 12, 4086-4089, 2023. DOI: https://doi.org/ 10.14778/3611540.3611627.

[2] **Xiling Li**, Chenkai Weng, Yongxin Xu, Xiao Wang, Jennie Rogers. *ZKSQL: Verifiable and Efficient Query Evaluation with Zero-Knowledge Proofs*. In Proceedings of the VLDB Endowment (PVLDB), Volume 16, No. 8, 1804-1816, 2023. DOI: https://doi.org/10.14778/3594512.3594513.

[3] **Xiling Li**, Rafael Dowsley, Martine De Cock. *Privacy-Preserving Feature Selection with Secure Multiparty Computation*, In Proceedings of the 38th International Conference on Machine Learning, PMLR 139:6326-6336, 2021.

[4] **Xiling Li**, Martine De Cock. *Cognitive load detection from wrist-band sensors.* In Adjunct Proceedings of the 2020 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2020 ACM International Symposium on Wearable Computers (UbiComp-ISWC '20). ACM, New York, NY, USA, 456–461. DOI: https://doi.org/10.1145/3410530.3414428.