JIAXIANG(Jerry) LIU

✉ jl6235@columbia.edu | ☎ +1 (647)515-2358

Education

University of Waterloo	**09/2016 – 06/2022**
Bachelor of Computer Science/Statistics/Combinatorics & Optimization	3.81/4.0
Columbia University	**09/2022 – 06/2027(expected)**
P.h.D of Computer Science	

Research Experience

University of Waterloo   **01/2021 – 08/2021**

Undergraduate Research Assistant   *Supervisor: Florian Kerschbaum*

- Designed a machine learning evaluation framework against membership inference attacks that compares privacy and utility performances of different models
- Evaluated Differential Privacy as a defence against membership inference attacks along with state-of-the-art regularization techniques

University of Waterloo   **06/2020 – 08/2021**

Undergraduate Research Assistant   *Supervisor: Xi He*

- Designed and implemented a cache-aware system that answers incoming queries using cached results under Differential Privacy
- Proposed dynamic Blowfish Privacy, a privacy policy generated during interactive database exploration for better utility and efficiency
- Built a full-stack system integrating privacy mechanisms involving dynamic Blowfish

University of Waterloo   **04/2020 – 09/2020**

Undergraduate Research Assistant   *Supervisor: J.Ian Munro*

- Developed a novel, deterministic algorithm to improve the existing information-theoretical upper bound of the 2-color majority problem
- Formalized adversaries to determine information-theoretical lower bound for the 3-color partition problem

Publications

Published

- **Jiaxiang Liu**, Karl Knopf, Yiqing Tan, Bolin Ding, Xi He, "Catch a Blowfish Alive: A Demonstration of Policy-Aware Differential Privacy for Interactive Data Exploration", VLDB 2021
- Miti Mazmudar, Thomas Humphries, **Jiaxiang Liu**, Matthew Rafuse, Xi He, "Cache Me If You Can: Accuracy-Aware Inference Engine for Differentially Private Data Exploration", VLDB 2023

Work Experience

Nusoft Solutions   **Bloomfield Hills, Michigan**

Dynamics CRM Software Developer   01/2019 – 04/2019

- Enabled on-premise ADFS authentication from online ADAL authentication for dynamics CRM on mobile applications
- Enabled synchronization of user data and corresponding metadata between MySQL and Dynamics CRM
- Migrated mobile applications from Ionic/Angular 3 to Ionic/Angular 4 for both android and ios platforms

Larsen & Toubro Infotech   **Mississauga, Canada**
API Development & Data Modeling   05/2018 – 08/2018
- Built a relational database based on existing data about mutual funds
- Constructed entity-relationship diagrams with respect to the relational database
- Developed a RESTful API based on existing SOAP web service

Ctrip   **Shanghai, China**
Machine Learning Algorithm Developer   05/2017 – 08/2017
- Constructed and maintained real-time training/testing datasets with Apache Hive
- Designed algorithms for personalized recommendation systems with respect to travel destinations
- Improved prediction accuracy by 8% through regularization on noisy datasets.

Awards and Scholarships

University of Waterloo President's Scholarship	09/2016
NSERC Undergraduate Student Research Award	05/2020
Math Undergraduate Research Award	05/2021

Skills

- Languages: C++ · C · Python · SQL · TEX· C# · JavaScript
- Frameworks: React JS · Excel(VBA) · Apache Spark · Linux