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Personal Page

Yuxi Chen

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Professional Experience

Research Scientist | Meta (formerly Facebook)
Explore and develop secure and safe data access solutions for external researchers. Feb 2020 – Present

Open Research & Data Transparency

Researcher API

- Designed and developed API Platforms and Data Platforms to empower data sharing with academic researchers to study Meta's role in social science (Researcher API).
- As the tech lead, defined strategy and technical roadmap of API data sharing, launched academic keyword search on billions of real-time and historical data across public Groups, Pages and Events on Facebook. Built up and maintained the back-end infrastructures on AWS, including Proxy, Kubernetes, Container, Terraform, JupyterLab.

US2020 Election Research

- Conducted the largest ever experiments on Facebook and Instagram to study social platform's impact on the 2020 election.
- Provided technical support as the main team member, including implementing consent flows, de-activating/reactivating 1.6M participants' Facebook and Instagram accounts, and managing data transfer between NORC and Meta leveraging EventBridge/Lambda function.

SQL Parser

- Developed UPM-based tool to parse queries from external researchers into important statistics, enabling more advanced safety checks and monitoring of data access patterns.

Survey Insights

- Developed Survey Insights, a platform that enables linking Facebook data to external survey data and facilitates recruitment for Facebook/Instagram surveys using external vendor panels.
- Contributed to React UI implementation and tokenization for identity protection.

Privacy & Security

URL Sanitation

- Designed and implemented safe and secure URL data release process to avoid any leakage of sensitive data from parameters.

Private Survey Analysis

- Designed and developed an end-to-end solution to facilitate secure uploading of non-Meta data from external researchers to Meta-owned environment for analysis. Ensured the confidentiality of analyzed results and derivatives by obfuscating them from Meta.
- As the tech lead, proposed and leveraged homomorphic encryption to protect the non-Meta data and its derivatives during analysis.

Education

The University of Chicago (Uchicago), Chicago, IL — Sep 2016 – Dec 2019
Ph.D. of Computer Science, supervised by Prof. Shan Lu

The University of Chicago (Uchicago), Chicago, IL — Sep 2014 – Sep 2016
Master of Computer Science, supervised by Prof. Shan Lu

Wuhan University, Wuhan, China | GAP: 3.73 (5/256) — Sep 2009 – Sep 2013
Bachelor of Computer Science and Technology

Skills

- Languages: PHP/Hack, C, C++, Python, JavaScript, Terraform, Flutter, SQL, Java
- Building Tools: Open API, GraphQL, Mercurial, Git, ReactJS
- Instrumentation & Analysis: LLVM, WALA, GCC, GDB
- Tech: Full-stack development, Front-end development, AWS

Academic Experience

BFix: Automatically Fixing Concurrency Bugs via Bypassing Uchicago

- Investigated bypassing strategies in fixing concurrency bugs and developed tools to automatically generate high-quality bypassing patches.

PCatch: Automatically Detection Performance Cascading Bugs in Cloud System Uchicago

- Proposed adapted happens-before model to detect performance cascading bugs in distributed systems; designed and implemented loop scalability analysis.
- As a co-author, our paper was accepted by EuroSys'18.

Transactional Memory Support for Concurrency-Bug Failure Recovery in Production Runs Uchicago

- Explored the design space of concurrency-bug failure recovery, leveraging hardware and software transaction memory techniques to help software survive from concurrency-bug failures.
- As the first author, two papers were accepted by ATC'18 and TPDS'18.

Understanding and Generating High Quality Patches for Concurrency Bugs Uchicago

- Investigated the gap between manual patches and previous automatically generated patches and designed tools to automatically generate patches that are as simple as manual ones.
- As a co-author, published a paper on this work at FSE'16.

Publications

- **Yuxi Chen**, Shu Wang, Shan Lu, Karthikeyan Sankaralingam, "Applying Transactional Memory for Concurrency- Bug Failure Recovery in Production Runs", *IEEE Transactions on Parallel and Distributed System 2018*, no. 5 (2018): 990-1006.
- **Yuxi Chen**, Shu Wang, Shan Lu, Karthikeyan Sankaralingam, "Applying Hardware Transactional Memory for Concurrency- Bug Failure Recovery in Production Runs", *In 2018 USENIX Annual Technical Conference.*
- Jiaxin Li, **Yuxi Chen**, Haopeng Liu, Shan Lu, Yiming Zhang, Haryadi S. Gunawi, Xiaohu Gu, Xicheng Lu, Dongsheng Li, "PCatch: Automatically Detection Performance Cascading Bugs in Cloud Systems", *In Proceedings of the Thirteenth EuroSys Conference.*
- Haopeng Liu, **Yuxi Chen**, Shan Lu, "Understanding and Generating High Quality Patches for Concurrency Bugs", *In Proceedings of the 2016 24th ACM SIGSOFT international symposium on foundations of software engineering.*
- Jin Liu, **Yuxi Chen**, Xu Chen, Jianli Ding, Kaushik Roy Chowdhury, Qiping Hu, Shenling Wang, "A Cooperative Evolution for Qos-driven Web Service Composition", *Automatika–Journal for Control, Measurement, Electronics, Computing and Communications*, 54(2013) 4, 438–447.

Competition Experience

China Undergraduate Mathematical Contest in Modeling First Place in Hubei area, 2011
International Genetically Engineered Machine Competition Bronze Medal in Asia, 2011
Microsoft Imagine Cup Third Place for Software Design in China region, 2011

Scholarship and Awards

ATC student travel grant Jul 2018, USA
FSE student travel grant Jul 2018, USA
National Scholarship (1%) 2013, China
Google Excellence Scholarship (3%) 2013, China
National Scholarship (1%) 2012, China