122 Newbury Hollow Ln, Apt10
Syracuse NY 13210

Ju Chen

(585) 434-8060
chenju2k6@gmail.com
http://chenju2k6.github.io

Short Biography

- I am a third-year computer science Ph.D. student at Syracuse University. Previously, I was a software engineer at Intel Corporation. I have been continuously working on system-level software such as Linux Kernel, Device Drivers, and Database Systems. I know how to tweak existing complicated software quickly.

Publications

- Qiwu Zou, Yuzhe Tang, **Ju Chen**, Kai Li, Charles Kamoua, Kevin Kwiat, Laurent Njilla. "ChainFS: Blockchain-Secured Cloud Storage", IEEE Cloud 2018
- K. Areekijseree, Yuzhe Tang, **Ju Chen**, Shuang Wang, Arun Iyengar and B. Palanisamy. "Secure and Efficient Multi-Party Directory Publication for Privacy-Preserving Data Sharing." SecureComm 2018, AR=30.6
- Yuzhe (Richard) Tang, Zihao Xing, **Ju Chen**, Cheng Xu and Jianliang Xu. "Lightweight Logging over the Blockchain for Data-Intensive Applications", 2nd Workshop on Trusted Smart Contracts 2018 at Financial Cryptography (Workshop paper)
- **Ju Chen**, Yuzhe (Richard) Tang and Hao Zhou. "Strongly Secure and Efficient Data Shuffle on Hardware Enclaves", SysTex 2017 at ACM SOSP (Workshop paper)
- Yuzhe Tang and **Ju Chen** "Log-structured Authenticated Cloud storage with minimal trust using Intel SGX", Technical Report (https://eprint.iacr.org/2016/1063.pdf)
- John Ye, **Jason Chen**, Tianzhou Chen and Qinsong Shi, "Conflict-Free Code Block Scheduling to Hide SpMT Inter-Core Register Sync Delay", PDCAT '14
- John Ye, **Jason Chen**, Tianzhou Chen, Minghui Wu and Li Liu, "Offline Data Dependence Analysis to Facilitate Runtime Parallelism Extraction", CSE '14
- **Ju Chen**, Qi Zhao and Jinming Dong, "Research on kernel encoding function of H.264 CODEC JM8.6", Computer Engineering and Design 2008-17

Technical Experiences

- **2018:** Lightweight Logging over the Blockchain for Data-Intensive Applications.
- **2017:**
  - Designed and implemented cache-miss oblivous data analytics framework. (Systex'17 Paper)
  - Designed and implemented a new optimization policy for multi-party computation in PostgresSQL.
- **2016:** Designed and implemented a secure Key-Value data store using Intel SGX.
  - To secure the data storage in the cloud, we proposed a novel approach by using Intel's Software Guard Extension and existing cryptography primitives. I realized our approach with an end-to-end implementation based on Google's LevelDB. We have summarized the project with a technical report. (Link)
- **2015:** Designed and implemented Intel SGX emulator by Linux Kernel module (GitHub repo)
  - I was one of the main contributors to build an Emulator for Intel's Software Guard Extensions. The emulator is now being used to design hands-on labs for "Advanced Computer Architecture," one of the Syracuse University's CS courses.
- **2009-2010, 2013-2015:** Developed display drivers for Intel's integrated graphics card. (Source Code)
  - Intel's display driver is presently being used in almost every Intel platform based server, desktop, laptop, and smart-phone. I was the primary contributor to the development team and one of the first pioneers to enable new features for the product (e.g., HDMI connection).
  - Solved urgent technical issues for our OEM customers like NEC, Dell, and Lenovo.
- **2012:** Designed and implemented an Android application to demonstrate the capabilities of Wi-Fi direct (Wi-Fi direct)
  - The purpose of the research project was to explore new use cases for Wi-Fi direct which enables peer-to-peer connection between mobile devices. I proposed a use case where two connected devices can take pictures collaboratively (by sharing preview) and later on present stitched images to the user. I finished the design and implementation of the Android application which covered the areas of network communication, live streaming and image processing. The Android application is integrated into Intel's released products.
- **2011:** Designed and Implemented USB-over-IP protocol.
  - The project enables cross-platform USB device sharing through wireless networks. I was one of the two early engineers to design and implement the USB-over-IP protocol.
- **2008:** Developed USB gadget driver for Intel's low-power platform in Linux.

- USB gadget driver is now being used in almost every mobile device with USB client interface as long as it is built on Intel's platform.
- I was the primary contributor to the development team.

Research and Teaching

Research Assistant **Syracuse University** **Fall 2015 - Present**

- Research Interests: Cyber-security, Cloud computing and Operating systems
- Current Research: Data-oblivious query processing and Verifiable cloud storage.

Teaching Assistant **Syracuse University** **Spring 2017 - Present**

- Teaching assistant for CIS655 - Advanced Computer Architecture (course website).
- Designed homework, labs, and exams. Conducted lectures. Hosted help sessions for students.

Education

Syracuse, NY **Syracuse University** **Fall 2015 – Present**

- Ph.D. candidate in Computer Science. GPA: 3.88
- Graduate Coursework: Computer Security; Cloud Computing; Operating systems; Applied Cryptography;

Industry Experiences

- **Spring 2008 - Fall 2015:** Software Engineer, Intel Corporation, Beijing, China
- **2007:** Software Engineer Intern, Agilent Technologies, Beijing, China

Awards and services

- **2017:** iDash 2017 Student Travel Grant
- **2009:** Intel Division Recognition Award
- **Conference Reviewer:** TKDE and ICPADS

Skills

- **Software:** Rich experiences in complex system-level softwares such as Operating Systems (e.g. Linux Kernel, Android), Database Management Systems (e.g. PostgresSQL, LevelDB) and Blockchain (e.g. Ethereum).
- **Programming Languages:** C/C++ and Java
- **Tools:** GNU make, GDB and Git