TIANYUAN LIU

(+1) 217-979-0502 ⋄ yuralty@gmail.com

EDUCATION

University of Illinois at Urbana-Champaign   *Sep 2015 - August 2021*
Ph.D. in Department of Computer Science   Overall GPA: 3.77/4.0
Ph.D. Thesis: "Hardware-assisted Privacy Enforcement in Drone-as-a-Service System"
Research interest: cyber-physical system, distributed system and security protocols

Shanghai Jiao Tong University   *Sep 2011 - June 2015*
B.E. in Department of Computer Science and Technology   Overall GPA: 3.85/4.0
Overall rank: 2/98 in IEEE Honor Class

TECHNICAL STRENGTHS

Computer Languages	Python, C++, Latex (experienced),
	JAVA (desktop/Android), SQL, MATLAB, Go (proficient),
	Ruby, HTML, JavaScript, Solidity (basic)
Software & Tools	git, Linux, NS2/3, Vim, Adobe Illustrator/Photoshop, GNUplot

INTERN EXPERIENCE

Facebook
Software Engineering Intern

- (*May 2019 - Aug 2019*) Developed Invariant Detector for Android Inter-process Communication to detect risky third-party flows.

Google
Software Engineering Intern

- (*May 2017 - Aug 2017*) Optimized data pipeline performance in JAVA for Android Security Team.
- (*May 2016 - Aug 2016*) Designed and implemented TLS Prober and TLS Auditor in C++, an internal tool to analyze TLS connections for Google Telephony applications.

VMWare
Research & Development Intern

- (*March 2015 - July 2015*) Implemented features and fixed bugs in Python for Virtual SAN configuration health checker.

ACADEMIC PUBLICATIONS

Tianyuan Liu, Claudiu Danilov, Hongpeng Guo, and Klara Nahrstedt. "UAVChain: Towards Trustworthy and Efficient Outsourcing of Third-party Drone Services" Accepted by IEEE CCNC 2022.

Tianyuan Liu, Hongpeng Guo, Claudiu Danilov, and Klara Nahrstedt. "A Privacy-Preserving Data Collection and Processing Framework for Third-Party UAV Services." In 2020 IEEE 19th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), pp. 683-690. IEEE, 2020.

Tianyuan Liu, Avesta Hojjati, Adam Bates, and Klara Nahrstedt. "AliDrone: Enabling Trustworthy Proof-of-Alibi for Commercial Drone Compliance." In 2018 IEEE 38th International Conference on Distributed Computing Systems (ICDCS), pp. 841-852. IEEE, 2018.

Hongpeng Guo, King-Shan Lui, **Tianyuan Liu**, and Klara Nahrstedt. "Resilient Data Collection Protocol with In-Network Processing for Oil and Gas Refinery Networks." In 2018 International Conference on Computing, Networking and Communications (ICNC), pp. 231-237. IEEE, 2018.

Yiran Zhao, Yang Zhang, Tuo yu, **Tianyuan Liu**, Xinbing Wang, "CityDrive: A Map-Generating and Speed-Optimizing Driving System" In IEEE INFOCOM 2014-IEEE Conference on Computer Communications. IEEE, 2014.

Tianyuan Liu, Ruotian Luo, Yang Zhang, Feng Yang, Xiaoying Gan, Xiaohua Tian, Xinbing Wang, "Intellectual Taxi Assignment System", CN103680128B

Tuo yu, Liqin Zhang, **Tianyuan Liu**, Xiaoying Gan, Xiaohua Tian, Xinbing Wang, "Crowdsoursing Based Taxi-sharing Solution", CN104077912B

SELECTED RESEARCH/PROJECT EXPERIENCE

Research: Hardware-Assisted Privacy Enhancement for Drones
Advisor: Klara Nahrstedt. Collaboration: Boeing Research & Technology.　　Aug 2019 - May 2021

· Designed privacy enhancement protocols based on hardware-assisted security extensions for drones.
· Implemented proof-of-concept prototypes on Raspberry Pis.
· Evaluated the prototypes through field experiments and dataset simulation.

Research: Resilient and Scalable Data Collection in Energy Distribution Networks
Advisor: Klara Nahrstedt. Collaboration: Hongkong University.　　Jan 2016 - Aug 2019

· Designed resilient data collection protocol in EDN.
· Optimized tree construction by Integer Linear Programming (ILP).
· Evaluated the protocol on real world dataset.

Course Project: Fast Data Processing Platform
Advisor: Indranil Gupta.　　Aug 2015 - Dec 2015

· Designed Crane, a Storm-like data processing platform. Crane outperforms Storm by 13x.
· Implemented Crane components including membership protocol, file system and Crane core in C++ from scratch.
· Got the best project award from course.

RELEVANT COURSES

System Courses	**Security Courses**
Operating System Design	Computer Security
Distributed Systems	Hardware Computer Security
Advanced Distributed Systems	Secure Processor Design
Advanced Computer Networks	Cryptography
Advanced Multimedia Systems	Cryptocurrency Security

SELECTED AWARDS

· National Scholarship (Top 4%), Shanghai Jiao Tong University, 2011-2012 2013-2014.
· Wilmar Scholarship (Top 4%), Shanghai Jiao Tong University, 2012-2013.
· First Prize in 2013 National College Student Mathematical Contest In Modeling.