

# Zizheng Liu

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## Education

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<b>Purdue University</b>	West Lafayette, IN, USA
Ph.D. in Computer Science, Advisor: Chunyi Peng	Aug 2021 - Present
<b>Columbia University in the City of New York</b>	New York, NY, USA
M.S. in Computer Science, GPA: 3.76/4	Aug 2018 - Dec 2019
<b>Northeastern University</b>	Shenyang, China
B.E. in Computer Science and Technology, GPA: 3.84/5 (88.4/100)	Sep 2014 - Jun 2018
<b>University of Illinois at Chicago</b>	Chicago, IL, USA
Exchange student in the Department of Electrical & Computer Engineering	Aug 2017 - May 2018

## Research Experience

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### **Purdue MSSN Lab, Advisor: Prof. Chunyi Peng**

#### **Breaking Geographic Routing Among Connected Vehicles**      Sep 2022 - Apr 2023

- Introduced novel DoS attacks against vehicular communication by exploiting vulnerabilities discovered in the routing algorithms from ETSI connected vehicle standards. [[PDF](#)]

#### **Security Analysis for Emerging Cellular Network Technologies**      Dec 2021 - Sep 2022

- Used NLP techniques to automatically discover potential vulnerability indications from 3GPP technical specifications for emerging cellular network technologies such as C-V2X and CIoT. [[PDF](#)]

### **Columbia IRT Lab, Advisor: Prof. Henning Schulzrinne**

#### **Pitfalls of MUD File Generation and Design Flaws of Smart Home IoT Devices**      May 2019 - Feb 2020

- Found design flaws of smart home IoT devices and issues in manufacturer usage description (MUD [RFC 8520]) file generation based on network traffic analysis. [[PDF](#)]

#### **Crowd-sourced Generation of MUD Files for Home IoT Devices**      Jan 2019 – Dec 2019

- Designed a frame on home Wi-Fi router that implements firewall for IoT devices according to MUD files retrieved in a crowd-sourcing manner. [[Demo](#)]

## Publications

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**Liu, Zizheng**, Shaan Shekhar, and Chunyi Peng. “Breaking Geographic Routing Among Connected Vehicles.” in IEEE DSN 2023

Zhang, Zhehui, Yanbing Liu, Qianru Li, **Zizheng Liu**, Chunyi Peng, and Songwu Lu. “Dependent Misconfigurations in 5G/4.5 G Radio Resource Control.” in ACM CoNext 2023

**Liu, Zizheng**, and Chunyi Peng. “Poster: Security Analysis for Emerging Cellular Network Technologies.” in NSF AI Institute for Future Edge Networks and Distributed Intelligence Annual Meeting 2022

**Liu, Zizheng**, and Chunyi Peng. “Quality Measurement over Quality Data Reuse in Cellular Networks.” in 2nd NSF Workshop on Overcoming Measurement Barriers to Internet Research 2021

## Honors and Awards

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- IEEE DSN 2023 Student Travel Grant
- Best Category Award (Signal Processing Engineering) in UIC Engineering EXPO 2018
- Outstanding Undergraduate International Exchange Scholarship by China Scholarship Council (2017)
- National Scholarship by Ministry of Education of China (2015, 2017)
- NEU First/Second Prize Scholarship (2015, 2016, 2017)

## Services and Activities

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- Reviewer: IEEE-Transactions on Information Forensics and Security, Computer Networks, Computer Communications
- Teaching assistant: CS536 Data Communication and Computer Networks (Purdue University, Spring 2023), COMS 4701 Artificial Intelligence (Columbia University, Fall 2019)

## Skills

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- Programming languages: Python, C/C++, Java, MATLAB, R
- Software: srsRAN, Open5GS, nuXmv, PyTorch
- Hardware: USRP, Arduino, Raspberry Pi, sysmocom