

# Rui Bian

DATA SCIENTIST · COMPUTER ENGINEERING PH.D.

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## Education

### University of Delaware

PH.D. IN COMPUTER ENGINEERING

• Advisor: Dr. Chase Cotton and Dr. Haining Wang

Newark, DE

Sep 2015 - Dec 2022

### University of Science and Technology of China

M.S. IN TECHNIQUES AND APPLICATIONS OF SYNCHROTRON RADIATION

• Advisor: Dr. Yangchao Tian and Dr. Gang Liu

Hefei, Anhui, China

Aug 2012 — Jun 2015

### University of Science and Technology of China

B.S. IN MECHANICAL ENGINEERING AND AUTOMATION

• Undergrad research advisor: Dr. Yangchao Tian

Hefei, Anhui, China

Sep 2008 — Jun 2012

## Professional Experience

2023 - Now **Technical Program Committee member**, IEEE SM'23  
2023 - Now **Technical Program Committee member**, ICDATE 2023  
2023 - Now **Technical Program Committee member**, BalkanCom'23  
2023 - Now **Technical Program Committee member**, IEEE ICECIE'20233  
2022 - Now **Data Scientist**, Expatriate Communications  
2015-2022 **Research Assistant**, University of Delaware  
2016-2022 **Teaching Assistant**, University of Delaware  
2021-2021 **Software Engineer Intern**, EPS Online INC  
2012-2015 **Graduate Research Assistant**, University of Science and Technology of China  
2011-2012 **Undergraduate Research Assistant**, University of Science and Technology of China  
2011-2011 **Research Intern**, Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences

## Teaching Experience

Fall 2022 **System Hardening and Protection**, Teaching Assistant Newark, DE  
Spring 2022 **Introduction to Cybersecurity**, Teaching Assistant Newark, DE  
Fall 2021 **System Hardening and Protection**, Teaching Assistant Newark, DE  
Spring 2021 **Introduction to Cybersecurity**, Teaching Assistant Newark, DE  
Fall 2020 **Advanced Cybersecurity**, Teaching Assistant Newark, DE  
Summer 2020 **USCC summer camp in Delaware**, Teaching Assistant Newark, DE  
Spring 2020 **Introduction to Cybersecurity**, Teaching Assistant Newark, DE  
Fall 2019 **Advanced Cybersecurity**, Teaching Assistant Newark, DE  
Spring 2019 **Web Application Security**, Teaching Assistant Newark, DE  
Fall 2018 **Advanced Cybersecurity**, Teaching Assistant Newark, DE  
Spring 2018 **System Hardening and Protection**, Teaching Assistant Newark, DE  
FEB 2023 **Introduction to Cybersecurity**, Teaching Assistant Newark, DE  
Fall 2017 **Introduction to Cybersecurity**, Teaching Assistant Newark, DE  
Spring **ECE Design Challenges**, Teaching Assistant Newark, DE

**Project: Passive analysis of anycast in global routing: Unintended impact of remote peering**

Newark, DE

UNIVERSITY OF DELAWARE, COLLABORATE WITH UCSD CAIDA

Jul 2017 — Dec 2018

- Invented an alternative approach to characterize anycast based on previously collected global BGP routing information and achieved 90% accuracy in detecting anycast prefixes
- proved that anycast routing has been entangled with the increased adoption of remote peering and observed that at least 19.2% of anycast prefixes have been potentially impacted by remote peering
- Tools: Python, Bash, BGP, RIPE Atlas, RouteViews, BGPStream, machine learning, routing, TraceRoute, Ping

**Project: Revisiting the Cloud Network Management on Amazon EC2**

Newark, DE

UNIVERSITY OF DELAWARE

Sep 2015 — Dec 2015

- Used EC2 as a case study to explore how the instances communicate within EC2 and how the instances communicate with the internet outside the EC2
- Confirmed that Amazon EC2 enhanced security managements including hiding routing information, isolating DNS servers and set VPC as default configurations of instances
- tools: Python, AWS, Bash, Nmap, Zmap, Ping, TraceRoute, Microsoft Office

**Project: Ultralong focal length microlens array fabricated based on SU-8 photoresist**

Hefei, Anhui, China

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA

Sep 2012 — Jun 2015

- Proposed a novel method to fabricate ultralong focal length microlens arrays based on SU-8 photoresist. The longest focal length was up to 4.4 mm from the microlens of 210  $\mu\text{m}$  width
- Studied and validate the formation mechanism by simulation based on the finite element method
- Tools: Matlab, C, ANSYS, Surface Evolver, Finite element method, Photolithography, OriginLab

**Project: Reconstruction of limited-angle and few-view nano-CT image via TV iterative reconstruction**

Hefei, Anhui, China

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA

Sep 2011 — Sep 2013

- Acquire nano-CT images with high quality by using conventional Fourier reconstruction methods based on limited-angle or few-view projections and utilized the total variation (TV) iterative reconstruction to carry out numerical images and nano-CT image reconstruction with limited-angle and few-view data
- Tools: Matlab, C, OriginLab, image processing, Microsoft Office

**Project: Research of CT reconstruction FBP algorithm based on Compressive Sensing**

Hefei, Anhui, China

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA

Sep 2011 — Sep 2012

- Utilize Compressing sensing technology to enhance CT reconstruction Filtered Back-Projection (FBP) algorithm
- Tools: Matlab, C, OriginLab, Photo processing, Compressing sensing, Microsoft Office

**Research Intern**

Changchun, Jilin, China

INSTITUTE OF OPTICS, FINE MECHANICS AND PHYSICS, CHINESE ACADEMY OF SCIENCES

Jul 2011 — Sep 2011

- Utilize C, Matlab and ANSYS to analyze Thirty Meters Telescope (TMT)'s support structure with finite element method (FEM)
- tools: C, Matlab, ANSYS, OriginLab, Microsoft Office

## Publications

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### PUBLISHED

**Rui Bian**, Shuai Hao, Haining Wang, and Chase Cotton. "Shining a light on dark places: A comprehensive analysis of open proxy ecosystem." *Computer Networks* 208 (2022): 108893.

**Bian, Rui**, Shuai Hao, Haining Wang, Amogh Dhamdere, Alberto Dainotti, and Chase Cotton. "Towards passive analysis of anycast in global routing: Unintended impact of remote peering." *ACM SIGCOMM Computer Communication Review* 49, no. 3 (2019): 18-25.

**Bian, Rui**, Ying Xiong, Xiangyu Chen, Penghui Xiong, Shuangyue Hou, Shan Chen, Xiaobo Zhang, Gang Liu, and Yangchao Tian. "Ultralong focal length microlens array fabricated based on SU-8 photoresist." *Applied Optics* 54, no. 16 (2015): 5088-5093.

Liang, Zhiting, Yong Guan, Gang Liu, **Rui Bian**, Xiaobo Zhang, Ying Xiong, and Yangchao Tian. "Reconstruction of limited-angle and few-view nano-CT image via total variation iterative reconstruction." In *X-Ray Nanoimaging: Instruments and Methods*, vol. 8851, pp. 156-162. SPIE, 2013.

Patent. G Liu, Y Xiong, **R Bian**, Z Xiaobo, T Yangchao. "Manufacturing method of micro lens" CN104,614,936 A. 2015.

## IN REVIEW

**Rui Bian**, Lin Jin, Shuai Hao, Haining Wang, and Chase Cotton. "Silent Observers Make a Difference: A Large-scale Analysis of Transparent Proxies on the Internet"

## Mentoring

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2014-2015 **Yue Hu**, Undergraduate Student, University of Science and Technology of China

*Anhui, China*

2019-2021 **Dan Goodman**, Master Student, University of Delaware

*Newark, DE*

## Awards, Fellowships, & Grants

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2017 **SANS CyberStart scholarship, ranking of 44 out of 3,935 people**, USCC

2010 **Outstanding Student Scholarship**, University of Science and Technology of China

2009 **Best annual report in Student journalists association**, University of Science and Technology of China

2008 **Outstanding Freshman Scholarship**, University of Science and Technology of China

## Professional Development

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### DEVELOPMENT

#### **Delaware Secure Workshop**

### PAPER REVIEWER

CSAE (International Conference on Computer Science and Application Engineering)

TNSE (Transactions on Network Science and Engineering)

IEEE Access

IEEE Communications Letters

PAM (Passive and Active Measurement International Conference)

ICICS (International Conference on Information and Communications Security)

DSN (International Conference on Dependable Systems and Networks)

CODASPY (Conference on Data and Application Security and Privacy)

IEEE SM (IEEE International Conference on Smart Mobility)

MDPI AI, Computers, Networks

IEEE IWCMC 2023 Security Symposium

ICDATE 2023 (International Conference on Digital Applications, Transformation & Economy 2023)

2023 IEEE Transportation Electrification Conference & Expo

IEEE IWCMC 2023 Security Symposium

ICASIS2023 (International Conference on Advanced Sensing and Intelligent Systems)

BalkanCom'23

IEEE ICECIE'2023

STECONF(Science, Technology and Engineering Conferences) 2023

ICCCM 2023

IEEE-ECCE 2023

Algotel/Cores 2023

2023 IEEE RTC

### PROFESSIONAL MEMBERSHIPS

IEEE-Institute of Electrical and Electronics Engineers

ACM-Association for Computing Machinery