

SKILLS

Tools and technologies	Python, SQL, C, MATLAB, Assembly Language, Bash Scripting, Linux, Docker, Power BI, Seaborn, R Programming Language, scikit-learn, Numpy, Pandas, Scipy, TensorFlow, Keras, PyTorch, Matplotlib, Selenium, Git, LaTeX Typesetting, AutoCAD, SolidWorks, ANSYS, OriginLab, Database, Data Mining, Distributed Network Operating Systems, SQL, XML, Bootstrap, Hibernate, NoSQL, MongoDB, JSON, Content Delivery Network (CDN), Apache Web Server, Amazon Web Services (AWS), Microsoft Azure, RIPE Atlas, Google Cloud, Cloudflare, Amazon CloudFront, Microsoft SQL server, Flask, Django, Spark, FastAPI, Azure DevOps, CI/CD, Folium, ArcGIS, Spring Framework, Kafka
Industry Knowledge	Machine Learning, Artificial Intelligence (AI), Data Science, Deep Learning, Big Data, Statistics, Cybersecurity, Network Security, Data Analysis, Computer Networking, Cloud Computing, REST API, GraphQL, API design, Agile, Scrum, Test automation

EXPERIENCE

Data Scientist Expatriate Communications	Dec 2022 — Current Pasadena, CA
<ul style="list-style-type: none">• Develop and implement algorithms on a variety of data sources and on a variety of educational outcomes• Research and implement state-of-the-art AI algorithms on all platforms• Identify data patterns and trends• Design, develop and implement artificial intelligence algorithms and build scalable production systems• Identify creative uses of artificial intelligence and potential artificial intelligence innovations in K12 education sections• Collaborate with a team of database and educational experts to address emerging client needs	
Teaching Assistant/Lecturer University of Delaware, ECE and CS Department	Sep 2016 — Dec 2022 Newark, DE
<ul style="list-style-type: none">• Grade assignments and exams, hold weekly office hours and instruct students with hands-on labs	
Research Assistant/Project Leader University of Delaware	Sep 2015 — Dec 2022 Newark, DE
Project Leader: Detect and Analyze Vulnerable Transparent Proxies University of Delaware, Collaborate with ODU and Virginia Tech	Jul 2020 — Dec 2022 Newark, DE
<ul style="list-style-type: none">• Develop a new method to identify steady transparent proxies• Characterize of transparent proxies from various aspects• Identify security problems among transparent proxies including cache poisoning and CPDoS attacks• Tools: Python, Bash, API, HTTP, ProxyRack	
Project Leader: Understanding Open Proxy Ecosystem University of Delaware, Collaborate with ODU and Virginia Tech	Jan 2019 — Jul 2020 Newark, DE
<ul style="list-style-type: none">• Conduct the largest-scale study on over 436,000 identified proxies, including 104,000 responsive proxies in 9 months• Identify that 7.17% of responsive proxies modify the page content, and 76.42% of those content modifying proxies perform malicious actions• Perform the first analysis two particular groups of open proxies—cloud-based proxies and long-term proxies• Tools: Python, Bash, Web crawler, API, HTML, Ping, TraceRoute, Curl	
Project Leader: Passive Analysis of Anycast in Global Routing: Unintended Impact of Remote Peering University of Delaware, Collaborate with UCSD CAIDA	Jul 2017 — Jan 2019 Newark, DE
<ul style="list-style-type: none">• Invent an alternative approach to characterize anycast based on previously collected global BGP routing information and achieved 90% accuracy in detecting anycast prefixes• Prove 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• Tools: Python, Bash, BGP, RIPE Atlas, RouteViews, BGPStream, machine learning, routing, TraceRoute, Ping	
Project Leader: Revisiting the Cloud Network Management on Amazon EC2 University of Delaware	Sep 2015 — Dec 2015 Newark, DE
<ul style="list-style-type: none">• Study on Amazon AWS EC2 to explore how the instances communicate within EC2 and with the internet outside the EC2• Confirm that Amazon EC2 enhanced security management including hiding routing information, isolating DNS servers and set VPC as default configurations• Tools: Python, AWS, Bash, Nmap, Zmap, Ping, TraceRoute, Microsoft Office	

Software Engineer Intern

EPS Online INC

June 2021 — Sep 2021

Newark, DE

- Build an Inventory Management Software by Python and MySQL
- Enhance the efficiency and security of software and deploy this Software in AWS
- Tools: Python, AWS, Bash, MySQL

Project Leader: Ultralong Focal Length Microlens array Fabricated Based on SU-8 Photoresist

University of Science and Technology of China

Sep 2012 — Jun 2015

Hefei, Anhui, China

- Propose a novel method to fabricate ultralong focal length microlens arrays based on SU-8 photoresist
- Study and Validate the formation mechanism by simulation based on the Finite Element Method
- Publish a patent and paper
- 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

University of Science and Technology of China

Sep 2011 — Sep 2013

Hefei, Anhui, China

- Acquire nano-CT images with high quality by using conventional Fourier reconstruction methods based on limited-angle or few-view projections and utilize 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 Leader: Research of CT reconstruction FBP Algorithm based on Compressive Sensing

University of Science and Technology of China

Sep 2011 — Sep 2012

Hefei, Anhui, China

- Utilize Compressing Sensing technology to enhance CT reconstruction Filtered Back-Projection (FBP) Algorithm
- Tools: Matlab, C, OriginLab, Image Processing, Compressive sensing, Microsoft Office

Intern

Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences

Jul 2011 — Sep 2011

Changchun, Jilin, China

- Analyze Thirty Meters Telescope (TMT)'s support structure with Finite Element Method (FEM)
- Tools: C, Matlab, ANSYS, OriginLab

PUBLICATIONS

1. Bian, R. *et al.* Silent Observers Make a Difference: A Large-scale Analysis of Transparent Middlebox in the Internet. *Under review*.
2. Bian, R. *et al.* Shining a light on dark places: A comprehensive analysis of open proxy ecosystem. *Computer Networks* (2022).
3. Bian, R. *et al.* Towards passive analysis of anycast in global routing: Unintended impact of remote peering. *ACM SIGCOMM CCR* (2019).
4. Bian, R. *et al.* Ultralong focal length microlens array fabricated based on SU-8 photoresist. *Applied optics*, 5088–5093 (2015).
5. Liu, G. *et al.* Manufacturing method of micro lens CN104,614,936 A. 2015.
6. Liang, Z. *et al.* Reconstruction of limited-angle and few-view nano-CT image via total variation iterative reconstruction in X-Ray Nanoimaging: *Instruments and Methods* (2013), 885113.

EDUCATION**Ph.D. in Computer System and Networking**, Department of Electrical and Computer Engineering

University of Delaware, Advisors: Dr. Haining Wang and Dr. Chase Cotton

Sep 2015 — Dec 2022

M.S. in Techniques and Applications of Synchrotron Radiation, National Synchrotron Radiation Laboratory

University of Science and Technology of China (USTC), Advisors: Dr. Yangchao Tian and Dr. Gang Liu

Sep 2012 — Jun 2015

B.E. in Mechanical Engineering and Automation, Department of Precise Machinery and Precise and Instrumentation

University of Science and Technology of China (USTC)

Sep 2008 — Jun 2012

AWARDS AND OTHER EXPERIENCES

- 2020** Teaching Assistant of U.S. Cyber Challenge(USCC) Delaware Summer Camp
- 2017** SANS CyberStart 2017 Scholarship, Ranking of **44 out of 3,935 people**
- 2016** Graduate student group leader of University Of Delaware Chinese Christian Fellowship
- 2014** Teaching Assistant of Hezhan elementary school of Ulanhot
- 2010** Outstanding Student Scholarship of University of Science and Technology of China
- 2009** Minister of Interview Division in Student Journalists Association
- 2008** Outstanding Freshman Scholarship of University of Science and Technology of China
- 2008** The top scorer(**1/10000+**) in National University Entrance Examinations in The Hinggan League