

# RITIK ROONGTA

✉ ritik.r@nyu.edu | 🌐 Racro | 🌐 racro.github.io | 🌐 Ritik | 📍 Brooklyn, NY, USA

## Research Statement

---

I aim to build **open source** frameworks that create real world impact while advancing academic research. I focus on transforming digital advertising through **automated content** moderation and **detecting malicious actors** in the ad supply chain. My past work includes **empirical** studies on privacy-enhancing technologies, propaganda, and harmful ads; using AI to **detect** contextual nuances and **mitigate** these issues at scale.

Going forward, I aim to enhance user experience online by uncovering differential treatment, **fighting fraud**, and conducting **large scale measurements** to improve widely used tools.

## Education

---

### New York University (NYU)

*Ph.D. in Computer Science, Advisor: Prof. R. Greenstadt & Prof. BD. Gavitt*

*Thesis: Adblocking's Privacy Tradeoffs and the Future of Sustainable Advertising*

Sep '21 – May '26

New York City, USA

### Indian Institute of Technology Bombay (IITB)

*B.Tech in Computer Science, GPA: 8.15/10.0*

*Thesis: Large-scale assessment of vulnerabilities in open-source network server binaries*

Sep '17 – May '21

Mumbai, India

## Publications

---

### Automated detection and evaluation of problematic ‘allowed’ advertisements

PETS '25

*Ritik Roongta, Julia Jose, Hussam Habib and Rachel Greenstadt*

*Paper | Code | Poster*

- Developed an LLM-assisted Ad content moderation framework to enable adblockers to detect problematic ads and block them, thus protecting users from excessive tracking and intrusive advertising

### Propaganda Generation by Large Language Models

EMNLP '25 (under review)

*Julia Jose, Ritik Roongta and Rachel Greenstadt*

*Poster*

- Uncovered the potential of LLMs in generating propaganda and designed NLP-based frameworks to efficiently detect and mitigate them, shielding users from false and fake content

### A User-Focused Evaluation of Privacy-Preserving Browser Extensions

AsiaCCS '24

*Ritik Roongta and Rachel Greenstadt*

*Paper | Code*

- Built a usability and privacy framework to evaluate privacy-preserving extensions on performance, permission abuse, web compatibility, etc., aiding the users in making informed choices

### Analysis of web breakages caused by adblockers

SecWeb, IEEE S&P '24

*Ritik Roongta, Mitchell Zhou, Ben Stock and Rachel Greenstadt*

*Paper | Code*

- Conducted web measurement experiments to quantify web breakages caused by adblockers across five different categories, thus improving the state of web for adblocker users

### Drifuzz: Harvesting Bugs in Device Drivers from Golden Seeds

USENIX '22

*Zekun Shen, Ritik Roongta, and Brendan Dolan-Gavitt*

*Paper | Code*

- Implemented a framework for concolic fuzzing PCI device drivers, discovering and patching **12 bugs** and obtained **2 CVEs** in the Linux driver code, leading to a bug-free operating system

## Technical Skills

---

### ML Paradigms:

Natural Language Processing, Prompt Engineering, Sentiment Analysis, Thematic Analysis, Supervised/Unsupervised Learning, RAG

### ML Frameworks:

PyTorch, LLMs, VLMs, NumPy, Pandas, Jupyter

### Internet Measurement:

Puppeteer, Selenium, Playwright, Web Extensions

### Languages:

C/C++, Python, Bash, Java, Assembly, JavaScript

### Security Tools:

Kali Linux, Metasploit Framework, Xerosploit, Reversing Tools

### Software tools:

Linux, Git, MATLAB, MySQL, AutoCAD, L<sup>A</sup>T<sub>E</sub>X, AWS, HPC, Slurm

## Internship Experience

---

### CISPA Helmholtz Center for Information Security

Jun – Aug '24

Research Intern | *Guide: Ben Stock*

Saarbruecken, Germany

- Developed a novel mechanism to identify the **differential treatment** of adblocker users by websites, uncover potential for fingerprinting users and degrading their user experience
- Instrumented the Google Chrome's V8 engine to collect JS execution logs to understand its inner workings

### University of California, Santa Barbara

Apr – Nov '20

Research Intern | *Guide: Giovanni Vigna and Christopher Kruegel*

Santa Barbara, USA

- Developed **KANF**, a kernel-assisted network fuzzer, using Linux kernel driver modules and networking tools to test **over 10,000** open-source network programs and conduct bug detection at scale
- Interleaved the Linux Kernel with (**AFL**) using kernel driver modules and network programs

### A.P.T Portfolio

Apr – Jun '20

Software Engineer Intern | *Guide: Pratyush Rathore*

Delhi, India

- Reported and **patched** crucial **bugs** in the source code implemented for processing a daily **traffic** in excess of **4 crores** orders at NSE and developed and optimized **dynamic latency** based exchange simulation model

### Lucideus

May – Jul '19

Cyber Security Research Intern | *Guide: Rahul Tyagi*

Delhi, India

- **Hardened** CentOS linux using 239 remediations as provided by **CIS** (Center for Internet Security) and prepared a detailed documentation covering attacks and mitigation techniques on **OWASP** Top 10 Attacks

## Reviewer Duties

---

**Program Committee:** NDSS '25, PETS '24, MADWEB '25

**Artifact Committee:** CCS '24/25, USENIX '23/24, PETS '25

## Position of Responsibility

---

### General Secretary

Jul '20 – May '21

IIT Bombay | *CSE Association*

Mumbai, India

- Headed a team of **24+** **students** for organizing various remote and in-person sports and social events along with student **wellness** webinars with an annual budget in excess of **INR 3.5 lakhs**
- **Ideated 7+** engaging events and conducted them in an online manner during the remote semester

### Teaching Assistant

Jan '22 - Apr '22

New York University | *Application Security*

New York, USA

- Mentored a class of over 100 students in a remote setup for the Application Security course and facilitated practical class demonstrations to instill a better understanding of niche concepts

### Thesis Mentor

Sept '23 - May '24

*Real-time measurement of web breakages* | *Mitchell Zhou*

New York University, USA

- Mentored an undergraduate student for his bachelor's thesis on understanding web breakages and measuring them on large-scale, leading to a publication at SecWeb, IEEE S&P

## Awards / Leadership

---

- Presented research posters Columbia Privacy day and Google Ad Privacy day [2025]
- Received a **scholarship** to attend summer school in EPFL, Switzerland and CISPA, Germany [2024]
- Received a **travel grant** to attend the RightsCon conference in Costa Rica to get policy exposure [2023]
- Received **SoE** fellowship from NYU in my freshmen year to facilitate my research goals [2021]
- Secured All India Rank **48** in **JEE-Advanced** out of 220,000 shortlisted candidates [2017]
- Awarded **Pratibha Scholarship** for exceptional academic excellence by the Aditya Birla Group [2017-21]
- Awarded **KVPY** Fellowship and **NTSE** Scholarship by the Government of India [2016]
- Received **0.1% Certificate of Merit** in Chemistry and Physics by the Government of India (AISSCE) [2017]