Mohit Singhal

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Research Interests

Social Computing, Machine Learning, Malicious Code Analysis, Content Moderation, Data-driven Fact-checking, Data Mining

Education

The University of Texas at Arlington — Arlington, TX
Ph.D. Candidate in Computer Science — *In Progress, Aug. 2019 – present*
Advisor: Dr. Shirin Nilizadeh — *Overall GPA: 3.83*

The University of Texas at Arlington — Arlington, TX
M.S. in Computer Science — *Aug. 2017 – May 2019*
Advisor: David Levine — *Overall GPA: 3.62*

Jaypee University of Information Technology — Solan, India
B.Tech in Computer Science & Engineering — *Aug. 2013 – May 2017*
Overall GPA: 8.1

Work Experience

STEM Graduate Research Assistant — January 2022 – May 2022
The University of Texas at Arlington — *Arlington, TX*
- Worked on algorithmic fairness of Yelp Recommendation system

Student Instructor — August 2021 – December 2021 & January 2023 – May 2023
The University of Texas at Arlington — *Arlington, TX*
- Taught 30+ students Information Security course and lab (CSE 4380)

STEM Graduate Teaching Assistant — August 2018 – Present
The University of Texas at Arlington — *Arlington, TX*
- Taught over 150+ students Information Security lab (CSE 4380/5380)
- Developed & Conducted Capture the Flag (CTF) lab

Summer Research Intern — May 2016 – August 2016
Indian Institute of Technology — *Roorkee, India*
- Proposed key stroke based password matching technique

Summer Research Intern — May 2015 – July 2015
The University of Nebraska at Omaha — *Omaha, NE*
- Developed digital maps to monitor Attrazine levels in Mississippi River

Publications

- **Singhal, M.**, Ling, C., Paudel, P., Thota, P., Kumarswamy, N., Stringhini, G., & Nilizadeh, S. (2022). SoK: Content Moderation in Social Media, from Guidelines to Enforcement, and Research to Practice. To appear in 8th IEEE European Symposium on Security and Privacy (Euro S&P 2023).
- **Singhal, M.**, Kumarswamy, N., Kinhekar, S., & Nilizadeh, S. (2021). Cybersecurity Misinformation Detection on Social Media: Case Studies on Phishing Reports and Zoom's Threats. To appear in 17th International AAAI Conference on Web and Social Media (ICWSM 2023).
- **Singhal, M.**, Kumarswamy, N., Kinhekar, S., & Nilizadeh, S. (2021). Poster: Detecting Misinformation about Zoom's Security and Privacy Threats. In (NDSS 2022). Received Best Technical Poster Award
- **Singhal, M.**, & Levine, D. (2019, October). Analysis and categorization of drive-by download malware. In 2019 4th International Conference on Computing, Communications and Security (ICCCS) (pp. 1-4). IEEE.

Projects

Parler Moderation| *Python, Parler API, Git* July 2021 – Present

- Analyzing the changes of moderation on toxicity in Parler
- Performing in depth analysis of content changes after policy changes
- Preparing to submit our findings to ICWSM 2024

Content Moderation Practices of Social Media Sites March 2021 – March 2023

- Analyzing how different social media websites perform content moderation
- Performing in-depth analysis of the shortcoming and future opportunities for content moderation practices
- To appear in IEEE Euro S&P 2023

Yelp Recommendation System Fairness| *Python, Git* August 2022 – Present

- Analyzing bias and fairness of Yelp ranking and recommendation system
- Performing in-depth analysis of the data using various fairness metrics
- Preparing to submit our findings to ACM RecSys 2023

Misinformation on Social Media | *Python, Twitter API, CrowdTangle API, Git* August 2019 – May 2022

- Developed a command line tool to get tweets
- Implemented a Machine Learning model to classify posts into misinformation & true-positive
- To appear in ICWSM 2023

Drive-by Download Malware | *Python, VMRay Sandbox, Cuckoo Sandbox, VirusTotal* August 2017 – May 2019

- Developed a tool for capturing malware samples in the wild
- Implemented Cuckoo Sandbox and VMRay in house to study malware samples
- Co-Author: Singhal, Mohit, and Levine, David ."Analysis and Categorization of Drive-by Download Malware." 2019 4th International Conference on Computing, Communications and Security (ICCCS). IEEE, 2019.

Technical Skills

Languages: Java, Python, C/C++, SQL, HTML/CSS, R, C#
Developer Tools: Git, Visual Studio, Eclipse, OllyDbg, VMRay, Cuckoo Sandbox, Process Hacker, Process Explorer, Regshot
Libraries: Pandas, NumPy, Matplotlib, Sklearn, Tensorflow, Keras

Awards & Service

News: Our paper SoK: Content Moderation in Social Media, from Guidelines to Enforcement, and Research to Practice was cited in AMICUS CURIAE BRIEF submitted in The Supreme Court case Gonzalez v. Google LLC
Service: Serving on the 16th Workshop on Cybersecurity Experimentation and Test Workshop (CSET 2023) program committee.
Reviewer: Humanities & Social Sciences Communications Journal
Sub-reviewer: PoPETs/PETS 2023, Euro S&P 2022, USENIX Security 2020 & 2021, RAID 2020, E-Crimes 2020
Awards:

- My Research Lightning talk on Detecting Misinformation about Zoom's Security and Privacy Threats received the Best Ph.D. Lightning Talk Runner-Up award at SCRF 2023.
- Our poster on Content Moderation in Social Media, from Guidelines to Enforcement, and Research to Practice received the Best Project Presentation & Demo Runner-Up award at SCRF 2023.
- Awarded "The Outstanding TA award" by The Department of Computer Science & Engineering at UTA, 2022
- Awarded the best technical poster for "Detecting Misinformation about Zoom's Security and Privacy Threats" at NDSS conference, 2022
- Awarded the best technical poster for "Detecting Misinformation about Zoom's Security and Privacy Threats" at SCRF conference held at University of Texas at Arlington, 2022
- Recipent of the Student Travel grant for USENIX Security 2021
- Awarded the best poster at IEEE MetroCon Conference, 2019
- Awarded The Computer Science Scholarship by The Department of Computer Science & Engineering at UTA, 2019

Mentorship

- Mentoring Javier Pacheco (Fall 2022 – Present)
- Mentoring Keren Valdez (Fall 2022 – Present)
- Mentored Katia Lopez (Spring 2022)
- Mentored Micheal Brady (Fall 2021)
- Mentored Nihal Kumarswamy (Fall 2020 – Spring 2022)
- Mentored Shreyasi Kinhekar (Fall 2020 – Spring 2022)