Margie Ruffin

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EDUCATION

Doctoral of Philosophy - Computer Science
  - Advisors: Gang Wang & Kirill Levchenko

University of Illinois at Urbana-Champaign
August 2020 – Present

Bachelor of Science - Computer Science
  - Advisor: Raquel Hill

Spelman College
August 2016 – May 2020

PUBLICATIONS

Margie Ruffin, Kirill Levchenko, and Gang Wang. 2023. Explaining Why Fake Photos are Fake: Does It Work? ACM Hum.-Comput. Interact. 5, GROUP, 23 pages

Margie Ruffin, Israel Lopez-Toldeo, Kirill Levchenko, and Gang Wang. 2022. Casing the Vault: Security Analysis of Vault Applications. In Proceedings of the 21st Workshop on Privacy in the Electronic Society (WPES '22), November 7, 2022, Los Angeles, CA, USA. ACM, New York, NY, USA, 6 pages

Nias, J., Hampton, L., Sampson,P. and **Ruffin, M**. 2020. To Appear. Decolonizing Technologies for Preserving Cultural and Societal Diversity. CHI 2020 Extended Abstracts, April 25 - 30, 2020, Honolulu, HI, USA.

Margie Ruffin, Jaye Nias, Kayla Taylor, Gabrielle Singleton, and Amber Sylvain. 2020. Character Development to Facilitate Retention in a Storytelling Robot. In 2020 ACM Southeast Conference (ACMSE 2020), April 2–4, 2020, Tampa, FL, USA. ACM, New York, NY, USA, 4 pages. https://doi.org/10.1145/3374135.3385315

Jaye Nias and **Margie Ruffin**. 2020. CultureBot: A Culturally Relevant Humanoid Robotic Dialogue Agent. In 2020 ACM Southeast Conference (ACMSE 2020), April 2–4, 2020, Tampa, FL, USA. ACM, New York, NY, USA, 4 pages. https://doi.org/10.1145/3374135.3385306

RESEARCH PROJECTS

Deepfakes on Downstream Disinformation Campaigns - University of Illinois at Urbana-Champaign, Champaign, IL
FEBRUARY 2022 – SEPTEMBER 2022 | *Advisors Gang Wang*
  - Lead research team in the development and deployment of large-scale user-study n =417, to quantitatively explore the impact of deepfake profiles on the downstream attack of disinformation campaigns.
  - Used Adobe Illustrator and Photoshop to create Twitter profile replicas and News Stimuli used in study.

Vault Application Analysis – University of Illinois at Urbana-Champaign, Champaign, IL
JUNE 2020 – AUGUST 2022 | *Advisors Gang Wang & Dr. Kirill Levchenko*
  - Implemented a 3-layer analysis framework (Novice, Intermediate, and Advanced), to explore potential side channels in Android privacy-preserving (vault) applications.
  - Used manual analysis to discover side channels for Novice level examination and Android development tools, file systems, application back-ups for Intermediate and Advanced level examination.

Image Manipulation Detection & Explanation – University of Illinois at Urbana-Champaign, Champaign, IL

JUNE 2020 – AUGUST 2022 | *Advisors Gang Wang & Dr. Kirill Levchenko*
- Conducted two large scale user studies n=133 & n=543 to quantitatively understand user's ability to identify manipulated images and their perceptions towards manipulated in the media.
- Created a tool and framework to automatically determine if an image manipulation was for benign or malicious intent.

Android Mobile Data Tracking – Spelman College, Atlanta, GA
SEPTEMBER 2019 – MAY 2020 | *Advisor Raquel Hill*
- Worked under a Spelman College professor to conduct research that tracks the type and amount of personal information that is being leaked from mobile applications to third-party websites.
- Assisted Professor with the writings of professional findings in a research presentation.

CultureBot – Spelman College, Atlanta, GA
SEPTEMBER 2018 – MAY 2020 | *Advisor. Jaye Nias*
- Worked to develop a robotics program that measured the effectiveness of Robotic code switching, the language switching between Standard English and African American Vernacular English.
- Created five different conversation paths that related anywhere from the topic of computer science to life at Spelman College as a student.

EXPERIENCE

Lawrence Livermore National Lab, Livermore, CA – *Graduate Student Researcher*
JUNE 2020 – AUGUST 2021
- Assisted with research related to defending the nation's power grid through Cyber Security.
- Focused on building a prototype network that managed several virtual machines that mimicked a neighborhood power grid. Used the tool minimega to build and launch a network topology of routers, switches, solar inverters, etc. to be used for industrial control system penetration testing purposes.
- Employed the use of existing code, databases, extensive Industrial Control System PCAP data, and MatLab, to identify and classify faults in ICS transmissions.
- Worked to update existing processing code to make it more user-friendly and efficient.

Georgia Tech Research Institute, Atlanta, GA – *Student Researcher*
OCTOBER 2019 – MAY 2020
- Worked with GTRI Researchers on assigned projects; including one that creates a tool to exploit, study, assess known vulnerabilities in HTTP/2.
- Attended trainings, continuing educations, and shadowed employees to strengthen technical and personal skills.

Department of Defense – Department of Army, Washington, D.C. – *Summer Intern*
TS- Clearance
JUNE 2019 – AUGUST 2019
- Worked alongside communications team to develop a Java based program to track thousands of telephone numbers, costing millions of dollars, allowing the discontinuation of inactive numbers and the savings of a substantial amount of money.
- Assisted the communications team in the upgrade of the Legacy Linux system to a new and more efficient system using bash scripting and company software.

Federal Bureau of Investigation, Houston/ Atlanta/ Dallas – *Student Workforce Trainee*
TS/SCI Clearance with Polygraph

JUNE 2017 – MAY 2019
- Aided the Cyber Squad in daily tasks, de-obfuscated malware, wrote scripts, prepared case briefs, and shadowed Bureau Computer Scientists.
- Worked to mitigate intelligence threats, on the Counter Intel team, by assessing threat level, threat identity, and by assigning proper mitigation level.

SERVICE

Poster Juror
· [**SOUPS**] Symposium on Usable Privacy and Security   *2022*

RESEARCH TALKS/ PRESENTATIONS

Analyzing Data Sharing Practices of Mobile Apps on Android – Poster Show. *Cyber Education, Research, and Training Symposium (CERTS)*, 2020.

Could it be Fake News: Combating Misinformation in the Media – Lightning Talk. *Illinois Sloan UCEM Showcase*, 2021.

Casing the Vault: Security analysis of Vault Applications – Research Talk. University of Illinois Engineering Library Research Conversations, 2022.

SPEAKING

Panelist, Society of Hispanic Professional Engineers (SHPE) Illinois' *Real Talk: A Guide to Grad STEM Programs*, April 2022

Guest Panelist, CMD-IT/ACM Richard Tapia Conference, *Navigating Your Advisor-Advisee Relationship*, September 2022

HONORS & AWARDS

NSF Graduate Research Fellowship Program	*2022*
Alfred P. Sloan Scholar	*2020 – 2025*
Grainger College of Engineering SURGE Fellow	*2020 – 2025*
UIUC Graduate College Fellowship	*2020 – 2025*
Magna Cum Laude, Spelman College	*2020*
Phi Beta Kappa, Spelman College	*2020*
Spelman College Dean's List	*2017 – 2020*
Spelman College Research Day, 1st place	*2019*
Upsilon Pi Epsilon Honor Society Inductee	*2019*

SKILLS

Languages	Python, C++, Java, frontend (HTML/CSS, SQL, JavaScript, JSON)
Platforms	IntelliJ, MySQL, Firebase, Adobe Photoshop, Adobe Illustrator, Microsoft Office Suite,
Systems	Linux, OSX