Lorenzo C. Neil

Research Staff Member - Science, Systems, and Sustainment Division - Institute for Defense Analyses
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Citizenship: USA

SUMMARY

Research Staff Member performing operational testing and analysis of cybersecurity software. PhD graduate with 6 years of research experience in usable security and developer secret management practices.

EDUCATION

North Carolina State University, Raleigh NC   Graduation Date: Spring 2025
Ph.D. (Doctor of Philosophy) in Computer Science, **GPA: 3.67/4.00**   NC State LSAMP Bridge to Doctorate Fellowship
                                                                          Graduate Fellowship for Stem Diversity
Relevant Coursework: Computer and Network Security, Advanced Network Security, Human-Computer Interaction

University of Maryland, Baltimore County, Baltimore MD   Graduation Date: Spring 2019
Bachelor of Science in Computer Science, **GPA: 3.25/4.00**   UMBC Meyerhoff Scholar

Relevant Coursework: Software Engineering, Statistics, Data Science, Privacy, Information Retrieval

RESEARCH EXPERIENCE

Institute for Defense Analyses (IDA)   **Spring 2025 - Present**
Research Staff Member, Science, Systems, and Sustainment Division (S3D)   **730 E Glebe Road, Alexandria VA 22305**
Supervisor: Dr. V. Bram Lillard

OPERATIONAL TESTING AND ANALYSIS OF CYBERSECURITY SOFTWARE   Spring 2025 - Present
- Designing and analyzing interviews and surveys to measure software usability through qualitative and quantitative data.
- Writing analytical reports on the effectiveness, suitability, and reliability of tested systems for both DoD and DHS government sponsors.

National Institute of Standards and Technology (NIST)   **Spring 2022 - Fall 2024**
GMSE Fellowship Program (Remote)   **100 Bureau Dr, Gaithersburg, MD**
Supervisor: Dr. Julie Haney, (301) 975-6772, may be contacted
Hours: 10/week during academic year, 40/week during summer   **Salary: Fellowship Stipend**

INTERVIEWED NON-EXPERTS ABOUT CURRENT CYBERSECURITY DEFINITIONS   Summer 2023 - Fall 2024
- Interviewed 30 non-experts to identify non-expert understandings and perceptions towards published cybersecurity definitions.
- Developed interview questionnaire and protocol, as well as analyzing interview responses.

DEVELOPED SURVEY ON PERCEPTIONS OF VISUAL PHISHING CUES WITHIN PHISHING EMAILS   Summer 2023 - Fall 2024
- Developed survey protocol to investigate employee's perceptions on identifying different types of phishing cues.
- Designed survey questionnaires, as well as phishing email themes and cue placement.

ANALYZED ONLINE PUBLISHED CYBERSECURITY DEFINITIONS FOR NON-EXPERTS   Spring 2022 - Spring 2023
- Built corpus of cybersecurity definitions likely to be encountered by non-experts.
- Observed inconsistent definition components and overly-technical terminology for non-experts.

ANALYZED VISUAL PHISHING CUES WITHIN PHISHING EMAILS   Spring 2022 - Spring 2023
  - Applied NIST Phish Scale (NPS) to identify the prevalence and frequency of visual phishing cues within 59 real-world phishing emails.

North Carolina State University (NCSU)   **Fall 2019 - Spring 2025**
Graduate Research Assistant, Wolfpack Security and Privacy Research Lab (WSPR)   **Raleigh, NC 27695**
Advisor: Dr. Bradley Reaves, (919) 513-7835, may be contacted   **Salary: Graduate Stipend**

IDENTIFIED CHALLENGES WITH USING SECRET MANAGEMENT TOOL DOCUMENTATION   Fall 2023 - Fall 2024
  - Observed in-person developer experiences while using tool documentation to learn secret management tools.
  - Developed research goals and protocols, as well as collecting and evaluating observational data.

INTERVIEWED AUTHORS TO UNDERSTAND HOW THEY PRODUCE SECURITY ADVICE   Fall 2021 - Spring 2023
  - Interviewed authors of security advice to learn the full advice creation process, key decision making, and challenges for security advice content creation.
  - Trained team researchers in analyzing interview transcripts.

IDENTIFIED CHALLENGES DEVELOPERS FACE WITH CHECKED-IN SECRETS   Spring 2022 - Fall 2022
  - Applied qualitative analysis to investigate developer's questions and related solutions about checked-in secrets.
  - Identified 27 challenges and 13 solutions for managing checked-in secrets in software artifacts.

CATEGORIZED BEST PRACTICES IN SECRET MANAGEMENT ADVICE FOR DEVELOPERS   Fall 2021 - Spring 2022
  - Performed grey literature review of online advice related to developer secret management practices.
  - Identified 24 practices grouped into six categories comprised of developer and organizational practices

INVESTIGATED WEB SERVICE ACCOUNT REMEDIATION ADVICE   Spring 2020 - Spring 2021
  - Identified five key phases for online account compromise remediation.
  - Trained team researchers to analyze the quality of account remediation advice from popular web services.

University of Maryland, Baltimore County (UMBC)   **Fall 2015 - Spring 2019**
Undergraduate Student Researcher   **1000 Hilltop Cir, Baltimore, MD 21250**
Advisor: Dr. Anupam Joshi, (410) 455-2590, may be contacted

MINED CYBER THREAT INTELLIGENCE ABOUT OPEN-SOURCE PROJECTS AND LIBRARIES   Summer 2018
  - Mined threat intelligence about open-source systems from issue reports in GitHub public code repositories.
  - Tracked library and project dependencies for installed software on a client machine.
  - Represented all stored threat intelligence and software dependencies in a security knowledge graph.

PUBLICATIONS

Conference Publications (Peer Reviewed)
  1. **Lorenzo Neil,** Charlotte Healy, and Julie Haney. 2025. "A five-year-old could understand it" versus "This is way too confusing": Exploring Non-expert Understandings and Perceptions of Cybersecurity Definitions. In Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25). Association for Computing Machinery, New York, NY, USA, Article 652, 1–19. (Acceptance rate: 24.9%) https://doi.org/10.1145/3706598.3713820

  2. **Lorenzo Neil**, Harshini Sri Ramulu, Yasemin Acar, and Bradley Reaves. 2023. "Who comes up with this stuff? interviewing authors to understand how they produce security advice." In *Proceedings of the Nineteenth USENIX Conference on Usable Privacy and Security* (SOUPS '23). USENIX Association, USA, Article 16, 283–299. (Acceptance rate: 22%)

3. **Lorenzo Neil**, Julie Haney, Kerrianne Buchanan, and Charlotte Healy. 2023, "Analyzing Cybersecurity Definitions for Non-experts." In I*FIP International Symposium on Human Aspects of Information Security & Assurance* (HAISA '23). pp. 391-404. Cham: Springer Nature Switzerland, https://doi 10.1007/978-3-031-38530-8_31.

4. Setu Kumar Basak, **Lorenzo Neil**, Bradley Reaves, and Laurie Williams. 2023. "What Challenges Do Developers Face about Checked-in Secrets in Software Artifacts?" In *Proceedings of the 45th International Conference on Software Engineering* (ICSE '23). IEEE Press, 1635–1647. (Acceptance rate: 26.6%) https://doi.org/10.1109/ICSE48619.2023.00141

5. Seto Basak, **Lorenzo Neil**, Bradley Reaves and Laurie Williams, 2022, "What are the Practices for Secret Management in Software Artifacts?," In *Proceedings of the IEEE Secure Development Conference* (SecDev '22) IEEE Press, 69-76. https://doi.org/10.1109/SecDev53368.2022.00026

6. **Lorenzo Neil**, Elijah Bouma-Sims, Evan Lafontaine, Yasemin Acar, and Bradley Reaves. 2021. "Investigating web service account remediation advice." In *Proceedings of the Seventeenth USENIX Conference on Usable Privacy and Security* (SOUPS '21). USENIX Association, USA, Article 19, 359–376. (Acceptance rate: 22%)

7. **Lorenzo Neil**, Sudip Mittal, and Anupam Joshi. 2018. "Mining Threat Intelligence about Open-Source Projects and Libraries from Code Repository Issues and Bug Reports." In *Proceedings of the IEEE International Conference on Intelligence and Security Informatics* (ISI '18). IEEE Press, 7–12. https://doi.org/10.1109/ISI.2018.8587375

EXPERTISE AND SKILLS

Programming	C, C++, Python, PHP, HTML/CSS, JavaScript, R, LaTeX
Research Methods	Survey Design, Interview Design, Qualitative & Quantitative Analysis
Tools	Nvivo Coding, Microsoft Office, Qualtrics, MATLAB, MYSQL

HONORS & AWARDS

NIST Graduate Student Measurement Science and Engineering (GMSE) Fellowship Program	Summer 2022 - Present
Graduate Fellowship for Stem Diversity (GFSD) Recipient	Fall 2022 - Present
NC STATE Black Graduate Student Association (BGSA) Treasurer	Fall 2020 - Fall 2022
NC STATE Bridges To Doctorate Fellowship Scholar	Fall 2019 - Fall 2021
UMBC NSA Scholar	Fall 2015 – Spring 2019
UMBC Meyerhoff Scholar	Fall 2015 – Spring 2019