XENIA MOUNTROUIDOU Ph.D.

xenia.mountrouidou@gmail.com
https://mundruid.github.io/

Professional Summary

Experienced Security Researcher with a strong background in machine learning, intrusion detection, network security, and IoT. Proven track record in developing novel security techniques, managing research teams, and contributing to open-source projects. Skilled in applying advanced machine learning algorithms to enhance cybersecurity measures and detect malicious activities.

Core Competencies

- Machine Learning for Security
- Intrusion DetectionSystems
- Network Security
- IoT Security
- Data Science
- Leadership & Team Management

Professional Experience

Senior Security Researcher
Cyber adAPT | Aug. 2022 - Present

- Spearheading research on cutting-edge intrusion detection techniques using machine learning
- Developing and implementing LLM fine-tuning methods for enhanced malicious activity detection
- Invented and patented a novel malware ranking system
- Created framework with LLMs and ML to automate rules generation, improving efficiency by 99.9%
- Automated signature review processes, improving efficiency by 85%
- Conducted fuzz testing for IoT devices to identify vulnerabilities
- Contributed to open-source security tools, including Dalton and LiSa
- Authored a comprehensive blog series on cybersecurity and machine learning
- Leading and mentoring a team of security researchers

Senior Consultant
Network to Code | May 2020 - Aug 2022

- Designed and implemented KPI metrics for automation utilizing Telegraf, Influx, and Grafana
- Developed a Shodan Security plugin for IoT CVE tracking
- Contributed to Python open-source projects focused on network automation and security
- Created and delivered internal training courses on GoLang, Kubernetes, and Telemetry
- Implemented CI/CD pipelines for automated testing and deployment of security tools

Assistant Professor
College of Charleston | Aug 2016 - May 2020

- Directed the Cybersecurity X Lab, focusing on IoT security, adversarial data analytics, and machine learning for intrusion detection

- Developed behavioral models for IoT intrusion detection and created quantitative metrics for IoT security evaluation
- Implemented a forecasting Markov model for predicting adversarial behavior
- Integrated IDS (Snort) with SDN controllers to enhance DDoS attack detection and prevention
- Applied machine learning algorithms to improve intrusion detection accuracy by up to 88%

Assistant Professor, Wofford College, Aug 2015 - Aug 2016
Assistant Professor, Jacksonville University, Aug 2011 - Aug 2015
Postdoctoral Research Associate, College of William & Mary, Jan 2010 - July 2011
Software Engineer, IBM, Oct. 2007 – Dec. 2009

Skills

Security

- Network Protocol Analysis: Wireshark, Scapy (Advanced)
- IDS/IPS (Advanced)
- Fuzz Testing (Advanced)
- Cryptography (Advanced)
- Web Application Security (Intermediate)
- Malware Analysis (Novice)

Machine Learning

- Supervised & Unsupervised Learning Algorithms (advanced)
- LLM Fine tuning (advanced)
- Elastic ML (advanced)
- ML Ops (intermediate)

Programming & Tools

- Python, C/C++ (Advanced)
- Go, Java (Intermediate)
- Git, GitHub (Advanced)
- Cloud Platforms: GCP, AWS (Intermediate)

Education

- **Ph.D. Computer Science -** *North Carolina State University*
- **M.S. Computer Engineering -** *University of Patras*
- **B.S. Computer Science -** *University of Crete*

Awards:

NSF Grant ($295,998) to develop cybersecurity curriculum and hands-on labs for colleges.

PUBLICATIONS:

1. Thomas Setzler and Xenia Mountrouidou, *"IoT Metrics and Automation for Security Evaluation",* 2021 IEEE 18th Annual Consumer Communications Networking Conference (CCNC)
2. Casey Wilson, Xenia Mountrouidou, and Anna Little, *"Worth the wait? Time window feature optimization for intrusion detection"*, International Workshop on Big Data Analytics for Cyber Threat Hunting (CyberHunt 2019)
3. Xenia Mountrouidou, Blaine Billings, and Luis Mejia-Ricart, *"Not just another Internet of Things taxonomy: A method for validation of taxonomies"*, Elsevier IoT Journal, 2018.
4. Anna Little, Xenia Mountrouidou, and Daniel Moseley, *"Spectral Clustering Technique for Classifying Network Attacks"*, IEEE International Conference on Intelligent Data and Security (IEEE IDS 2016), April 8-10, 2016, New York, USA.

5. Blaine Billings, Xenia Mountrouidou, *"Modeling Correct Operation of Webcams for Security Purposes"*, ACM Undergraduate Research Competition Extended Abstract (SIGCSE 2018), (*Awarded First Place* in competition)
6. Josephine Chow, Xiangyang Li, Xenia Mountrouidou, Raising Flags: Detecting covert storage channels using relative entropy, IEEE International Conference on Intelligence and Security Informatics (IEEE ISI 2017), July, 2017, Beijing, China.
7. Tommy Chin, Xenia Mountrouidou, Xiangyang Li, and Kaiqi Xiong, *"An SDN-Supported Collaborative Approach for DDoS Flooding Detection and Containment",* IEEE Military Communications Conference (MILCOM), October 26-28, 2015, Tampa, Florida, USA