XENIA MOUNTROUIDOU Ph.D.

500 7th Ave Suite 8A New York, NY 10018

PROFESSIONAL STRENGTHS

- Network Security
- Machine Learning
- Performance Engineering

- Security Metrics
- Probability and Statistics
- Leadership

PROFESSIONAL EXPERIENCE:

May 2020 – present

Nework Automation Engineer

- Developed Ansible Collections and SDK for SD-WAN
- Created CI/CID workflows
- Developed KPI telemetry for automation utilization
- Participated in open source PyNTC and Nautobot Plugin projects

Aug. 2016 – May 2020

Assistant Professor

College of Charleston

Network to Code

- Director of the Cybersecurity X Lab. Security projects:
 - Internet of Things (IoT) security evaluation:
 - IoT usage is growing exponentially and the attack surface has increased with poorly secured Internet connected devices.
 - The goal is to evaluate the security of common IoT home devices.
 - Setup IoT testbed, automated tests with scripting languages for correct operation and network attacks.
 - Generated original IoT packet captures and system log datasets, created behavioral model for IoT intrusion detection, and developed testcases and quantitative metrics to evaluate IoT security.
 - Adversarial data analytics:
 - Adversarial behavior is unpredictable and yet important for the evaluation of systems security.
 - The goal is to develop a data driven forecasting model of attacker behavior.
 - Automated analysis of a large dataset (5 TB) with Snort and Bro (Zeek).
 - Developed a forecasting Markov model for adversaries.
 - Software Defined Networking (SDN):
 - Denial of Service attacks are indistinguishable from flash flood user traffic.
 - The goal is to use IDSs such as Snort in combination with SDN controller information to verify an attack and block it.
 - Programmed SDN controller to correlate DDoS Data and block appropriate ports for prevention in real time.
 - Increased accuracy of DDoS attack detection up to 50% with low performance overhead.
 - Machine learning for intrusion detection:
 - Intrusion detection is a multifaceted, hard problem to solve accurately.
 - The goal is to reduce false positives and increase accuracy of attack detection.
 - Applied clustering algorithms such as spectral clustering and decision trees, to differentiate attack from regular network traffic.

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Wofford College

IBM

• Increased accuracy of detections in some cases by 88%.

Assistant Professor

Aug. 2015 – Aug. 2016 Aug. 2011 – Aug. 2015

Assistant Professor Jacksonville University Postdoctoral Research Associate College of William & Mary

Jan. 2010 – July 2011 Postdoctoral Research Associate College of William & Mary
Research in performance modeling and energy consumption optimization for disk drives.

Software Engineer

- Performance testing of WebSphere product, SIP and XD series
- <u>SKILLS:</u>

Software Development

Oct. 2007 – Dec. 2009

- C/C++ (advanced)
- Java (advanced)
- Python (advanced)
- Github (advanced)
- Javascript (intermediate)
- PHP (intermediate)
- MySQL (intermediate)
- AWS (novice)

Security

- IDS/IPS (advanced)
- Scapy (advanced)
- Wireshark (advanced)
- Socket programming (advanced)
- Cryptography (advanced)

- Bash scripting (advanced)
- Web application testing (intermediate)
- Powershell (novice)
- Malware analysis (novice)

Machine Learning

- Python NumPy (intermediate)
- Supervised & Unsupervised Learning Algorithms (intermediate)
- Splunk (novice)
- Deep Learning (novice)

Operating Systems:

- UNIX, Linux
- Windows
- Mac OS

Languages: French (advanced), Greek (native)

EDUCATION:

Ph.D. Computer Science - North Carolina State University, Department of Computer Science, Aug. 2007. Thesis Topic: Computer Network Performance Evaluation, Markov Modeling.

M.S., Computer Engineering - Integrated Software and Hardware Systems program, University of Patras, Sept. 2002

Bachelor's of Science, Computer Science - University of Crete, Sept. 2000

AWARDS:

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

PUBLICATIONS:

- 1. Casey Wilson, Xenia Mountrouidou, Anna Little, "Worth the wait? Time window feature optimization for intrusion detection", International Workshop on Big Data Analytics for Cyber Threat Hunting (CyberHunt 2019)
- 2. 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.
- **3.** 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.

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- 4. Blaine Billings, Xenia Mountrouidou, "Modelling Correct Operation of Webcams for Security Purposes", ACM Undergraduate Research Competition Extended Abstract (SIGCSE 2018), (Awarded First Place in competition)
- **5.** 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.
- 6. 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