BLOOMBERG INTERNSHIP OPPORTUNITIES
Analytics and Identity Architecture Team

Team Abstract

- Part of Bloomberg’s CTO’s Office. We are a team in the Security Architecture Organization.
- Cross-functional and cross disciplinary infrastructure security architecture team.
- Forward-looking research in the realm of infrastructure security, data science as applied to security, hardware and device security architecture; we innovate across all these areas!
- Lots of interesting side projects - don’t always do the same day-to-day projects. We always have many things we’re interested in learning about.
- Intern projects all apply to real-world problems, what you build will become a part of a production system.

Intern Requests

Hardware Team:
Have you ever thought about how security and hardware come together into a consumer product, something people will use daily? The HW team at bloomberg is charged with developing and delivering products that meet our security requirements while keeping in mind that people will be using them. Core to our security model, the hardware we deliver is equipped with secure biometric authentication sensors, secure processors, and more. Identity is core to our customer and employee experience with our products and business services. We handle everything from design, to manufacturing, and firmware for these devices.

The security model of these devices allows us to create a secure extension of our data centers to customers and employees to identify and authenticate them for accessing our financial data service with our standalone application, mobile application, and our web services for both employees and customers. Ever wonder how consumer devices are made from start to finish? Our team is responsible for the manufacturing of these devices from printed circuit board assembly all the way through functional testing of the final product and boxing it up for delivery to our warehouses worldwide.

If you are interested in security, hardware, firmware, biometrics, identity, manufacturing, performance/optimization, or data visualization this internship may be for you.

Problems we are trying to solve:
• Fuzzing hw and sw interfaces to make our devices and the software running on them more secure
• Develop and augment automated analysis and test capabilities around the world for our hw products at our factory, functional test, and company warehouses.
• Develop data focused online applications to visualize and analyze manufacturing data collected from our factory to enable better product decisions.
• Optimize and enhance performance of on device secure firmware to bring measurable usability gains for our customers.
• Develop and extend user interface and user experience on our devices to deliver a richer human experience with our hardware and software.

**Security Data Science Team:**
The Security Data Science team’s mission evolves around:
• Build purpose-built security models leveraging statistical and machine learning approaches
• Pioneering graph computation technology
• Defining and using state-of-the-art analytical architecture leveraging advanced big data technologies such as Hadoop, Spark, Flink, Hbase, Druid and more
• Providing strategic vision on latest analytical techniques and tools
• Working with very large datasets

**Intern Job Responsibilities:**
• Understands the overall drivers of the company, including the brand, customer, product goals, and all other aspects of service
• Work with experts to help on our Big Data journey
• Accepts designated, business-focus projects to research, propose ideas and solutions, and present final project during the internship
• Provide suggestions to management for improving internal processes and tools
• Learns and becomes proficient on internal software systems
• Assists in creating security reports

Here are some of the ongoing projects the team is working on:
• Large-scale network data analytics and anomaly detections
• Real-time creation of a massive knowledge graph
• Malware metadata analysis using deep learning techniques
• Creation of a NoSQL index for our data lake to provide fast exposure checks for potential security incidents (Hbase)
• Generate reports relation to the security posture of the company
• Design and implement a store for “Indicators of Compromise”
• Design and implement a store for “Security Signals”
• Design and implement a toolkit allowing the reproprocessing of data on demand

A qualified candidate would have interests in some of the below items:
• Big Data technologies: Hadoop, Map/Reduce, Spark, Flink, Hbase, Druid, Hive, etc.
• ML technologies: Tensorflow, Keras, Pytorch, etc.
• Graph computation: Janusgraph, Neo4j, Tinkerpop, GraphX, etc.
• Networking: TCP/IP, Network traffic capture and analysis
Infrastructure Team (Information Superhighways and Byways):

Bloomberg runs on data. Our customers need the data we provide and they trust us with theirs. This is why Security is so important to our business.

The Infrastructure Security team is continuously looking to improve our ability to detect and respond to security incidents. An essential component of this is to model our security controls against simulated attacks to see how a specific security policy implementation may affect our ability to detect such events. As an intern, you'll be asked to help develop this system. Through the development of this system, you'll learn a number of key aspects of effective security controls and improve your overall understanding of large enterprise's reason about security.

Some projects you could work on include:
- Help to model an enterprise network and the related security controls using virtualization technologies such as GNS3 or EVE-NG
- Help develop a technology framework with which to evaluate commercial network and security simulation products
- Participate in security projects including but not limited to: asset inventory & classification, Identity & Access Management, SOC, vulnerability management, configuration hardening/attack surface reduction.

Coming away from this internship you will have:
- Understanding of the overall drivers of the company, including the brand, customer, product goals, and all other aspects of service
- Gain experience with how security projects work in a large organization
- Gain an understanding of how security is a cross-functional aspect of any organization.
- Gain insight into the thought process behind making decisions about security infrastructure.

A qualified candidate would have interests in some of the following:
- A strong desire to learn through experimentation
- Networking: TCP/IP, Network traffic capture and analysis
- Scripting languages: Python, Shell, and PowerShell
- Security Information and Events Management (SIEM)
- Automation technologies such as Ansible
• Cloud/virtualization technologies: OpenStack, ESX, Vagrant, Kubernetes, Docker
• Windows, Mac, and Linux security controls
• Windows, macOS, and Linux telemetry collection and logging
• Network security controls such as firewalls, proxies and switch/router ACLs

TO APPLY:

• At the subject section, mention one of the three internship positions.
• Include a cover letter and your CV.
• Email to:
  Erwan Le Doeuff
  CTO, Security Architect
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