Version 0.2.0

Xin Meng

Downland, Two Miles Ash, Milton Keynes +44 7421903835 xin.meng.1@city.ac.uk

Work Experience

Dec 2019 – Current | Server Team Lead at Creative Gaming Ltd , London
Development & Management
Responsible for architecture design of slot game back-end server design and mathematical algorithm server logic design and verification. The technology stacks include gRPC, Spring Boot, Kotlin and Spock Framework. The server depend on AWS products such as DynamoDB, EC2, Network Load Balance etc. The Android version of app has been published as early access.

Feb 2016 – Nov 2019 | Full Stack Developer at DeepnetSecurity , Milton Keynes
Development
Full stack developer for several projects related to unified authentication system: the Identity provider authentication server, Single sign-on system. The framework of the back-end is a light combination based on Jersey, Guice, Shiro and Swagger with Java 8 and we use the Spock as the test framework. I made lots of improvements to this light framework to support more features. Such as async request with Akka, generic APIs with the dynamic scheme etc. During the development, I solved many difficult problems, such as various single sign-on protocol handler and tab session separation management. Recently, I involved into the design and development of next-generation cloud-based unified authentication system by using the microservice architecture with LagomFramework.

May 2014 – Feb 2016 | Teaching Assistant at City University , London
Education
Provided teaching assistant for the undergraduate course including Mathematics for Computing, Computation and Reasoning and Object-Oriented Analysis and Design. Meanwhile, I got involved in the Second Maker for Individual Project. Gained experience in communication and logical thinking.

Sept 2015 – Nov 2015 | Android Developer Intern at DeepnetSecurity, London
Development
Responsible for the Android application development of IDigiSign which is an electronic signature platform. Became familiar with how to develop Android applications with Restful API. Solved some technical problems such as showing PDF file, cropping photos to upload, loading network images and so on.

Education

Sept 2012 – Sept 2016 | PhD researcher at City University, London
Mobile Security Research
Research on the mobile Botnet detection on Android platform. Became familiar with JAVA and Android development technique. Provided analysis of the traffic network pass through the mobile device by using machine learning classification. A mobile Botnet detection framework (MBotCS) is developed on the Android platform. The PhD Thesis *An Integrated Network-based Mobile Botnet detection System* can be accessed by http://openaccess.city.ac.uk/19840/

Sept 2010 – July 2012 | Master of Science in Computer Application Technology,
Major: Cloud Computing, **University of Aeronautics and Astronautics**, Nanjing
Thesis: "Virtual Resource Management in Cloud" | Advisor: Prof. Yi Zhuang
Mark: 87.98/100
The postgraduate courses cover some advanced topics in computer science such as parallel and distributed system and advanced artificial intelligence.

Sept 2006 – July 2010 | Undergraduate Degree in Computer Science and Technology
highest honour, **University of Aeronautics and Astronautics**, Nanjing
Thesis: "UCON Based FTP Access Monitoring System" | Advisor: Prof. Yi Zhuang
GPA: 4.0/5
The undergraduate courses cover all fundamental of computer science such as Data Structure (95/100), Operation System (94/100) and Database Principles (96/100) and so on.

Open Source Contribution

April 2017 – Current | OpenAPI Generator
Founding Members https://github.com/OpenAPITools/openapi-generator

OpenAPI Generator is a fork of Swagger Codegen. I have contributed several Pull Requests to improve the generator of the Typescript language. I also engaged in the document translation plan to translate the official document to the Chinese version. During the OpenAPI Generator initial stage, I also took part in several discussions for plan, target and prospect. Meanwhile, I was granted as Founding Member because of my contributions.

FEB 2019 – CURRENT

GitLab Community Edition

Contributor https://gitlab.com/gitlab-org/gitlab-ce/merge_requests/24888

GitLab is a famous open-source git repositories server which includes lots of features. I contribute one Merge Request to add a new feature to integrated Open Project(an open-source project management tool alternatives to JIRA). Base on this feature, when pushing code with special keyword to the GitLab server, the integration could be triggered to create the corresponding comment to the issue on the Open Project. It looks like a connection between GitLab and Open Project. During these months of development, there is more than 100 commits and 200+ discussions. I have made lots of refactoring work to improve the code quality. It is expected to release in recently.

TECHNICAL PROJECTS

DEC 2019 – CURRENT

Slot Game Back-end Server, London

Leader

The project is designed to provide gRPC service for slot game application. The project is based on Spring Boot framework with Kotlin and Spock Framework for unit test. It also connects to the AWS DynamoDB and deploys on EC2 with network load balance.

DEC 2018 – DEC 2019

Scala Akka Real-time Connection Server, Milton Keynes

Leader

The project is designed to provide real-time communication between server-side and a variety of client platforms. It is a Pub-Sub system based on the WebSocket. With the help of Akka Cluster, I also implemented the cluster handle to support horizontal scaling. The server also supports the OAuth2 Authentication to protect the Subscriber has the right permission to monitor the topic. During this project, I mastered the **Sbt**, **Scala**, **Akka** technology stack. I also implemented several custom Sbt plugins such as build environment detection.

DEC 2018 – DEC 2019

DevOps Engineer, Milton Keynes

Leader

Because of the complexity of the products, the DevOps system is necessary for the developers to achieve quick iterative development. Base on the **GitLab**, **Nexus Repository**, **Docker Registry**, **Docker Compose**, I establish the entire DevOps system. After the system applied, the private jar package and npm package can be deployed on the Nexus server. When planning to release a test version of one of component, just need to push the corresponding tag. The build server will be triggered by GitLab CI system and build the Docker Image to the Docker Registry. Finally, all Docker Containers managed by Docker Compose will be triggered to update automatically. We have implemented the automatical process from code to deploy based on this system totally. During the setup process, I wrote lots of automated scripts including **Bash script**, **PowerShell script** and **Python script** and also created several Docker images tool to support the build process such as IzPack, NSIS and Makeself to build the installer.

SEPT 2018 – DEC 2018

LagomFramework microservice with Event Sourcing and CQRS, Milton Keynes

Leader

By summarising the deficiencies of current unified authentication platform products, we decided to embrace microservice to increase the service availability and scalability. Through comparing several JVM based solutions (Spring Cloud, JHipster, Axon Framework, LagomFramework), the **LagomFramework** was chosen as high priority potential solutions to research. LagomFramework is an open source framework for building reactive microservice systems in Java or Scala with the support of **Akka** and **Play**. In two months of research and development, I had understood the architecture of microservice such as the **Service Locator** and **API gateway**. Meanwhile, I had built a prototype system with several services including all the features of LagomFramework provides and lots of generic implementation with Scala type system. For examples: Service Call, **Event Source** with **Cassandra**, Read-Side persist and query with Cassandra and Relational Database (JDBC, Slick), **Kafka** Message Broker and **ElasticSearch** query and update. I also used the **Kubernetes** (Minikube) to deploy the project to test the performance.

SEPT 2017 – SEPT 2018

Single Sign-On Back-end Server, Milton Keynes

Leader

The Single Sign-On (SSO) Server is the core project in the current DualShield product family. This project is a new generation of the corresponding product which is based on a lightweight Restful API framework by combining **Jersey**, **Guice**, **Shiro** and **Swagger** with **Java 8**. The major function of SSO server is handling the various single sign-on protocol, such as **SAML**, **WS-Fed**, **OAuth2** and so on. During the development of this project, I had been familiar nearly all of the single sign-on related protocols. By researching the official standard documents of OASIS and Microsoft, my implementation for the protocol handlers conforms the specification strictly. I learnt the **OpenSAML Version 3** by reading its source code and make several extensions such as SOAP1.2 support and more flexible encoder. The other important feature of this project is supporting the real-time message publish and subscribe. After a comprehensive investigation of related technology such as Kafka, Pulsar, CouchDB, RethinkDB and Firebase, I finally decided to use the **Firebase Real-Time Database** to support the message exchange.

MAR 2016 – APR 2018

Google Cloud based DualShield Platform, Milton Keynes

Leader

This project is a cloud-based unified authentication platform. The platform is designed for providing a one-stop solution for the enterprise to protect their resource. According to the development of this project, I had learned huge of knowledge and practices the ability of software architecture. The project is based on a lightweight Restful API framework by combining Jersey, Guice, Shiro and Swagger with Java 8. The **Google Cloud Platform (GCloud)** was chosen to host our project, so I had got proficiency with related products of GCloud such as **DataStore**, **Standard/Flexible Environment(App Engine)**, **Compute Engine** and so on. Apart from these mainstream development technology, this project also need to support some special features, for example, the **multiple factor authentication (HOTP/TOTP etc.)**, **LDAP/AD operation**, **Public Key Infrastructure (PKI)** related development.

SEPT 2012 – FEB 2016 | Mobile Botnet Detection System Research and Implementation, London

Leader

The main project for my PhD research. In order to realize the system to detect the mobile Botnet on Android platform, there was a lot of work during my research. Firstly, I in-depth studied the **knowledge of network** and I was familiar with the traffic monitor toolkit **"WireShark"**. In addition, I made some research for the "PCAP" format traffic file and used **"JNetPcap"** to implement the PCAP file parser by using **JAVA**. Secondly, I studied the Machine learning Classifications and became familiar with the open source machine learning toolkit **"WEKA"**. I used the toolkit to classify the traffic based on selected features. At last, I enhanced my **Android development skills** to implement the detection system on the Android platform which had been published on conference named "CRISIS2015". I also performed some experiments by analysing the traffic and system call on the mobile system. I had implemented some **Linux Shell Script** (which can be run on the Linux kernel of Android operation system) to capture the system call for the specific process.

JUNE 2011 – AUG 2011 | Competition: "HuaWei Cup" Computer programming contest, Nanjing

Leader

I chose the project of URL Matching Algorithm Research and Implementation. I developed a software which can match the specific URLs in the database base on given rules including some wild-card character. During the project, I used 3 core algorithms to satisfy the requirement of time&space complexity which include **KMP string searching algorithm**, **Deterministic finite automaton(DFA)** and **Rule-base classification**. At last I implemented the system based on **C#** using **Visual Studio 2005**. The project got the third prize of the competition.

JAN 2011 – MAY 2011 | Competition: Second Google Android Competition in China, Nanjing

Leader

I Organised a team to attend this competition, and we developed a Special Alarm on Android platform. The innovation of the application is introducing the social network thinking. We defined a universal format (**XML**) of the alarm and the user can share their alarms with their friend such as "Fitness Plan" and "When you need to brush your teeth". I was responsible for the design of the application and implementation of the XML file store and parse on **Android development**. I was even in charge of the **UI design** with my skilled **Photoshop** knowledge. The project got the "Excellence awards in Google Android Competition in East China"

KEY TRANSFERABLE SKILLS

Problem Solving: In current work, I usually take part in the solution exploration and architecture research to meet the requirement of projects. To achieve the target of my PhD project, I had to solve a series of problems including how to distinguish the malware and normal applications and which features could be used for detection. According to a lot of experiments, I found that it is feasible to detect the malware by analysing some specific features of traffic.

Learning Capability: In current work, I learn lots of domain knowledge such as the various standard security protocol and new technology by myself to achieve the special requirement. Meanwhile, I can also apply this knowledge to the development of the project. During the period of PhD, I learnt a lot of knowledge by myself for the research. Such as learning Linux shell script to monitor system calls on the Android platform and learning Python/VBA script to analyse huge data automatically. I am good at studying and taking advantage of the new technology and existing toolkit. Such as to implement analysis of PCAP file, I made use of JNetPcap, which is a powerful open-source Java library for network analysis. I also learnt the LaTeX to write my publication, thesis and this CV.

Data Analysis: Machine Learning and statistic analysis play an important role in my PhD research. These techniques are essential for data analysis. Such as I used the machine learning classification to analyse the traffic data on the mobile device to find the distinction between normal and abnormal. I also performed T-Test and ANOVA to analyse the differences among different groups data.

PROFESSIONAL SKILLS

Language:	JAVA, Scala, Kotlin, Groovy, C#
Framework:	Akka, Spring Boot, Armenia, LagomFramework
Database:	MySQL, DynamoDB, MongoDB, GCloud Datastore
Others:	Swagger, gRPC, Protocol Buffers, Docker, Git, Linux, Kafka