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Xin Meng

Address: Bletchley Park Innovation Centre, Milton Keynes | MK3 6EB
Contact: +44 7463001807 Xin.Meng.1@city.ac.uk
Website: https://mengxin.science

Education

Apr 2018 – June 2018 | Spring Framework 5: Beginner to Guru, Udemy
Online Learning
Learning the Spring Framework 5 and the corresponding repository: https://github.com/xmeng1/spring5-app. In this course, I mastered the popular Spring related tech stacks such as Spring Boot, Spring MVC, Spring Security, Hibernate and so on. I also learned the Spring-based microservice solution by using JHipster.

July 2017 | Google Cloud OnBoard One Day Training, London
Google Cloud Platform
Learning the knowledge of Google Cloud Platform products such as Standard/Flexible environment, Google Kubernetes Engine, Cloud Dataproc, Cloud Dataflow, BigQuery, Tensorflow and ML APIs.

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.

Work Experience

Feb 2016 – Current | 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.

Technical Projects

Sept 2018 – Current

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"

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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

Advance Knowledge:	JAVA 8, Spring, Spring Boot, Scala, Akka, LagomFramework, Docker, Git, Git flow, Kafka, Google Cloud, Swagger, Linux, ElasticSearch, Machine Learning, VBA, PHP
Intermediate Knowledge:	MySQL, Android, Xamarin, Angular, HTML, C, C++, CSS, LaTeX
Basic Knowledge:	PYTHON

Scholarships and Certificates

Sep. 2012	Full Scholarship for PhD students from City University (£50,400)
Oct. 2011	Excellence awards in Google Android Competition in East China
Jul. 2009	Awarded China National Motivational Scholarships
Jul. 2008	Awarded China National Scholarship
Nov. 2012	IELTS©: 6.5 (Listening:7.5;Reading:7.0;Writing:5.5;Speaking:6.0)

Publication

July 2015	MBotCS: A mobile Botnet detection system based on machine learning 10th International Conference on Risks and Security of Internet and Systems
April 2018	An Integrated Network-based Mobile Botnet Detection System Doctoral thesis, City, University of London

Languages

Chinese:	Mothertongue
English:	Fluent
French:	Basic Knowledge

Interests and Activities

Novel Technology, Open-Source, Programming
Reading, Magic Cube, Guitar
Cycling, Football, Travelling