

## Experience

### American Express

Sep 2019 – Present

#### Engineer – NeMo (Network Modernization)

Burgess Hill, UK

- Developed a low latency data retrieval and file generation process that enabled NeMo to safely record and store up to 250,000 live transaction records every 10 minutes across data centres in 5 localities (incl. EMEA, APAC, USA)
- Optimised the above file generation process by 42% by implementing thread-safe concurrent database reading
- Configured Cassandra to persist records according to a 'NetworkTopologyStrategy' to support multi data-center deployments
- Leveraged Kafka to act as intermediary between Cassandra DB and a downstream K8s ingestor for bi-directional data replication to all datacenters
- Onboarded new payment specifications in Java enabling NeMo to process transactions in Japan and Switzerland
- Leveraged Kibana logging to analyse and correct issues in payment specifications to ensure that transactions are processed as required.
- Ascertained deep understanding of ISO8583 messages, the standard for transaction card originated interchange messaging
- Spearheaded the UI for a brand-new tool to assist in automating the specification onboarding process reducing time to market of payment specs by 30% (built in React with a Java backend and Couchbase as a datastore)

#### Graduate Technology Engineer – GR (Global Remittance)

- Developed of internal end-to-end testing software to monitor the state and correctness of data entering, leaving and between applications in GR
- Leveraged Java and Spring to access and process data in various datastores (Oracle/DB2/Splunk/Kafka), significantly reducing the time taken in this aim (previously was done manually)
- Implemented process by which aforementioned data was seamlessly passed into dynamically generated Cucumber feature files, enabling headless testing of specific flows across the Global Remittance platform

#### Graduate Technology Engineer - BIP (Buyer Initiated Payments)

- Developed a new business initiative called 'Project Simple' – implemented to greatly simplify the supplier enrolment process for new BIP suppliers
- This involved
  - React development and testing using the Jest framework
  - Designing and implementing RESTful API's using Java and documenting via Swagger
  - Java testing using the Mockito framework ensuring robust code quality
  - Integrating Java code with various stored procedures

## Personal Projects

(more at <https://francisnd.co.uk/projects>)

### Kafka Messaging System

Kafka, Java, Spring, Maven, Docker, Kubernetes

- Created publish and subscribe messaging application
- Used custom serializers/deserializers to push chat messages to various partitions (by key) across different topics
- Deployed into Docker container in Kubernetes cluster

### Accounts Expenses System

Java, Spring Boot, JPA, Hibernate, MySQL

- Spring application allowing user to manage various banking accounts
- Used Spring Boot to perform CRUD operations for accounts in dockerised MySQL DB
- Used JPA and Hibernate to persist records

## Education/Certification

### Oracle Java 8 SE Programmer I

University of Leicester - MComp Computer Science (1st Class Honours)

Sep 2021

Sep 2015 – May 2019

## Skills

### Programming (Proficient)

### Programming (Familiar)

### Libraries/Platforms

### Data/Databases

Java (incl. Android App Development)

JavaScript, React

Cucumber/ JUnit Testing, Spring JPA, Spring Security, JSP, Docker, LARA, Kafka, Mockito, React, XLRRelease, Swagger, Openshift

SQL, SQLite, NoSQL (incl. Firebase Realtime Database & Couchbase), Splunk, Kibana, Cassandra

**Working Practices**

Agile Methodologies (incl Scrum), Test Driven Development (TDD), Behaviour Driven Development (BDD), Git Version Control

## Activities

**HackSussex**

*Hackathon at University of Sussex*

Judge (2019)