

Alexander Hopgood MEng (Hons) MBCS



Personal Details

Tel

07704 948 943

Email

alex.hopgood@gmail.com



Summary

I am a developer experienced at participating in an agile team (using Kanban & Scrum) and dealing with multiple internal and external customers with familiarity working on greenfield and legacy projects for live commercial environments.

I have a desire to support and learn with others, committing to reducing knowledge siloing and am possessed of a quick learning curve.

Keen to produce quality, maintainable software whilst addressing technical debt. I aim to respond to changing circumstances whilst keeping an eye on the “bigger picture” to ensure future strategy isn’t compromised or stymied by near term decisions.

Comfortable representing teams and communicating to the rest of the business.

I am looking for a place to learn new technical skills within a close-knit cross functional team where I can contribute to a high quality, measurable and continually deployable product.

Skills

Java Development: Java 8-17, Hibernate, Spring; Boot, MVC, Security & Injection Frameworks, maven, TDD using JUnit, Mockito and AssertJ.

Continuous Integration: Jenkins, Git, Coding standards through Sonarcloud, Cobertura & Jacoco.

Server Administration: Puppet; hiera, eyaml. Vagrant, Docker, Kubernetes/Minikube, Bash scripting. Apache web server and Traefik as reverse proxies. LetsEncrypt for certificates. Consul as a service mesh.

RESTful & SOAP Web Services: API design, integration, consumption and maintenance. Wiremock & Karate for testing & Swagger for documentation.

Agile software development: SCRUM, Kanban & Sprint management

Amazon Web Services: SNS, SQS, ECS, ECR, EKS, CF with local development and testing using localstack and the AWS CLI.

Misc: MySQL (5.6, 5.7)

Comfortable developing on Linux, Windows or MacOS. Experience with both Eclipse & IntelliJ IDEs

Career Summary



Company Profile - Not On The High Street

Not On The High Street curates an online shopping experience that cannot be replicated anywhere else with unique products crafted by their partners and sold only on their platform.

You won't be able to find anything from their site on your local high street, all items are made by UK small businesses and many items are able to be personalised for any occasion.

August 2019 - Current - Senior Engineer

- Formed the basis of the new Product Information Management Team to help migrate, sanitise and introduce more contextual information to existing product data providing the basis for improved filtering, searches and navigation of the site.
- Ran 1-2-1s with four Mid-level Engineers setting and assessing both professional and development goals Jan - September 2020
- Actively participated in the recruitment drive for NOTHS performing phone screening interviews, coding task reviews and face to face interviews.
- Launched and maintained first micro-service based on updated infrastructure and tooling for NOTHS using Docker, ECS, API Gateway, Cloud Formation, App Mesh and RDS (MySQL)
- Ran internal infrastructure workshops and tutorials covering; Cloud Formation and Elastic Container Service
- Created and ran security workshops for developers covering; Persistent Cross Site Scripting (XSS), Reflective Cross Site Scripting
- Introduced build and runtime container security scanning via Grype to service pipelines
- Security Champion within the department
- Introduced Karate framework to address and standardise API testing across various environments
- Database optimisations: improved bulk queries from a 12 hour execution time to 42 seconds, enabled a rolling table naming update with zero downtime, introduced environment-based migrations allowing for a controlled, staggered test and rollout of migrations across environments.
- Proactively managed a DB engine upgrade across environments with minimal downtime, preventing scheduling by AWS at a time inconvenient to the business
- Maintained a JMeter load test suite, migrated to Gatling to improve readability, SOLID principles and accessibility by other devs.
- Migrated ECS micro-service to EKS
- Constructed a kubernetes setup with Minikube to provide an equivalent local development environment

Skills: Java 11-17, Elastic Kubernetes Service (EKS), Minikube, Elastic Container Service (ECS), AWS API Gateway, Cloud Formation, Simple Queue Service (SQS), Simple Notification Service (SNS), Relational Database Service (RDS), App Mesh, Localstack, Spring Boot, Docker, Hibernate, MacOS, Karate, Flyway, Datadog, Grype, Syft, JMeter, Gatling.



Company Profile - Nutmeg Ltd

Nutmeg provide a managed wealth service with low fees and transparency, enabling customers to manage their investments, ISAs and pensions in a straight forward way through their web interface and mobile clients. Nutmeg are challenging the banking and investment industries by removing the barriers for everyday people to invest, users need no investment know-how as the portfolios are professionally managed. Having raised £42 million in 2016 alone (the largest round in the UK since the vote to leave the European Union) and followed that with backing from Goldman Sachs to the tune of £45 million in 2019, Nutmeg are planning to take their business plan international.

May 2017 - August 2019 - Senior Engineer Worked in the operational excellence (O.E.) team on the main Nutmeg product supporting the day to day operations. This was done by increasing unit test coverage, providing bug fixes and working with the product team to deliver improved functionality.

- Reduced 30 minute database queries to 2 minutes by moving from Data Nucleus JPA ORM framework to hand written JDBI queries
- Improved reliability of integration environments by ensuring latest releases of services are pulled down by default on rebuild whilst allowing overrides for specific versions where the user chooses to, e.g. pre-release candidates.
- Added remote disabling of 2 step verification via the customer service screens to alleviate a customer pain point and allow for releasing of the feature.

Worked within the Penetration Test Online team to action items raised by an external penetration test and conducted internal penetration tests against our own APIs.

- Reviewed the password hashing algorithm and effort, creating tooling to simplify the calculation of desired effort allowing continued appropriate updates to the number of key generation rounds used when hashing.
- Worked with security consultant to assist with API pen test against mobile endpoints and actioned fixes, this also provided a base to compare and contrast against various automated tooling that could reduce the ongoing overhead of running penetration test suites.
- Conducted security audit of externally facing repositories, capturing and remediating information leakage that could have been beneficial to malicious actors.
- Created a test framework using Karate to capture REST API requirements & behaviours to prevent regression and introduction of security issues.

To prepare Nutmeg for the MIFID-II legislation in January 2018 I participated in a greenfield project to report Nutmeg's trading activity to the FCA as it happened.

Using Spring Boot micro services with AWS SQS and SNS as the messaging platform between the services we collated individual trades into blocks for submission.

Team member in the team responsible for creating the next generation platform for Nutmeg's expansion:

- Translation of the authentication API from Ruby to Java before refactoring and improving it to allow for stronger hash strengths, public/private signed JWT tokens and session management.
- Responsible for introducing the karate REST testing framework to Nutmeg in order to ensure behavioural consistency between the Ruby and Java versions of the Authentication API.
- Created and managed Jenkins pipelines to support branch driven continuous deployment across multiple environments.
- Authored the key management policy relating to the public and private key signing of JWT tokens across the organisation.
- Introduced FindSec-Bugs, OWASP dependency check and Quay to build process in order to capture security anti-patterns via static analysis and to detect vulnerable Java and Docker dependencies.
- Secured the artifact repository used for Java development to prevent MITM attack through 3rd party library poisoning.
- Actively measured and managed Common Vulnerabilities and Exposures (CVEs) over five projects to within an acceptable level of severity and occurrence agreed with stakeholders.
- Produced a library to assist other teams with parsing and validating Json Web Tokens (JWTs) used for user authentication and authorisation.
- Enforced coding standards to a minimum of 85% branch coverage over five projects, including back-filling tests to meet this metric.
- Active in the Nutmeg hiring process running interviews for candidates from junior, mid and up to senior level.

Skills: MacOS, Docker, JDBI, JPA, Java 8, Karate, Postman, Swagger, PlantUML, Hexagonal Architecture, Spring Boot, Json Web Tokens (JWTs), Marathon



Company Profile - Masabi Ltd

Masabi provide an industry leading mobile ticketing platform for the UK rail market and is an emergent player as a solution for metropolitan transport agencies worldwide. Over four years the UK product has grown from revenues of £4 million to £69 million in 2016:

- 2011 £4 million
- 2012 £20 million
- 2013 £34 million
- 2014 £42 million

- 2015 £54 million
- 2016 £69 million

The UK rail product included branding and management of between 11 and 12 brands of well-known train operating companies (VirginTrains, FirstHullTrains, FirstTranpennineExpress, FirstGreatWestern, FirstCapitalConnect, FirstScotRail, AbellioGreaterAnglia, CrossCountry, ChilternRailways, RedSpottedHanky, EastMidlandsTrains, O2, NorthernTrains, AbellioScotRail) as well as working with the national body the Association of Train Operating Companies (ATOC) to provide industry wide expertise and services.

Jan 2015 - Jan 2016 - Development Team Lead - UK Product Line managed development team of 2 server developers, 1 client developer and 2 quality analysts; leave management, 1-2-1's, training / conferences.

Maintained and improved the legacy product that provides Masabi's main UK revenue source.

Implemented peer to peer shared credential database within the team to ensure that everyone had secure access to cross-team resources.

Encouraged pairing between dev and qa to increase communication and understanding of features and work.

Implemented a rolling support role to ensure that no person would be a single point of failure or reliance, enabling us to provide support during office hours year round.

Led and encouraged knowledge and responsibility sharing amongst the team (not quite cross functional) through pairing, responsibility switching (e.g. support role), shared doc writeups, team presentations and hack days.

Ensured business and customer critical stats runs were completed on the day they were needed, brought the run time down from two days to an hour and also distributed the knowledge so one of three team members could pick up the task if others had high priority items already in play.

Created acceptance criteria to help provide a universal level of acceptance from a developer, quality analyst and account manager view.

Ran stand ups, sprint planning, retrospective, backlog grooming and stakeholder meetings (2015-01-01 to 2015-06-01) until a product manager could be found. Instigated lead developer lunch meetings.

Jan 2014 - May 2017 - Lead Developer - UK Product Responsible for architectural design decisions (shared cache, externalised properties etc).

Mentored members outside of my own team.

Code Reviews for PCI compliance.

Founded a cross-team security council to review existing and newly discovered vulnerabilities and action updates.

Implemented industry standard for RSP6 barcodes via code and turned this into a service.

Creation of a SOAP web service for an industry standard used by a high profile client (ATOC) for consumption by the entire rail industry.

Instigated cross-team server meetings to encourage sharing of common domain problems and solutions.

Led team security best practices by example ensuring the team took ownership for everyday security matters (2FA, password managers, screen locking etc).

March 2012 - May 2017 - Server Developer - UK Product Created detailed documentation to speed up and standardise our release process.

Integration with multiple 3rd party SOAP web services and updating of web service schemas (wsdl files); Atos Origin (now Worldline), TheTrainline, National Rail Enquiries (NRE), National Union of Students (NUS).

Unit testing using Junit (used TDD), Mockito, Builder Pattern, JFlux (for rapid feedback).

Encouraged and led "refactor Fridays" to increase code quality on a legacy code base.

Increased code coverage from 35% to 60% across the three main projects, up to 70% on specific ones (tested with Cobertura in eclipse and via Maven and Jenkins).

Skills: Java 6, Spring 3.x; MVC, Security & Injection Frameworks, Jersey, DropWizard, Hibernate, Tomcat, SOAP Web Services, Apache CXF, Cobertura, Subversion, Bamboo CI, MySQL 5.5, maven, JUnit 4.x, Mockito



Company Profile - Isca Networks

Isca's main focus was on creating kiosks and mobile applications for the retail sector.

Formed of a cross functional engineering team encompassing agile planning and execution using Embedded Windows, Java, SIP/VOIP Software Switch and web technologies (HTML, CSS and Javascript). These were used to provide the core product of a touch screen kiosk with a telephony enabled web application for Point of Sales (POS) interaction with customers backed by an on site telephony and web server.

Customers were located in the UK, Canada and France where over 200 kiosks were deployed to a leading department store.

The company was refounded in Canada under the name of Touthay in 2012.

Nov 2007 - Oct 2011 - Technical Consultant & Co-founder Gained extensive knowledge of the Java development environment over four years.

Set up a continuous development environment, testing framework and coding standards through the use of Jenkins (CI), Junit, jBehave/Selenium (testing), Sonar (code standards) and Maven & Artifactory (build & publishing tools).

Evaluated various mobile/embedded operating systems for use as a touch screen kiosk operating system, ended up choosing Windows Embedded Standard 2009 (WES 2009).

Once the choice was made, trained colleagues in deployment and maintenance of the mobile OS as well as taking ownership of continuing customisation.

Devised a custom command line tool to back up, upgrade or restore a WES 2009 OS image to use when in the field and in the lab with our touch screen kiosks.

Experienced with using programming frameworks/packages/APIs to prevent "reinventing the wheel".

Managed product roadmap leading to the implementation of SCRUM process for the company which resulted in consistently high quality product iterations.

Key contributor to planning, review and retrospective meetings where compromise, negotiation and discussion required, allowing the agile process to flow.

Experienced working within a small multidisciplinary team where clear communication is vital to preventing wasted effort and time.

Performed in a high pressure environment closely with the same small group of people, often to a deadline, requiring putting in extra time as it is needed. To be a successful part of a team under such circumstances requires a positive outlook to maintain morale and an ability to get on productively with many personality types.

Familiar with identifying and evaluating software toolsets.

Skills: Subversion, JUnit 4.x, HTML, CSS, Javascript, JQuery, JQuery Mobile, Bootstrap, Google Web Toolkit, Windows Embedded Standard 2009 & 7 (WES 2009 & WES 7), Google App Engine, MongoDB, Experience with Freeswitch and SIP standards



Company Profile - Wesley Clover

Wesley Clover is the investment vehicle of Sir Terry Matthews a serial technology business founder with companies such as Mitel, Newbridge Networks and Sandvine. Its role is to seed new start up companies (typically with new graduates) that can attack specific technology verticals that larger companies lack the agility or resources to tackle.

June 2007 - Nov 2007 - Technical Consultant During a three month graduate placement in Ottawa, Canada I was seconded to a small working group where I was vetted for suitability and compatibility for a start up incubation program with other graduates. These graduates came from Bristol, Cardiff and Swansea universities in the UK, Waterloo University in Canada and Rochester Institute of Technology in New York.

I developed business technology ideas and concepts in a competitive environment to win backing to create a start up.

Nov 2003 - June 2007 - Sales Assistant - HMV Swansea Working as part of a team in this large retailer my main role was to provide the best customer experience possible in keeping with the company's high standards. This ranged from face-to-face

dealings with the public to indirectly via the phones.

I worked well under pressure, whilst proving to be enthusiastic, flexible and adaptable.

Managed to keep up-to-date in an ever changing industry/medium.

Responsible for maintaining store displays, money handling, training of peers and new staff, stock room duties, receipt of deliveries.

Communication with colleagues and dealings with customers requiring tact and respect have rounded and improved my communication skills on a personal and informal level.

My experience in retail has resulted in a dynamic approach to problem solving where solutions are often needed quickly and discretely.

Nov 2002 - Jan 2003 - Sales Assistant - Game Lancaster As a member of staff over the very busy Christmas period I had to prove myself capable of dealing with large volumes of customers and incoming stock whilst being friendly, informative and keeping the merchandising as tidy and high impact as possible to attract custom.

July 2001 - Nov 2002 - Crew Member - McDonalds Restaurants Gained the ability to work with and integrate into a team with individuals of various strengths, merits and dispositions. Stamina was required for long early opening shifts where both till and kitchen work would be required and also when dealing with difficult customers. Patience and tenacity were qualities gained due to the fast paced work environment where reactivity is also beneficial. A methodical approach was fostered through "clean as you go" by keeping work areas clean and tidy whilst also ensuring that food could be produced as and when needed.

Education



Swansea University
Prifysgol Abertawe

Sept 2003 - July 2007 - Swansea University

2:1 MEng Computing Good working knowledge of various programming languages including Prolog, Java, Delphi, C, Maude, CLIPS, ASP, C#, Haskell. Programming paradigms included functional, declarative and object-oriented.

Group work undertaken to jointly develop, document and deliver a software project, overcoming personal, design, implementation and scheduling factors.

Individual dissertation completed involving independent research and learning of parallelism and compiler theory. Resulting in fully documented work implementing said theory into a working prototype product.

Knowledge of entrepreneurship and product lifecycle including the importance of planning throughout using appropriate techniques such as the Unified Modelling Language (UML) and the Waterfall methodology.

Sept 2000 - August 2002 - Arthur Mellows Village College - Sixth Form College

Arthur Mellows Village College.

A-Levels in Mathematics(B), History(B) & Geography(C), AS-Levels in Chemistry(C) & General Studies(B).

Sept 1995 - August 2000 - Arthur Mellows Village College - Secondary School

Arthur Mellows Village College.

12 G.C.S.E.s gained 5 (A), 4 (B), 2 (C), 1 (D).

Industry Training/Qualifications



August 2018 - current

Currently studying towards the Kali Linux Certified Professional (KLCP) qualification.



Member of the British Computer Society - MBCS

Member of the South London Branch

Udemy - AWS Certified Developer Associate (August 2021) by Stephane Maarek

Course completed at 82%, covering a broad range of AWS technologies. Not certified by AWS.

Container Fundamentals LFS-253 (September 2019 - December 2019)

Covering: Container Runtimes, Docker Daemon, Container Operations, Images, Dockerfiles, Networking, Storage and Multi-container applications.

Hack Yourself First workshop, Holborn London - Troy Hunt (July 2016)

Covering: Account Enumeration, Automated Attacks, Brute Force Attacks, Content Security Policies, Cookies, Cross Site Request Forgeries (CSRF), Injection attacks, Session Hijack

Also available as a Pluralsight companion course

Software Architecture for Developers (May 2012)

Syllabus

A two day workshop around introducing architecture to the agile methodology, ensuring enough architecture is thought of before coding without losing the benefits of agility and fast feedback.

Learning how much detail is enough; how to convey important architectural decisions without skimping on detail or conversely supplying too much detail that they get buried.

Homelab Experience

I maintain a small homelab for career development and side projects allowing me to explore new technologies and gain experience DevOps by running my own infrastructure.

- PaaS; Docker, docker-compose Consul, Nomad
- Configuration management; Salt, Puppet
- Security & Testing; Vagrant, dgoss, Grype, Syft, Jenkins, Packer
- Web Hosting: Traefik, LetsEncrypt

Interests and Hobbies

Indoor sports climbing, Mountain biking, Jogging.

Cooking, reading science fiction and pursuing my own technical projects.

Member of EDGE Paddling A kayaking group based on the Thames at Kew Bridge and the Union Canal Brentford

- 2019-06-26 Foundational Safety and Rescue Training (FSRT)

Duke Of Edinburgh's Award: Bronze and Silver Award Participated up to the gold level of the award, through regular gym sessions, climbing and a residential project on building dry stone walls in the Trough of Bowland and the gold level expedition. My experiences doing the Duke of Edinburgh's Award and other outdoor pursuits have helped me develop team centric skills; demonstrating resourcefulness as a group, determination to achieve joint goals and the support and motivation of others to maintain morale. These skills resulted in a joint work ethic towards a common goal under difficult circumstances. Participation in the award has fostered my individual resourcefulness, determination and independence.

Chairman of 7th Helpston Venture Scout Unit Participated in many outdoors, adventure and community activities. Responsible for drawing up activity programmes for unit, chairing of meetings, communication with group and district scout leaders as well as other venture units and ranger units. Including support of younger counterparts in the group such as the local scout and cub units.

Member of the Swansea University Mountaineering Club 2003-2004 & 2006-7 Participated in regular trips to an indoor climbing and bouldering wall, a form of exercise and social event in one.

3rd Kyu Judo, Seishin Budo (Green Belt) Promoted self discipline, emotional control and respect for others. Regularly took part in competitive training and set pieces, teaching and support of other students either junior or senior was encouraged.

RYA Start Sailing completed stage 3 A course covering the basics needed to man a small sailing dinghy (topper or laser pico) and participate as part of a three man crew on a small yacht (laser trio).

Referees available on request

Software

