

# Thomas Higson's Curriculum Vitae

Last updated January 2019  
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## About me

I am a multi-disciplined engineer based in **South Wales** with 12 years of industry experience ranging from experimental prototypes to in-service support

As an architect, I am passionate about creating systems that are beautiful in their simplicity, their sharp focus on their needs and in the experience they provide to users

As a leader, I strive to:

- Provide clear, realistic tasks, protected from context switches and interruptions
- Form an environment of openness and respect
- Provide safe spaces to grow
- Value all contributions, suggestions and concerns
- Defend mistakes, and help teams accept and grow from them

## Fields of expertise

- Cloud architecture
- Microservice architecture
- Web apps and services
- DevOps / System Reliability Engineering
- Agile development
- Model based systems engineering (MBSE)
- Systems Modelling Language (SysML)
- User experience design
- People Management
- Mentoring
- Delivering training
- Aerospace safety analysis using IEC61508
- Automotive safety analysis using ISO26262
- Modularity and reuse across product lines

## Technology proficiencies

- Azure
- Office 365
- REST & OData
- Swagger
- Progressive Web Apps
- Powershell
- Git
- Rational Rhapsody
- Rational DOORS
- Rational Team Concert
- Angular
- JavaScript / TypeScript
- NPM
- D3.js
- HTML
- CSS / SASS
- Markdown
- Adobe Photoshop
- Adobe Premier Pro
- IQ-RM Pro
- FaultTree +
- Java
- C#
- C++
- SQL
- Windows Server
- Oracle Database

# Experience



## Engineering Manager

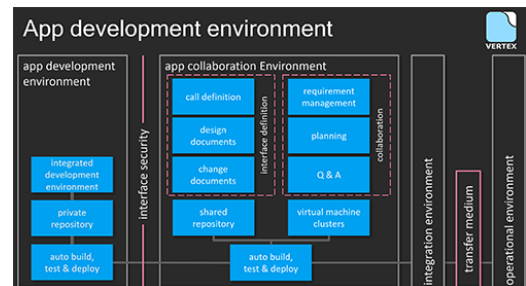
**General Dynamics** since Sep 2017 (1 year, 4 months)

References available from **Bina Taylor**

### 3rd party developer lead for Evolve to Open

I am responsible for the smooth integration of 3rd party products onto the MORPHEUS EvO network infrastructure. The strategic importance of this to the UK Ministry of Defence is described in [this press release](#). Our activities include:

- Maintaining working relationships with multiple 3rd parties to encourage their use of our platform and gather their feedback
- I identified the need for and introduced DevOps specialists to improve release cadence, reduce defect severity and increase the project's ability to react to change
  - Championed cultural change
  - Designed and implemented several automated pipelines across multiple teams
- Working to replace lab-based 3rd party integration with secure, web-based, self-service integration environments



### Vertex engineering lead

I lead the engineering efforts of the Vertex research and development program. Vertex harnesses cutting-edge networking best practice to push innovation into tactical military infrastructure. Our activities include:

- Developing a prototype application platform for peer-to-peer, tactical networks
  - Uses an open, modular architecture to prevent vendor lock-in
  - Focuses on developer's needs to empower them to make outstanding products for the end users
- Introducing a simple, agile project management plan to allow more collaborative and consistent activities



## Personal Development

## Developer of CV App

This CV is not just a CV, it's an open source web app that:

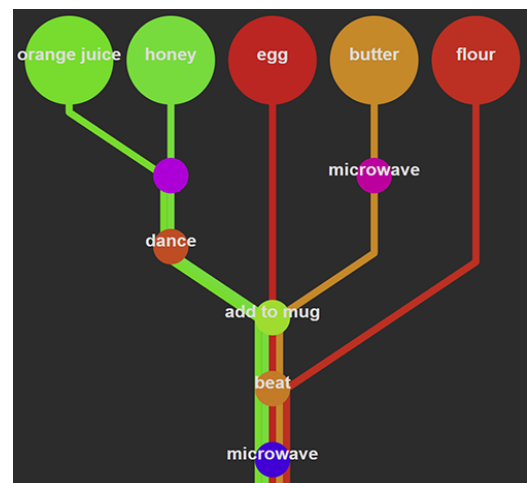
- Uses Azure
  - The app **runs on cloud resources in Azure**
  - The CV content is stored in Azure blob storage, accessed using a data service with role-based access control
  - Both the app and the content are automatically deployed to staging areas on update using Azure DevOps
  - The supporting infrastructure is automatically created using scripts, allowing rapid scaling
  - Metrics are tracked and reported using Azure Application Insights
  - The app is secured using SSL certificates stored in the Azure key vault
- Leverages properly formatted Angular structuring to allow component reuse
- Is reactive to different display sizes and types
- Provides print appropriate formatting using media queries
- (coming soon) is service worker ready

As my work is typically security controlled and so cannot be shared, I hope this CV helps demonstrate some of my technical abilities. Check out **the repository** for more details

## Developer of graphical recipe web app

I am in the very early stages of producing a web app that graphically represents recipes. **The source will be available online soon.** Key features include:

- Multiple recipe views, including
  - Timelines
  - Activities
  - Step-by-step runthroughs
  - Nutritional information
- Intuitive drag-and-drop to customise existing recipes



## Other

My certifications include:

- Certified training instructor
- Mental health first aid certified
- Security cleared to UK level 2 (Secret) since November 2007
- I aim to be a Microsoft Certified Azure Administrator by Q3 2019

I enjoy presenting at technology conferences when I have the opportunity. Topics I have presented so far include:

- Specialising the Systems Modelling Language for safety analysis
- Analysing the safety of intended functions
- Apps in defence

- Blockchain in defence

I am passionate about pursuing STEM activities such as

- Providing demonstrations at local schools
- (previously) Helping organise MBDA's annual Robot Rumble event

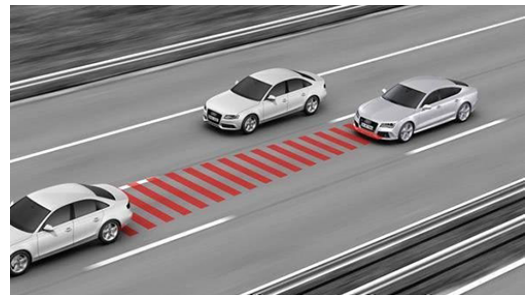


## Engineering Manager

**ZF TRW** Sep 2016 – Sep 2017 (1 year)

### System safety lead for radar customer projects

I was responsible for assessing the safety of advanced driver assistance systems. A demonstration of some of the systems I contributed to can be seen in [this video](#). My contributions included:



- Delivered safety cases for autonomy level 1 (hands on) systems
  - Led an activity to adapt a passenger vehicle safety case for trucks
  - Analysed the safety impact of different sensor configurations
  - Worked alongside project managers to plan system and safety milestones
  - Acted as the primary point of contact between prototype and project development teams
- Assisted in developing concepts for autonomy level 2 (hands off) systems
- Part-authored and reviewed key safety work products
  - Impact analysis
  - Failure mode and Effect Analysis for hardware design and production (DFMEA, PFMEA)
  - Failure Tree Analysis for software (FTA)
  - Robustness analysis
- Encouraged a stronger safety culture
  - Delivering safety training
  - Worked between multiple departments to determine, record and propagate best practice
- Managed 6 people and expanded the team by recruiting new talent



## Principal Engineer

**MBDA Systems** Jun 2009 – Sep 2016 (7 years, 3 months)

### System architect for Future Cruise & Anti-Ship System

I was responsible for the system architecture of a future system. The concept of the system is demonstrated in [this video](#). My contributions included:

- Created a trade model to identify, assess and resolve the project's major decision points
  - Focused on integration onto multiple existing infrastructures, interoperability, network architecture and the implications of new technologies
  - Captured and traded the customer's needs through a set of international workshops
- Scoped and planned activities for teams



## Flight path management domain lead for Fire Shadow

This **urgent operational request for a novel loitering munition** demanded innovative, rapid development. I was responsible for aspects of the system relating to flight path management. My contributions included:

- Worked with software suppliers to clarify requirements and ensure quality
- Specified the interface between internal and external software teams
- Managed work packages for several systems engineers and test engineers
- Received a Contribution to the Business award at the MBDA 2011 National Awards



## Company Improvement

In this company-funded activity, I acted as an internal consultant to more than 10 major projects. My contributions included:

- Identified the need for, proposed and managed the formalisation of international model-based systems engineering practices
  - Led a team of principal engineers to produce new modelling standards and guidelines to improve the international tool set and associated training
  - Rolled out new business practices across multiple billion euros worth of projects
  - Worked with **INCOSE** to stay aligned with upcoming trends
- Established an international systems engineering working group to:
  - Disseminate lessons learned
  - Encourage skill sharing between software and systems teams
  - Improve product reuse potential
- Wrote and delivered an MBSE training course to over 100 engineers, including 4 chief engineers
- Managed the development of new java tools to query, visualise and manipulate a wide variety of models using customisable schema