Thomas Higson's Curriculum Vitae

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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

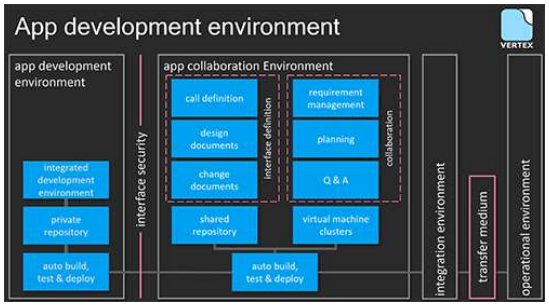
- Azure
- Office 365
- REST & OData
- Swagger
- Progressive Web Apps
- Powershell
- Git
- Rational Rhapsody
- Rational DOORS
- Rational Team Concert
- Angular
- JavaScript / TypeScript
- NPM
- D3.js
- HTML
- CSS / SASS
- Markdown
- Adobe Photoshop
- Adobe Premier Pro
- IQ-RM Pro
- FaultTree +
- Java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

Experience

Engineering Manager

General Dynamics since Sep 2017 (1 year, 4 months)
References available from Bina Taylor

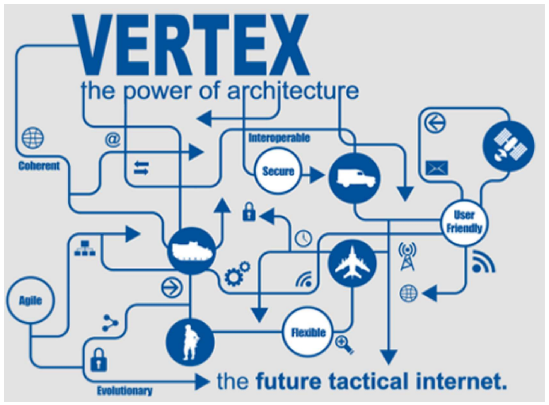
3rd party developer lead for Evolve to Open



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 (https://www.generaldynamics.uk.com/solutions/c4i-systems/evo/) . 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
  - Focusses 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:

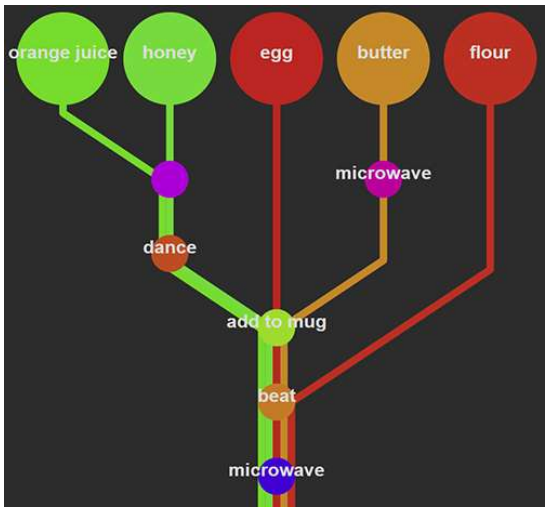
- Uses Azure
  - The app runs on cloud resources in Azure (https://cv.tomhigson.com)
  - The CV content is stored in Azure blob storage, accessed using a data service with role-based access control
  - Both the app and the content are automatic deployed to staging areas whenever they are updated using Azure DevOps
  - 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 (https://github.com/TomHigson/CV) 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 (https://github.com/TomHigson/GraphicalRecipeSystem) . Key features include:

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



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

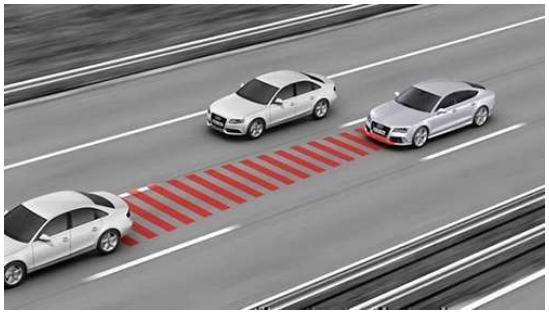
I am passionate about pursuing STEM activities such as

- 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 (https://www.youtube.com/watch?v=GLdKrCWDaAg) . 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 (https://www.mbda-systems.com/innovation/concept-visions/perseus-2011/) . 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 (https://www.mbda-systems.com/press-releases/team-lm-launches-fire-shadow-to-meet-uk-mod-loitering-munition-requirement/) demanded innovative, rapid development. I was responsible for aspects of the system relating to flight path managemnent. 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 consusltant to more than 10 mojor 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 (https://www.incose.org/) 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

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