

Charles Tivey

I went to school in Folkestone, Kent and then studied for an MEng in Electrical and Electronic Engineering at the University of Nottingham, graduating with a 2:1 in 2012. While studying in Nottingham, I was an E3 scholar sponsored by Siemens Digital Industries in Manchester, where I did three summer work placements. The first placement was in the Strategy Department, developing a renewable energy rig, the second involved work In Process Industries, developing a SCADA system for a nuclear fusion test reactor, and the final placement was in Motion Control, developing a torque control block for Simatic PLCs.

After graduating I joined the Siemens Graduate Scheme and gained further experience in Corporate IT, involving project management of the Windows 7 rollout for Siemens UK. My second graduate placement was with Motion Control, where I undertook the development of a flying shear machine for a startup company. This placement led to my first permanent position as a Motion Control Applications Engineer in a role covering two main streams of work: end to end design, development and implementations of end user factory processes and end to end design and development of original equipment manufacturers' machines. Although based in the UK, my work led me to travel to Poland, Austria & Germany. Here are some examples of projects from that time:

- Technical project lead for the design and implementation of a paint spraying machine used for applying 'anti-radar paint' on production and experimental fighter aircraft. The machine used 4 rail-mounted robots in an explosive environment to paint each aircraft in 30 minutes. Development of an interface that converted basic inputs from craftsmen into complex robotic instructions. Developing a state-of-the-art collision avoidance system mapping the planes in 3D to prevent robot aircraft collisions; a tiny collision would result in repair costs of nearly £1M.
- Design and development of a process line producing Kevlar to supply the European aerospace and defence market. The machine was a 66 axis PLC controlled implementation with a full SCADA, digitalization concept and MES integration. My role was lead software, hardware and development engineer. Machine availability was key to success, the machine was designed to run 24/7 because every hour of downtime resulted in a near £1M in loss.
- Design and development of a new generation of drink can decorating machines with a rate of 2000 cans per minute. The high-performance requirements gave a challenging mechatronic scenario and therefore required a complex tuning analysis.
- Development of a flying shear application with an extremely high throughput creating the inner cardboard tubes for toilet paper. This machine required the development of advanced camming functions pushing the SIMOTION platform to its absolute limit.



In 2017 I became a UK Aerospace Engineering consultant, which involved travel across the UK and Germany. My responsibilities included establishing myself as a credible and reliable partner amongst the biggest aerospace manufacturers in the UK. Embedding myself as a key partner in R&D projects, in order to define technology for future programs and thus growing business with a medium to long-term strategy. Key tasks were designing and managing implementations of manufacturing process architectures. Relying on solid technical knowledge developed earlier in my career I was able to elevate myself higher into the customers organization to develop future concepts. From flexible manufacturing to cloud computing and everything in between. I developed strong presentation and relationship building skills during this period. Some projects from this time are:

- Definition of a flexible robotics concept for a new 6th Generation fighter manufacturing project.
- Architecture definition of cutting-edge robotics cell designed to revolutionize wing manufacturing.
- Architecture design for a brand-new factory creating flight critical parts for one of the biggest airframe companies in the world.

Since 2019 I have been Aerospace Manufacturing Expert for Siemens Global, which involves leading Siemens with respect to all manufacturing topics across the world as part of the aerospace market development board located in Erlangen, Germany. This includes detailed assessment of worldwide customer requirements, competitor analysis, enterprise architecture design and product specification definitions. Highlights include:

- Creation and implementation of a manufacturing concept lab in Nuremberg.
- Leading technical teams across the world in the USA, UK, France, Belgium, Austria, China etc.
- Managing technical concepts for some of the biggest projects in Siemens.
- Representing Aerospace at an executive level.