Curriculum Vitae

V16.5

Carl Nicholson

01/08/2023

Summary

Manager/engineer with substantial experience in the design, development, delivery, maintenance, operation and auditing of complex systems in the Space, Robotics and Games sectors.

Date of Birth	**25th June 1952**
Nationality	**British**
Key Competencies	✓ **Analytic mind, highly numerate and articulate, ability to acquire new skills quickly** ✓ **Innovation, "big picture" strategic thinking, interdisciplinary approach and attention to detail** ✓ **Experience at all levels of development from soldering to product assurance** ✓ **Information engineering; requirements analysis and authoring; design, review, test & validation; acceptance, operation, maintenance & development; quality audit and risk management; procedure authoring and review** ✓ **High level of IT skills.**
Availability	❖ **After taking early retirement, now offering freelance consultancies, minimum period one month.** ❖ **Working part-time (20 hrs max pw) from or near home (Brighton, UK) with occasional travel as required.**

Relevant Experience

	Greening the Spark, Brighton, UK
Design & build of prototype National Grid simulator as a hands-on museum exhibit and game **Greening the Spark** **02/2021 – present**	System architecture design, implementation & testing Main tasks include: • Design and documentation of the simulator & tools • Construction and testing of all hardware & electronics (main processor: Raspberry Pi 4B) • Coding and testing of 8,000 lines of Python • Construction of project website greening-the-spark.com • Publishing in technical magazines Hackspace (#65) and MagPi (#129) • Development of documentation and content management tools • Promotion and marketing.

	LSE Space GmbH, Wessling, Germany
Product Assurance **DLR-GfR, Galileo Project, near Munich, Germany** **03/2012 – 09/2015**	Product Assurance for Space, Ground and Mission Operations for Galileo satellite navigation constellation. Main tasks included: • Review, development and enforcement of procedures for Product Assurance and Quality Management • Continuous improvement of internal and external processes • Performance of and support to GfR internal audits • Authoring of a Risk Management Plan and implementation as a set of procedures and a Risk Register in Excel • Authoring and implementation of a Product Assurance Helpdesk as an Access database • Development of tools (using Excel and Access VBA) for and provision of operations performance statistics for Weekly and Quarterly Progress Reports • PA Support to Readiness Reviews, Test Campaigns and related meetings (TRR, PTR, TRB, Status Meetings etc.) prior to launch • PA Support to Full Operational Configuration operations (Launch, LEOP, Platform Commissioning, Payload Activation, In-Orbit Test, Routine Operations) • Liaison with the management organisations Spaceopal and ESA on matters related to Product Assurance • Review of internal and external documentation and support to document deliveries to and from the customer (SPO)
Quality Assurance **01/2012 – 03/2012**	Review and update of LSE Quality Management and Business processes.
Consultancy on behalf of LSE to the Qatar Satellite Company (QSC), Qatar **07/2011 – 12/2011**	Co-authored and delivered Request for Proposals (RFP) document set for the supply of a Network Operations Centre and Teleport facilities for a Qatar government communications satellite ground segment.
Subsystem Engineer **Columbus Simulator, Columbus Control Centre, near Munich, Germany** **11/2004 – 06/2011**	Columbus is the European manned laboratory attached to the International Space Station. Was responsible for all aspects of operation, maintenance and development of the Columbus Simulator (provided by Astrium, Bremen) at the Columbus Control Centre, Munich. Main activities were: • Liaison with the supplier over technical problems, upgrades, configuration issues and procedures and attendance at regular progress meetings and workshops in Bremen and Cologne • Training of Flight Control Team and international partners performing simulations with remote sites at NASA, USOCS, European Astronaut Training Centre and Engineering Support in Bremen • Preparation of activities in close cooperation with Simulation

	officers and instructors • Training of simulator operators • Troubleshooting and diagnostics of the simulator itself, including the development and use of workarounds • Development of displays, online and offline utilities and procedures for enhancement and operation of the simulator • Reporting to Columbus Ground Operations Managers and Configuration Management on simulator issues
Project Control **Voice Subsystem, Columbus Control Centre, near Munich, Germany** **11/2007 – 12/2009**	Brought in to assist with bringing the Voice subsystem under control. Actions and responsibilities included: • Coordination of activities between DLR-GSOC (the customer), the supplier, first line maintenance and the operations teams • Project audit, considering system, procedures, personnel and configuration management • Implementation of recommendations, including instigating regular progress meetings and establishing baseline processes for project control • Conducted a full procedure review and update cycle.
Subsystem Engineer **Columbus Simulator, Columbus Control Centre, near Munich, Germany** **03/2002 – 11/2004**	Responsible for the Columbus Simulator phase CD activities. Acting on behalf of the customer (DLR, Col-CC project), work included: • Requirements engineering / review • Design and test documentation review • Contractor shadowing • Involvement in factory acceptance and site acceptance tests • Participation in relevant Col-CC, ESA and contractor meetings and reporting to the customer
System Troubleshooter and Tester **EUMETSAT Ground station, Usingen, Germany** **05/2000 – 03/2002**	Hired by LSE under special contract to DLR to assist in bringing the EUMETSAT 2G ground station monitoring and control system (MCS) back on track. Main responsibilities included: • Liaising with the customer, DLR (supplier) and subcontractors • Problem tracking, troubleshooting and testing • Writing and performance of test procedures, including acceptance testing with the customer • Authorship and release of the MCS User Manual.
	Cyberdrome Enterprises Ltd
Technical Director **Bristol, UK** **04/1990 – 05/2000**	Founded the leisure company together with marketing/management partner David Owers and obtained the rights to design and build a computer controlled version of the hit TV show "The Crystal Maze" from Chatsworth Television. Eight Crystal Mazes were built in nine years, including two in Japan and one in Dubai, at a total cost of around three million pounds. Over one million customers played the Crystal Maze, and although designed with an operating life of five years, one was still operating in

	Tenby, Wales sixteen years later and another, in Dubai, closed after twelve years. The company was wound up in 2000 due to lack of orders and new investment. Main responsibilities were: • Involvement in every technical aspect of the product from design, procurement, assembly, delivery and installation and testing through to training of technical staff and maintenance on-site. • Detailed discussion and communication with customers in the design, installation and early operations phases. • Full on-site support to customer during the handover process to independent commercial operation. • Continual assessment of existing operations and technology to constantly improve the reliability and cost effectiveness of the product. • Ensuring operation throughout the lifetime of each site by the provision of maintenance services and training. • Designed, authored and maintained the Cyberdrome website.
	Marcol Computer Systems (UK) Ltd
Consultant **Bristol, UK** **08/1988 – 04/1990**	Worked on a Columbus Utilisation Contract for the European Space Agency (ESA), providing expertise on user training and simulation requirements. Set up and worked on new technology projects, including Human-Computer Interface and Advanced Robotics with the DTi. Acted as work package manager and principle architect of the command, control, communication and navigation systems for a mobile, semi-autonomous robot for security applications (SAFFAR).
	Marcol Computer Systems (Germany) Ltd
Space Systems Consultant **German Space Operations Centre, Munich, Germany** **08/1985 – 08/1988**	Worked as part of the Flight Operations Organisation during the phase B2 studies. Involved in the development of functional requirements on flight operations for the manned and unmanned platforms of the joint US - European space station module Columbus. Responsibilities included development of an astronaut and ground personnel test and training concept and liaising with other teams at the European Space Operations Centre and DLR (Cologne).
	British Aerospace (PLC) Space and Communications
Spacecraft Systems Engineer **Bristol, UK** **10/1983 – 08/1985**	Briefly worked on a prototype attitude determination system, writing software for the monitor and control processor and a command interpreter to handle commands sent over a serial bus. Main achievement was writing the software and updating the specifications for a model of the star mapping satellite Hipparcos which was used for subsystem tests of the Attitude and Orbit Control System. Before leaving to work in Germany, worked for a short time as work package manager on a joint project with Marconi called “Spacecraft On-board Management Systems” (SOMS).

	Dept of Metallurgy and Science of Materials, University of Oxford,
Laboratory Technician **Oxford, UK** **10/1978 – 09/1981**	Provided technical support for a 1 MeV electron microscope facility. Gained valuable experience in the design and construction of digital electronic and measurement devices, high vacuum systems and electron microscopy.
Other Skills	
IT	• Microsoft Office Applications: advanced user of Word, Excel and Access (with VBA); regular user of Outlook, Project, Visio and Powerpoint • Adobe Applications: Acrobat, Photoshop and Premier (video) • Music Applications: Ableton Live 9 Suite, Goldwave • Operating Systems: Windows various, MSDOS, Solaris 2.6, VAX VMS • Programming Languages: Python, Microsoft VBA, C++, Visual Basic, Pascal (and Fortran)
Languages	• English: Native speaker • German: Casual, spoken only • French: Basic knowledge, spoken and written
LinkedIn	My LinkedIn profile can be seen at: https://www.linkedin.com/in/carlnicholson?authType=NAME_SEARCH&authToken=hZGN with over 113 connections and 272 endorsements of my 33 stated skills.
Driving	Full car and motorcycle licences
Qualifications and Further Experience	
	• BA (hons) Physics, Oxford • MSc, Applicable Mathematics, Cranfield Institute of Technology • TESL Diploma, Imperial College London; taught part time for two years at Oxford Intensive School of English, Bristol.
Personal	
	• Happily divorced, with two sons and two grandchildren • Main hobbies are composition and production of electronic music and music videos, industrial art and maintenance of my website, www.cornucopia.co.uk • Leisure pursuits include cooking, comedy, cinema, motorcycling, live music and maths.