**Jonathan Sage CEng MIET**

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## Personal Profile

Electronic design and development engineer with over 25 years of experience in the design and development of Prime and Special to Type Test Equipment for the defence industry.

Electronic Hardware design, embedded micro-controller development in C Programming language, with strong analogue and digital design and development experience.

Requirements capture, detailed design and development, production engineering and deployment support.

## Work Experience (in chronological order)

**July 2015 - Present BAE Systems Ltd (IMDC 2 Mission and Display Computer)**

Position: Contract Hardware Engineer

Description: Hardware development of the IMDC2 TX (training variant) Mission computer for the T-50 Aircraft.

Design and Development of the IMDC2 TX Test equipment HUD Interface Card.

Integration and Validation testing of IMDC2 TX test with the T-50 Head Up Display Equipment.

Engineering support to qualification and reliability shake down testing.

**Sept 2014 - July 2015 MBDA Systems Ltd (FLAADS Land STTE)**

Position: Contract Test Systems Engineer

Description: Hardware design and development of the FLAADS Land test system for the B-Model system.

Responsible for the technical solution of the B-Model LRU Test equipment, required to support, B and C Demos.

**July 2012 - Sept 2014 BAE Systems Ltd (F-22 HUD Video Camera Test Equipment)**

Position: Test Systems Team Leader

Description: Lead a design and development test system team.

Responsible for leading a team of 8 engineers through requirements capture, preliminary design, critical design, product integration, validation and product delivery.

Project leading and tracking using MS Project.

Generating Estimates, interfacing with sub-contractors.

Using National Instruments Hardware and software tools.

**October 2009 – July 2012 BAE Systems Ltd (EFA-HUD Tranche 3 Test Equipment)**

Position: Principal Test Systems Engineer (Hardware Lead)

Description : Responsible for the design and development of the hardware solution for Euro-Fighter Head Up Display Special to Type Test Equipment.

Requirements capture, preliminary design, critical design, product integration, validation and product delivery.

National Instruments Hardware and software tools.

July 2007 – October 2009 **BAE Systems Ltd (EFA-HEA Aircraft Ground Equipment )**

Position : Senior Test Systems Engineer (Hardware design)

Description : Responsible for the design and development of the Helmet drive electronics, Deflections and Video amplifiers, bit monitoring and system selftest wrap back. System integration and validation activities.

Use of National Instruments Hardware and software tools.

October 2004 – July 2007 **BAE Systems Ltd (EFA-ASTA Helmet System (Prime equipment))**

Position : Senior Hardware Engineer

Description : Responsible for the design and development of the LED Drive module, designing a switch mode power supply to drive a high brightness LED used as a back light for a miniature LCD used for the helmet display.

The electronics had to be housed within a very small envelope and the power had to be kept to an absolute minimum.

The switch mode PSU controller was implemented in a CPLD using VHDL and the system was controlled using a PIC programmed in 'C'.

**January 1999 – October 2004 BAE System Ltd (Tiger Helicopter Integrated Helmet System (Prime equipment))**

Position : Senior / Hardware Engineer.

Description : Responsible for the design, development of the Helmet drive electronics (CRT Video source), development of Umbilical and interconnection cable forms, manufacturing support, integration and installation of system onto helicopter. (Performed role of field support engineer during initial flight trials and system qualification.)

March 1997 – January 1999 BAE Systems Ltd (PAH2 Helmet Program (Prime equipment))

Position : Hardware Engineer.

Description : Responsible for the build and commissioning of the C Model safety of flight assets.

Manufacturing support of build and shake down testing.

Support of Safety of flight environmental qualification testing.

On site support (When called out) for customer integration rig and aircraft integration.

On site support of flight trials in Bavaria (EADS) (Duration 6 Weeks).

September 1995 – March 1997 Marconi Avionic Ltd (EFA-DASS (Defensive Aid Sub-System (Prime equipment)).

Position : Electronics Technician / Hardware Engineer.

Description : Design and development of the sub-rail power supply under mentorship of a principal engineer.

Shake down testing support.

Schematic Capture, specification writing.

Acceptance and validation testing.

General Technician support to engineering team.

October 1993 – September 1995 GEC Marconi Avionics Ltd (SCADC (Standard Central Air Data Computer) (Prime Equipment))

Position : Electronics Technician

Description : Proto-type circuit and cable form build.

Shake down testing support.

Schematic Capture, specification writing.

Acceptance and validation testing.

General Technician support to engineering team.

August 1990 – October 1993 GEC Avionics Ltd

Position : Technical Apprentice

3 Year Technical training apprenticeship, including one year down GEC's Apprentice training centre and 2 years of placements in and around GEC Avionics Ltd Rochester.

**Key Skills / IT & Software Experience**

Digital and Analogue hardware design, schematic capture using Mentor Graphics.

Fault diagnostics down to component level.

PIC and Arduino firmware programming using C and VHDL (Cypress Warp).

Wireless comms using Bluetooth, ZigBee and wireless SPI devices.

Cable form design and manufacture.

Prototyping of circuits using pin and wire or fabrication of single sided medium complex PCB’s.

Prototype wiring skills.

Production support through manufacture.

System Integration and on site support to deployment.

**Education**

Sept 99 – June 01 Mid-Kent College

HND Electronics

Sept 95 - June 97 Mid-Kent College

HNC Electronics

Sept 91 – June 93 Mid-Kent College

ONC Electronics

Sept 90 – June 91 Mid-Kent College

First Certificate in Engineering

Sept 1989 – June 91 Medway Adult Education Centre

City & Guilds Radio Amateurs Examination (Pass both papers)

June 90 8 GCSE's including, Maths, English, Physics and Chemistry

## Additional Information

* [Chartered Engineer and MIET]

**In October of 2013 I was accepted as a chartered engineer with the IET.**

**Membership of the IET and Chartered Status Current.**

**Interests**

* *Radio Controlled Model Aircraft [Sail planes]*
  + Was a BMFA GB member for the 2010 Slope racing world championships in France.
  + F3B Multi-Task Soaring
* Shotokan Karate [4th Dan Black Belt]
  + Have been studying Shotokan Karate since I was 9 years old.
* *Indoor Rowing*
  + I partake in this to help keep me fit.
* Electric Guitar
  + Grade Six RGT, working towards Grade Seven.
  + Lead guitarist in a Band.
* Family life
  + Husband and father of 2 children, Sophie and William

**References are available on request.**