

## Tim Clark – Consultant Systems Engineer

Email: [Tim@ClarkSEC.co.uk](mailto:Tim@ClarkSEC.co.uk)

Systems engineer with 9 years of experience working with safety-critical systems in high-integrity engineering fields (Aerospace & Maritime). 8 years of MBSE experience (Sparx Systems Enterprise Architect & Dassault Systèmes MagicDraw) for complex safety critical & mechatronic systems, including substantial MBSE process development and rollout experience. Has worked across the systems engineering lifecycle, from pre-contract work scoping and requirements elicitation to system certification and in-service support. 6 years of experience in team and technical leadership positions for international projects, successfully delivering numerous projects.

### Specialisms

- **Safety Critical Systems Engineering:** Expertise in safety-critical systems engineering across the entire lifecycle.
  - **System Architecting:** Design and development of robust system architectures.
  - **Requirements Engineering:** Elicitation, analysis and management of system requirements.
  - **Verification & Validation:** Planning and execution of system verification and validation activities.
  - **Certification & Qualification:** Preparation of comprehensive system certification/qualification cases.
- **MBSE**
  - **MBSE Process Development:** Development and implementation of MBSE processes compliant with ISO15288 for safety-critical systems.
  - **MBSE Deployment:** Rollout of MBSE processes across the system engineering lifecycle, including workforce training and change management.
  - **MBSE Ontology Development:** Creation and refinement of ontologies to support MBSE initiatives.
- **Crew Escape Systems**
  - **Technical Expertise:** In-depth knowledge of crew escape systems, their operating principles, performance, and key metrics.
  - **System Integration:** Evaluation, selection, and integration of ejection seats for optimal airframe compatibility.
  - **Requirement Definition:** Derivation and definition of comprehensive crew escape system requirements.
  - **Lifecycle Management:** Extensive experience across crew escape system lifecycles, from pre-contract program scoping and negotiations to requirements definition and certification.
  - **Stakeholder Collaboration & Education:** Liaising and collaborating with international customers and certification bodies to ensure successful project outcomes.

### Skills & Proficiencies

- **MBSE**
  - **Modelling Languages:** Highly Proficient in SysML and UML, including the extension and development of ontologies to meet stakeholder requirements..
  - **Software Packages:** Extensive Experience using Sparx Systems Enterprise Architect, Dassault Systèmes MagicDraw/System of Systems Architect.
- **CAD**
  - Significant experience using Siemens Solid Edge and NX, Dassault Systèmes SolidWorks, and Autodesk Inventor.
- Extensive experience utilizing Microsoft Office, including advanced Excel skills for data handling and analysis.

### Experience

#### Consultant Systems Engineer – eVTOL Escape System

December 2023 – Present

- Provided technical expertise and guidance on the first integration of an escape system into an eVTOL aircraft.
- Delivered multiple crucial qualification documents for the integration program.
- Briefed senior management & flight test teams on escape system capabilities, performance, and risk.
- Assisted in ejection test preparation and conduct.



## **System Modeller & Architect – Underwater Weapon System**

February 2024 – September 2024

- Primary system architect for electrification of underwater weapon system.
  - Including modelling of legacy system to support system safety case and objectives.
- Development of system and sub-system requirement sets to enable technology down selection and supplier engagement.
  - Including development of functional requirements specifications for mechatronic systems.
- Development of programme MBSE processes & Methodology using Dassault Systèmes MagicDraw .
  - Including extensions to modelling language to support verification planning.

## **Consultant Engineer – 5<sup>th</sup> Generation Fighter Escape System**

February 2023 – December 2023

- Provided consultation and guidance on the architectural design and integration of the crew escape system into the aircraft. Activities included requirements development, verification planning, and liaising with the aircraft certification authority.
- Conducted safety assessments related to the crew escape system, collaborating with the aircraft-level safety team to achieve their safety objectives.
- Developed and rolled out an MBSE process (using Dassault Systèmes MagicDraw) to support verification planning and management for various vehicle systems.
- Provided training to all project team levels on crew escape systems, systems engineering processes, MBSE, aircraft certification, and safety processes.
- Assisted in the preparation of pre-contract documents (SoW, RFP, etc.) and participated in contract negotiations.
- Prepared and delivered briefings to senior management on the safety and programmatic implications of design decisions and constraints affecting the crew escape system.

## **Principal Systems Engineer – Aircraft Escape Systems**

September 2016 – December 2022

- Management of multiple systems engineering teams (15+ engineers).
- Responsible for systems engineering on the companies two largest product portfolios.
- Developed MBSE processes (using Sparx Systems Enterprise Architect) for COTS/MOTS products, successfully streamlining product integration and delivery.
- Development of company MBSE strategy, ontology, and framework.
- Pre-contract requirement negotiations with customers, estimation of project effort and impact studies to aid internal and external decision making.
- Technical leadership of multiple escape system development and aircraft integration programmes.
- Technical leadership of Tempest flying demonstrator escape system project.
- Systems engineering on complex safety critical mechatronic systems.
  - Including both hardware and software specifications.

## **Education**

- 1<sup>st</sup> Aeronautics and Astronautics BEng (Hons) – University of Southampton

## **General**

- Winner – 2016 RAeS NE Rowe Medal, awarded for best technical lecture and report my work on rifle muzzle brakes
- UK National
- UK Security cleared to SC Level