ISSN 2754-1118 Vol.5, Iss.1

Foreword to the 2026 First Issue

Welcome to the first issue of the fifth volume of the Safety-Critical Systems eJournal, published by the Safety-Critical Systems Club (SCSC) with Publication Number SCSC-214.

There is a new feature in the papers of the on-line version of this volume, and all subsequent, intended to make it more accessible to screen readers, as used by blind or partially-sighted readers to convert text to speech (or Braille). Screen readers cannot parse an image, so descriptive "Alt Text" will now be provided for each figure in a paper. When a screen reader gets to an image, it will tell the user that an image is present, and then read out the Alt Text. The on-line version of the eJournal has actually had Alt Text since Volume 1 in the "wrapper", i.e. everything except for the papers themselves, which are presented as pdf files. In a conventional pdf file reader, the Alt Text will be visible when the mouse pointer is hovered over the image (but note that some browser-based pdf readers do not support this feature).

The Word template, which includes style guidelines for authors, has been updated to include Alt Text: see https://scsc.uk/journal/index.php/scsj/libraryFiles/downloadPublic/4. If you are not already registered as an author, please go to https://scsc.uk/journal and click on "Register" at the top right of the page.

This issue contains three papers:

1. Derek Fowler, in his paper, "*IEC 61508 Viewpoint on System Safety in the Transport Sector: Part 4 — A Safety Assurance Perspective*", presents a generic safety-assurance framework, based on classical systems-engineering practices and rigorous requirements-engineering principles, against which the IEC 61508-1 safety-assessment processes (and their equivalents in European Air Traffic Management and Rail safety standards) are judged in terms of their potential contribution to the safety case for typical safety-related transport applications.
2. Fred Pollard, Martin Rendell, and Daniel Finnigan, in "*Perils of Precedent in Nuclear Software Qualification*", question the use of some Independent Confidence-Building Measures without justification, other than precedence of use, in the qualification of control and instrumentation systems for UK nuclear power stations, and propose a possible alternative approach.
3. Martin Rendell and Fred Pollard evaluate the practicability of using Statistical Testing for complex systems, like nuclear reactor protection systems, covering each of the core conditions underpinning the successful execution of the technique, in "*Statistical Testing: Qualitative Arguments for a Quantitative Outcome?*". They conclude that while the overall method *can* provide useful qualitative evidence, statistical testing itself cannot provide high-confidence quantitative reliability estimates for complex systems.

My thanks go to the authors for contributing their papers, and also to the anonymous peer-reviewers (at least three per paper) for suggesting improvements. Apologies also to those reviewers who made some recommendations that were not taken up.

In contrast to last year's cover art depicting a fusion reaction producing power, this year we have a nuclear fission power station, Sizewell B in Suffolk, UK (with Sizewell C being constructed nearby).

John Spriggs, SCSC Journal Editor
September 2026

This collation page left blank intentionally.