



Call for Papers

Software plays a key role in high-risk systems, e.g., safety-, reliability-, and security-critical systems. Several certification standards/guidelines now recommend and/or mandate the development of assurance cases for software-intensive systems, e.g., defense (UK MoD DS-0056), aviation (CAP 670, FAA Interim Guidance 08-01), automotive (ISO 26262), and healthcare (FDA Draft Guidance 510(k) for pre-market approval of infusion pumps). As such, there is an urgent need to develop models, techniques and tools that target the development of assurance arguments for software. The goals of the 2014 Workshop on Assurance Cases for Software-intensive Systems (ASSURE 2014) are to:

- (a) explore techniques for creating/assessing assurance cases for software-intensive systems
- (b) examine the role of assurance cases in the systems and software engineering lifecycle
- (c) identify the dimensions of effective practice in the development and evaluation of assurance cases
- (d) investigate the relationship between software reliability engineering (SRE) and assurance cases, and
- (e) identify critical research challenges and define a roadmap for future development.

We solicit high-quality contributions (research, practice, tools, and position papers) on the application of assurance case principles and techniques to assure that the dependability properties of critical software-intensive systems have been met. Papers should attempt to address the workshop goals in general.

Topics of interest include, but are not limited to:

- Standards: Industry guidelines and standards are increasingly requiring the development of assurance cases, e.g., the automotive standard ISO 26262, and the FDA Draft Guidance 510(k) for pre-market approval of infusion pumps
- Dependable architectures: How do fault-tolerant architectures and design measures such as diversity and partitioning relate to assurance cases?
- Reliability analysis: What are the relationships between reliability analysis techniques (e.g., Fault Tree Analysis / Markov Modeling) and the assurance case paradigm?
- Tools: Using the output from software engineering tools (testing, formal verification, code generators) as evidence in assurance cases / using tools for the modeling, analysis and management of assurance cases
- Application of formal techniques to create and analyze arguments
- Assurance issues in emerging computational paradigms, e.g., cloud, mobile, virtual, many-core architectures, and adaptive and autonomous systems
- Exploration of relevant techniques for assurance cases for real-time, concurrent, and distributed systems
- Modeling and Metamodeling: Representation of structured arguments through metamodels, such as OMG's Structured assurance Case Metamodel (SACM)
- Assurance of software quality attributes, e.g., safety, security and maintainability as well as dependability in general, including tradeoffs, and exploring notions of the quality of assurance cases themselves
- Domain-specific assurance issues, in domains such as aerospace, automotive, healthcare, defense and power
- Reuse and Modularization: contracts and patterns for improving the reuse of assurance case structures
- Connections between the Goal Structuring Notation for assurance cases and goal-orientation from the requirements engineering community

ASSURE 2014

2nd International Workshop on Assurance Cases
for Software-intensive Systems

Naples, Italy

Collocated with ISSRE 2014 (Nov. 3 – 6, 2014)

Submission Guidelines

All papers must be original work not published, or in submission, elsewhere. All papers should be submitted only in PDF. Research papers can be up to 6 pages long including figures and references. Tools papers can be up to 4 pages long. **Note:** Authors of accepted tools papers will be expected to give a demonstration of the tool(s) at the workshop, i.e., no screenshots. Papers should conform to the ISSRE paper formatting guidelines, i.e., 2 column IEEE conference paper format. Accepted papers will be published in the ISSRE Supplemental/Workshop Proceedings, and indexed on IEEE Xplore. Authors of the best papers may be invited to submit an extended version for publication in a special journal issue (tentative).

Submit your paper electronically by August 15, 2014, through the workshop website:

<http://ti.arc.nasa.gov/events/assure2014/>

Important Dates

Paper submission : August 15, 2014
Author notification : September 5, 2014
Camera-ready Papers : September 15, 2014
Workshop : One day during ISSRE 2014 (November 3 – 6, 2014). Exact date to be announced.

Workshop Organizers

Ewen Denney, SGT / NASA Ames Research Center, USA
Ibrahim Habli, University of York, UK
Ganesh Pai, SGT / NASA Ames Research Center, USA

Program Committee

Robin Bloomfield, City University, UK
John Favaro, INTECS, Italy
Richard Hawkins, University of York, UK
Paul Jones, US Food and Drug Administration (FDA)
Tim Kelly, University of York, UK
John Knight, University of Virginia, USA
Tom Maibaum, McMaster University, Canada
Robert Martin, MITRE Corporation, USA
Roger Rivett, Jaguar Land Rover, UK
Christel Seguin, ONERA, France
Mark-Alexander Sujjan, University of Warwick, UK
Kenji Taguchi, AIST, Japan
Fredrik Törner, Volvo, Sweden
Alan Wassyng, McMaster University, Canada
Sean White, Health and Social Care Information Centre, UK

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