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 operational approval guidance for unmanned aircraft systems), automotive (ISO 26262), and healthcare (FDA infusion pumps total product lifecycle guidance). As such, there is a need to develop models, techniques and tools that target the development of assurance arguments for software.

The goals of the 2015 Workshop on Assurance Cases for Software-intensive Systems (ASSURE 2015) are to:

(a) explore techniques for creating/assessing assurance cases for software-intensive systems;
(b) examine the role of assurance cases in the engineering lifecycle of critical systems;
(c) identify the dimensions of effective practice in the development and evaluation of assurance cases;
(d) investigate the relationship between dependability techniques 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 guidance on the total product lifecycle for infusion pumps
- Certification and Regulations: The role and usage of assurance cases in the certification of critical systems, as well as to show compliance to regulations
- Dependable architectures: How do fault-tolerant architectures and design measures such as diversity and partitioning relate to assurance cases?
- Dependability analysis: What are the relationships between dependability analysis techniques 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

Submission Guidelines

- All papers must be original work not published, or in submission, elsewhere, and should be submitted only as a PDF file. Please verify that papers can be reliably printed and/or viewed on screen before submission.
- Papers should conform to the LNCS paper formatting guidelines.
  - Regular (research, practice, or position) papers can be up to 12 pages long, including figures, references and any appendices.
  - Tools paper can be up to 10 pages long, including figures, references and any appendices. Note that authors of accepted tools papers will be expected to give a demonstration of the tool(s) at the workshop.
- Papers will be peer-reviewed, and accepted papers will be published in the SAFECOMP 2015 Workshop proceedings, to be published by Springer in the Lecture Notes in Computer Science (LNCS) series. Authors of the best papers may be invited to submit an extended version for publication in a special journal issue.

Submit your paper electronically by May 22, 2015, through the workshop website:

http://ti.arc.nasa.gov/events/assure2015/

Important Dates

Paper submission	May 22, 2015
Author notification	June 15, 2015
Camera-ready Papers	June 28, 2015
Workshop	September 22, 2015

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
Jérémie Guiochet, LAAS-CNRS, France
Richard Hawkins, University of York, UK
David Higham, Delphi Diesel Systems, UK
Michael Holloway, NASA Langley Research Center, USA
Paul Jones, U.S. Food and Drug Administration, USA
Tim Kelly, University of York, UK
Yoshiki Kinoshita, Kanagawa University, Japan
John Knight, University of Virginia, USA
Andrew Rae, Griffith University, Australia
Roger Rivett, Jaguar Land Rover, UK
Christel Seguin, ONERA, France
Mark-Alexander Sujan, University of Warwick, UK
Kenji Taguchi, AIST, Japan
Alan Wassyng, McMaster University, Canada
Sean White, Health and Social Care Information Centre, UK