Development, certification and maintenance of safety-critical software systems is complex and costly. Having a high safety integrity system certified according to relevant standards such as IEC61508 (process), DO178C (avionics), EN50128 (railway) and others is absolute necessary to keep a competitive advantage. It is, however, also one of the most severe cost drivers. An estimated 25-50% of total costs may be related to proof of compliance to standards and the assessment by external certification bodies. The established practice in the industry is to base development on extensive up-front planning with a consecutive strict focus on plan adherence and late verification and validation of the solution being built. However, this approach gives low flexibility and a risk of discovering critical problems at a late stage where correction costs are high.

The industry has recently shown great interest in agile methods and techniques as a mean to increase development efficiency, system quality and safety integrity, as well as achieving resource optimization and effective assessment and certification. This raises a series of research challenges, for example how to adapt agile principles to large and complex HW/SW projects, how to implement changes in a conservative and plan-driven practice, how to involve external certification and notified bodies, and how to enable efficient traceability and documentation management.

ASCS will be the first international workshop addressing industrial and scientific challenges related to the adoption of agile methods and techniques for the development and certification of safety-critical and high-integrity systems. The workshop will invite leading experts to share insights into needs, opportunities, and ideas to shape an important research field.

Important dates

- Feb 9, 2015 - Workshop paper deadline
- Mar 1, 2015 - Notification of acceptance
- Apr 16, 2015 - Presentation ready deadline
- May 25, 2015 - ASCS Workshop
Workshop topics

The workshop topics include all concerns related to agile methods applied to development and certification of safety-critical systems. These include, but are not limited to, the following:

- Challenges of developing safety-critical systems (software aspects)
- Industry trends and experience
- Agile methods tailoring
- Documentation, traceability and management of proof-of-conformance
- Safety standards compliance (software aspects)
- Agile method introduction
- Tools and automation
- Testing (unit, module, system / white- and black-box)
- Assessment and certification
- Improvement needs and opportunities
- Requirements management
- Change management
- Coordination of software and hardware development
- Software safety assessment in an agile setting

Submission guidelines

We are seeking short presentations (approx. 15 minutes) that address important aspects, challenges, solutions or ideas related to the workshop themes. Proposals should be submitted in the form of an extended abstract, which explains the rationale or motivation for the presentation, key messages delivered, additional statements on research needs and opportunities and any other information about the planned presentation.

The length of the extended abstract should be maximum 2 pages in the ACM format (http://www.acm.org/sigs/publications/proceedings-templates). At least one author of each accepted abstract must participate in the workshop and give a presentation.

Papers are submitted through EasyChair (https://www.easychair.org/conferences/?conf=xp2015).

Select the “New Submission” link from the top and the “Scientific Workshop: Agile Methods Applied to Development and Certifications of Safety-Critical Software”.
Review process

All submissions will be reviewed by at least two members of the program committee. Authors of accepted presentations are expected to update the extended abstract and prepare a presentation (powerpoint, keynote, prezi, etc.), taking the input from the review into consideration.

Workshop structure

All accepted presentations, together with the abstracts, will be compiled and handed out to the workshop participants in advance.

The workshop will have two sections – 1) selected talks, and 2) an open discussion defining key challenges and inputs to a research agenda.

Extended abstracts and a summary of the discussions, including a research agenda will be compiled and published via ACM software engineering notes (http://www.sigsoft.org/SEN/).

Contact information

You can contact the organizers of the workshop by e-mail at

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