

Special Issue on Software Engineering for Safety-Critical Systems and Medical Devices

Safety-critical systems (SCSs) are those systems whose failure could result in loss of life, significant property damage, or damage to the environment. Software are playing an increasingly important part in SCSs. Worldwide regulatory bodies have recognized this trend and released new standards related to the development of software in SCSs, such as ISO 26262 and IEC 61508. This trend is particularly true for Software Medical Devices (SMDs), one of the most important categories of SCSs. Regulatory bodies and industries are investing more on the safety and security issues of SMDs. For examples, Medical Devices Directive in the European Union provides definition and classification of SMDs; the international standard IEC 62304 specifies life cycle requirements for the development of SMDs. However, regardless of the importance attached to SMDs, due to the inherent complexity of software, errors in software codes have been constantly reported to cause different devices to mal-function and led to fatal consequences. Therefore, several questions are urgently presented to SMD developers: how to build robust, dependable, safe and secure SMDs? More importantly, how to make the case for certifying a SMD or a SCS?

In this special issue, we intend to invite front-line researchers and authors to submit original research and review articles on exploring **Software Engineering for Safety-Critical Systems and Medical Devices**.

Topics of interest for submissions include (but are not limited to):

- Requirements gathering and documentation of safety-critical systems
- Architecture design of safety-critical systems
- Testing and static analysis of safety-critical systems
- Usage of tabular expression in safety-critical systems
- Safety, dependability, and security in safety-critical systems
- Formal verification of highly dependable systems
- Standardization and certification of safety-critical systems
- Good practices in the development of Software Medical Device (SMD)
- Challenges in documenting the requirements of Software Medical Device
- Verification and validation of Software Medical Device
- Certification of Software Medical Device
- Legal and ethical issues related to Software Medical Device

Authors should read over the journal's [Author's Guidelines](#) carefully before submission, Prospective authors should submit an electronic copy of their complete manuscript through the journal [Paper Submission System](#).

According to the following timetable:

Manuscript Due	July 25th, 2013
Publication Date	September, 2013

Please kindly notice that the “**Special Issue**” under your manuscript title is supposed to be specified and the research field “**Special Issue —Software Engineering for Safety-Critical Systems and Medical Devices**” should be chosen during your submission.

Special Issue Editor

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