Special Issue on Software-Intensive Systems of Systems
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Theme
Systems-of-Systems (SoS) have become increasingly complex and are frequently used in highly distributed, dynamic, and open environments. SoS have emerged as a new class of evolving software systems, where constituent systems (themselves systems in their own right) work cooperatively in order to fulfill specific missions. SoS are characterized by operational and managerial independence, distribution, evolutionary development, and creation of emergent behavior. These characteristics have therefore raised substantial challenges to software engineering researchers and practitioners. SoS and especially Software-intensive SoS (SiSoS) is becoming a hotspot, from both the research and the industrial viewpoints, in particular, related to crucial classes of applications. Furthermore, SiSoS are increasingly involved in applications that address societal needs, such as environmental monitoring, distributed energy grids management, emergency coordination and crisis management, global traffic control, and smart cities.

In this context, the research topic of software engineering for SoS and SiSoS needs to receive more attention and research effort, considering that the software part of SoS is becoming increasingly larger and more complex. Software engineering theories and tools are needed to adequately design, implement, operate, and even evolve such dynamic.

TOPICS include:

- SoS Analysis & Architecture
  - Requirements engineering
  - Architectural description
  - Architectural evaluation
  - Architectural evolution
- SoS Model-Based Engineering
  - Modeling and simulation
  - Model driven engineering
  - Models at runtime
- SoS Construction and Evolution
  - Techniques and technologies
  - Service-orientation
  - Component frameworks
  - Evolutionary development
• SoS Experience
  o Industrial perspectives
  o Successful case studies
• SoS General Issues
  o Characteristics of SoS
  o Quality in SoS
  o SoS development processes
  o Acquisition and project management
  o Verification and validation of SoS
• Future perspective, challenges, and directions of SoS research and/or development

Important Dates:

  – Nov. 1, 2019 Full paper submission due
  – Feb. 15, 2019 First round notification
  – Apr. 30, 2019 Revised submission due
  – Jul. 15, 2019 Paper acceptance decision
  – Aug. 31, 2019 Camera-ready paper due