



Journal of System Architecture

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Special Issue on Safe and Intelligent Embedded Software and Systems (SI:SIESS20)

In conjunction with 2020 IEEE International Conference on Embedded Software and Systems (ICESS)

Overview: With the constraint of limited resources, embedded systems demand novel security techniques to protect their critical operations. For robustness, various resource-efficient fault tolerance techniques for reliable operations are also needed. On the other hand, Artificial Intelligence/Machine Learning (AI/ML) has become the key enabling technology for many applications, from recommendation systems to facial recognition. However, the Deep Learning and Deep Reinforcement Learning, as the most effective AI/ML techniques, are generally quite complex where the model training are very computation-intensive and are typically performed offline and in the cloud. Even the runtime model inference may demand significant computing power from the computing platform, which may be a heterogeneous mixture of multicore CPUs, GPUs, DSPs, FPGAs and ASICs. Such complex requirements on safety, security, reliability and intelligence call for innovative security, fault tolerance, and AI/ML techniques for resource-constrained embedded systems, such as Internet of Things (IoTs), where many challenging research issues of performance, efficiency, power-consumption, reliability, dependability and security need to be addressed. This special section aims to present a collection of papers on the following topics in the context of safe and intelligent embedded software and systems:

- Novel secure designs for embedded software and systems
- Innovative fault tolerance techniques for embedded software and systems
- Power efficient fault tolerance approaches embedded software and systems
- Intelligent algorithms and architectures for resource-constrained platforms
- AI/ML techniques for specialized heterogeneous platforms with GPUs/DSPs/FPGAs
- Performance optimization for safe and intelligent embedded systems

All original manuscripts that fit within the scope are welcome. Authors of selected papers presented at the 2020 IEEE International Conference on Embedded Software and Systems (ICESS) are especially encouraged to submit to this SI.

Submission Details: General information for submitting papers to JSA can be found at the journal webpage under “Guide for Authors”. Submissions to this Special Issue (SI) should be made using Elsevier’s editorial system at the journal website under the “Submit Your Paper” link. Please select the “**SI:SIESS20**” option as the type of the paper during the submission process.

JSA has adopted the [Virtual Special Issue](#) model to speed up the publication process, where Special Issue papers are published in regular issues but marked as SI papers. Therefore, authors are encouraged to submit papers early, and need not wait until the submission deadline.

Important Dates:

Submission deadline:	Feb. 1, 2021	Revision deadline:	Jun. 15, 2021
First round reviews:	May 1, 2021	Final notification:	Aug. 1, 2021

Guest Editors:

Dr. Dakai Zhu, The University of Texas at San Antonio, USA
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Dr. Cong Liu, The University of Texas at Dallas, USA