



Leibniz Transactions on Embedded Systems

Call for Papers Special Issue on Embedded Systems for Computer Vision

We are currently witnessing a tremendous surge in the development of smart and autonomous systems. These include autonomous cars, autonomous robots, autonomous drones, and various smart systems in the context of industrial automation. A crucial component in all of these systems is computer vision, where inputs from various sensors such as cameras or lidars are processed and control commands for the desired functionality are generated. Computer vision is also being used for implementing various smart functionality, as well as security, e.g., using facial recognition. These emerging applications of computer vision pose several research challenges. These include the development of high-performance embedded architectures to support computer vision solutions, particularly those based on machine learning, the need for timing guarantees of computer vision algorithms when they are in critical control loops, low-power algorithms and architectures for computer vision, and privacy and security of vision-based applications and systems.

LITES will publish a special issue dedicated to these topics centered around embedded systems for computer vision. Papers are being invited on all of these topics:

- new embedded systems architectures – including FPGAs, GPUs, and heterogeneous MpSoCs – for computer vision,
- novel algorithms for computer vision targeting embedded applications,
- machine learning and neural networks for image and video understanding for autonomous systems,
- timing analysis of computer vision algorithms and architectures,
- performance and power analysis and management of computer vision systems,
- vision-based control or visual servoing systems,
- security and privacy issues in vision-based embedded systems,
- robustness issues in vision-based autonomous systems, and
- debugging vision-based embedded systems.

Papers reporting large case studies or novel applications where computer vision plays a crucial role are also welcome. All articles submitted to this special issue will undergo the usual reviewing process followed by LITES. Manuscripts submitted should contain original and in major parts unpublished research work. The length of the articles published in LITES is approximately double the length of usual conference publications (i.e., up to 30 pages). As usual with LITES, accepted articles are published open access, i.e., accessible online without any costs, and the rights are retained by the author(s).

Important Dates:

- Full paper submission: December 15, 2020
- First editorial notice: March 15, 2021
- Revised submission: May 15, 2021
- Final decision: June 15, 2021

Guest Editors:

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