

# ISCAS-2021 Special Session

## Title: Optimized Image/Video Coding based on Deep Learning

### Organizer:

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### Scope:

Over the past several years, we have witnessed the impressive progress of image/video coding schemes based on deep learning approaches. Despite a short history of this field, end-to-end trained coding models have evolved as a promising nonlinear signal processing framework and recent works have shown that learned models can achieve significant performance gains over traditional methods. However, there are still unsolved problems and compelling research challenges remaining to be addressed, e.g.: 1) energy efficient and fast architectures for low-complexity image/video encoding and decoding, which is essential for practical applications; 2) improved compression for different target applications such as object detection or high-quality video streaming for machine-to-machine communication; 3) novel network architectures designed for higher coding efficiency to better exploit bandwidth requirements; 4) variable rate control and efficient bit allocation with deep learning frameworks, which are barely studied yet. Hence, this special session invites original contributions addressing important innovative and timely challenges of the ISCAS community, which is deep learning for video compression in energy-aware real-world environments.

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

- ✓ Efficient and fast hardware/network architectures for learning-based image/video coding
- ✓ Automated machine learning for image/video coding
- ✓ End-to-end learning framework for image/video coding
- ✓ Quality assessment models reflecting human perception of quality and their applications in image/video coding
- ✓ Deep learning techniques for optimizing traditional image/video codecs
- ✓ Deep learning based compression for image and video analysis

### Important dates:

- ✓ Special Session Papers Submission Deadline **Nov. 16, 2020**
- ✓ Notification of Special Session Paper Acceptance **Jan. 15, 2021**
- ✓ Special Session Final Paper Submission **Feb. 05, 2021**