

# Special Issue of IEEE Transactions on Circuits and Systems for Video Technology

## “Advanced Machine Learning Methodologies for Large-Scale Video Object Segmentation and Detection”

### SUMMARY:

Video object segmentation and detection are two important tasks toward intelligent video content understanding. Due to their wide applications in real-world vision tasks, such as video surveillance and automatic driving, they have recently attracted great attention in computer vision and multimedia processing communities. Although numerous deep learning-based approaches have been proposed, implementing effective and efficient video object segmentation and detection is still very challenging for now, which is mainly due to the challenges in 1) spatial-temporal feature learning and 2) insufficient, unspecific, or even absent video annotation. Nowadays, the rapid development of the advanced machine learning models, such as the graph convolutional network, capsule network, deep Q-learning network, etc., and schemes, such as the weakly supervised learning, semi-supervised learning, zero/few-shot learning, self-taught learning, etc., have offered new opportunities to address this issue. Such machine learning models and schemes can bring novel and insightful enlightenment to video object segmentation and detection and facilitate effective solutions to these problems. This special issue aims at promoting cutting-edge research for establishing video object segmentation and detection frameworks based on the advanced machine learning technologies and offers a timely collection of works to benefit researchers and practitioners. We welcome high-quality original submissions addressing both novel theoretical and practical aspects related to this topic.

### SCOPE:

Topics of interests include, but are not limited to:

- Video object segmentation/detection based on graph convolutional networks
- Video object segmentation/detection based on capsule networks
- Video object segmentation/detection based on deep reinforcement learning
- Video object segmentation/detection based on generative adversarial learning
- Weakly supervised video object segmentation/detection
- Semi-supervised video object segmentation/detection
- Zero/few-shot video object segmentation/detection
- Unsupervised video object segmentation/detection
- Active learning and cross-domain learning frameworks for video object segmentation/detection
- Self-taught learning-based frameworks for video object segmentation/detection
- Saliency detection and its applications in video object segmentation/detection
- Representation learning for video object segmentation/detection
- Tracking and other video understanding systems based on video object segmentation/detection

### IMPORTANT DATES:

Manuscript submission:	1 <sup>st</sup> November 2020
Preliminary results:	1 <sup>st</sup> February 2021
Revisions due:	15 <sup>th</sup> March 2021
Notification:	1 <sup>st</sup> May 2021
Final manuscripts due:	1 <sup>st</sup> June 2021
Anticipated publication:	November 2021

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