Special Track: **Generalization in Visual Machine Learning**

19th International Symposium on Visual Computing

Lake Tahoe, NV, USA

October 21-23, 2024

http://www.isvc.net

Scope

Generalization is particularly important in machine learning for visual computing due to the complex and diverse nature of visual data. In visual computing, machine learning models are often trained on large datasets of images or videos with the goal of performing tasks such as object recognition, segmentation, classification, or detection. Achieving good generalization is crucial for the practical utility of these models as they need to perform accurately on new, unseen images or videos. Good generalization is especially important in real-world applications where visual data can vary widely in appearance, context, and lighting conditions.

Another reason why generalization is important in machine learning for visual computing is the potential for bias and overfitting. Visual datasets are often biased towards specific classes, contexts, or viewpoints, which can lead to poor generalization when models are applied to new data outside of these biases. Additionally, machine learning models trained on visual data can easily overfit to noise or irrelevant features in the training data, leading to poor performance on new data.

To address these challenges, researchers in machine learning for visual computing have developed a range of techniques to improve generalization. These include regularization techniques to prevent overfitting, transfer learning and domain adaptation techniques to leverage pre-trained models or adapt to new domains, data augmentation techniques to increase the diversity of the training data, and uncertainty estimation techniques to quantify model confidence and detect potential errors.

We invite research contributions to this special issue on Generalization in Visual Machine Learning. We welcome original research articles, reviews, and survey papers on the above topics. All submissions will be rigorously peer-reviewed and selected based on their relevance, technical quality, and originality.

Topics

Topics of interest include but are not limited to:

- Regularization techniques for improving generalization in visual computing
- Novel hierarchical architecture for domain generalization
- Transfer learning and domain adaptation for visual computing
- Data augmentation and synthesis techniques for improving generalization in visual computing
- Uncertainty estimation in visual computing
- Generalization in aerial surveillance under complex and contested environments
- Generalization in object detection
- Robustness and adversarial attacks in visual computing
- Explainability and interpretability of visual computing models
- Novel approaches for improving generalization in visual computing
- Generalization in visual object tracking
- Generalization in biometric recognition techniques
- Generalization on medical image segmentation
- Zero-shot learning for visual computing
- Disentangled representations for improving generalization in visual computing
- Graph based approaches (Graph Signal Processing, Graph Neural Networks) in visual computing

Organizers

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Important Dates

Same as ISVC deadlines. Please visit: http://www.isvc.net/

Paper Submission Instructions

Same as ISVC paper submission instructions, see http://www.isvc.net/index.php/paper-submission/