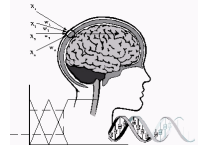




International

Innovation in Knowledge Based and Intelligent
Engineering Systems



INVITED SESSION SUMMARY

Title of Session:

Challenges and new advancements in image generation

Name, Title and Affiliation of Chair:

- Bianchini Monica, Professor, Department of Information Engineering and Mathematics, University of Siena, Siena, Italy.
- Andreini Paolo, PhD, Department of Information Engineering and Mathematics, University of Siena, Siena, Italy.
- Bonechi Simone, PhD, Department of Social, Political and Cognitive Sciences, University of Siena, Siena, Italy and Department of Information Engineering and Mathematics, University of Siena, Siena, Italy
- Corradini Barbara Toniella, Dr. Eng, Department of Information Engineering, University of Florence, Florence, Italy and Department of Information Engineering and Mathematics, University of Siena, Siena, Italy

Details of Session (including aim and scope):

The new advancements in foundational generative models continue to push the state of the art in numerous domains. Generative models, in the last few years, have gained an increasing attention in the computer vision community thanks to their impressive capabilities. By learning the underlying data distribution, architectures such as Generative Adversarial Networks, Vision Transformers and Diffusion Models are able to produce new realistic and coherent samples. Nevertheless, these state-of-the-art models have seen an exponential growth in terms of parameters and required data, that often makes the training unaffordable. Consequently, there is an increasing interest in alternative approaches that require limited data and computational resources (few-shot and zero-shot learning). The aim of this session is to provide an international forum for presenting recent results and advances regarding generative models for images. The scope of this session comprehends, but it is not limited to:

- Image generation
- Image to image translation
- Inpainting
- Style transfer
- Image super resolution
- Data augmentation and simulation
- Multimodal learning
- Novel image generation models
- Theoretical studies on generative models

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

University of Siena – Department of Information Engineering and Mathematics – Siena, Italy

University of Cagliari – Department of Electrical, Electronic and Computer Engineering – Cagliari, Italy

Fondazione Bruno Kessler – Trento, Italy

University of Florence – Department of Information Engineering – Florence Italy

Sorbonne Université – Institute des Systèmes Intelligents et de Robotique – Paris, France

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