

Christos Tzelepis

Electrical and Computer Engineer, Ph.D.

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Education

- 2014-2018 **Ph.D.**, in *Machine Learning & Computer Vision*, Queen Mary, University of London
- 2005-2011 **Diploma**, in *Electrical & Computer Engineering*, Aristotle University of Thessaloniki

Overview of Research

My research interests are mainly in the areas of Multimodal Generative AI, Computer Vision, and Machine Learning. Specifically, my current focus is in the conjunction between generative learning (using Diffusion Models and GANs) and Vision-Language models towards multimodal content generation (using language or other modalities) and downstream Computer Vision tasks. Recent and ongoing outcomes of my research show promising results towards this direction. In the aforementioned areas, I have co-authored publications in the most authoritative international journals (TPAMI, IJCV) and conferences (CVPR, ICCV, NeurIPS, ICLR) in my field.

Research & Professional Experience

- 2023- **Lecturer**, *City, University of London*, London, UK
- 2018-2023 **PostDoc Researcher**, *Queen Mary University of London (QMUL)*, London, UK
- 2014-2018 **Research Associate**, *Information Technologies Institute (ITI) / Centre for Research and Technology Hellas (CERTH)*, Thessaloniki, Greece

Research Projects & Grants

I have actively participated in the writing and development of the following successful grant proposals:

- 2020- **AI4Media**, *A European Excellence Centre for Media, Society and Democracy*, H2020, 951911
- 2018-2022 **DECSTER**, *Deep Learning from Crawled Spatio-Temporal Representations of Video*, EPSRC, EP/R026424/1
- 2016-2019 **MOVING**, *Training towards a society of data-savvy information professionals to enable open leadership innovation*, H2020, 693092
- 2016-2018 **InVID**, *In Video Veritas - Verification of Social Media Video Content for the News Industry*, H2020, 687786
- 2013-2016 **ForgetIT**, *Concise Preservation by combining Managed Forgetting and Contextualized Remembering*, FP7, 600826

Teaching Experience

- 2023-2024 **INM707**, *Deep Reinforcement Learning*, (Post-graduate), City, University of London
2023-2024 **IN1011**, *Operating Systems*, (Under-graduate), City, University of London

Talks & Presentations

- 2023 **Controlling Generative Adversarial Networks (GANs) for Computer Vision tasks**, *Artificial Intelligence Research Centre, (CitAI), City, University of London*
- 2021 **WarpedGANSpace: Finding non-linear RBF paths in GAN latent space**, *International Conference on Computer Vision (ICCV), 2021*
- 2018 **Tutorial in learning under uncertainty**, *Queen Mary University of London, MultiMedia & Vision (MMV) Group*
- 2016 **Video event detection using kernel support vector machine with isotropic Gaussian sample uncertainty (KSVM-iGSU)**, *International Conference on Multimedia Modeling (MMM), 2016*
- 2013 **Improving event detection using related videos and relevance degree support vector machine**, *ACM Multimedia (ACMMM), 2013*

Service

Reviewer, *IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, *IEEE Computer Vision and Pattern Recognition Conference (CVPR)*, *IEEE International Conference on Computer Vision (ICCV)*, *European Conference on Computer Vision (ECCV)*, *Neural Information Processing Systems (NeurIPS)*, *International Conference on Learning Representations (ICLR)*, *ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH)*, *IEEE Transactions on Multimedia (T-MM)*, *Elsevier Computer Vision and Image Understanding (CVIU)*, *IEEE Signal Processing Letters (SPL)*, *Elsevier Pattern Recognition (PR)*

Recent Key Publications (* denotes co-first authorship)

- [1] Oldfield J., **Tzelepis C.**, Y. Panagakis, M. Nicolaou, Patras I., “Parts of Speech–Grounded Subspaces in Vision-Language Models” *Advances in Neural Information Processing Systems*, 36 (*NeurIPS 2023*) — [code]
- [2] Bounareli S., **Tzelepis C.**, Argyriou V., Patras I., Tzimiropoulos G., “One-shot Neural Face Reenactment via Finding Directions in GAN’s Latent Space” *International Journal of Computer Vision (IJCV)* [IF: 13.37], 2024.
- [3] D’Incà, M, **Tzelepis C.**, Patras I., Sebe, N., “Improving Fairness using Vision-Language Driven Image Augmentation” *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2024)* — [code]
- [4] Bounareli S., **Tzelepis C.**, Argyriou V., Patras I., Tzimiropoulos G., “HyperReenact: one-shot reenactment via jointly learning to refine and retarget faces” *Proceedings of the IEEE/CVF International Conference on Computer Vision. 2023* — [code]

- [5] Oldfield J., **Tzelepis C.**, Y. Panagakis, M. Nicolaou, Patras I., “Bilinear Models of Parts and Appearances in Generative Adversarial Networks” *IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI, Under Review)* [IF: 24.31], 2023, — [code]
- [6] **Tzelepis C***., Barattin S*., Patras I., N. Sebe., “Attribute-preserving Face Dataset Anonymization via Latent Code Optimization” *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)* [highlight/top-10%], 2023. — [pdf]/[code]
- [7] Oldfield J., **Tzelepis C.**, Y. Panagakis, M. Nicolaou, Patras I., PandA: Unsupervised learning of parts and appearances in the feature maps of GANs. *International Conference on Learning Representations (ICLR)*, 2023. — [pdf]/[code]
- [8] Bounareli S., **Tzelepis C**, Argyriou V., Patras I., Tzimiropoulos G., “StyleMask: Disentangling the Style Space of StyleGAN2 for Neural Face Reenactment” *IEEE International Conference on Automatic Face and Gesture Recognition (FG)*, 2022. — [pdf]/[code]
- [9] **Tzelepis C.**, G. Tzimiropoulos, Patras I., “WarpedGANSpace: Finding non-linear RBF paths in GAN latent space” *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2021. — [pdf]/[code]
- [10] Kordopatis-Zilos G., **Tzelepis C.**, Papadopoulos S., Kompatsiaris I., Patras I., “DnS: Distill-and-Select for Efficient and Accurate Video Indexing and Retrieval” *International Journal of Computer Vision (IJCV)* [IF: 19.5], 2022. — [pdf]/[code]
- [11] **Tzelepis C.**, Mezaris V., Patras I., “Linear maximum margin classifier for learning from uncertain data” *IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)* [IF: 24.31], 2018. — [pdf]/[code]