Darian Tomašević

PhD student and Young researcher

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Third year PhD student exploring the use of deep generative models for generating synthetic biometrics data with the goal of creating privacy-preserving large-scale datasets for recognition and segmentation tasks.

Research – Biometrics & Generative models

PhD research under the supervision of Prof. Dr. Peter Peer and Prof. Dr. Vitomir Štruc

Identity-consistent image generation with diffusion models (under review)
- Proposed a triplet identity objective for fine-tuning diffusion models to enable the synthesis of diverse identity-specific images based on images captured with consent in a constrained environment

Generating Bimodal Privacy-Preserving Data for Face Recognition (EAAI) [1]
- Proposed an identity-conditioned StyleGAN-based framework (ArcBiFaceGAN) for generating visible and near-infrared face images of privacy-preserving synthetic identities suitable for training recognition models

Bimodal Face Image Synthesis (FRAIS) [2]
- Extended our BiOcularGAN framework with a privacy filter to allow the generation of privacy-preserving face images in the visible and near-infrared spectrum coupled with segmentation annotations

Bimodal Synthesis and Annotation of Ocular Images (IJCB) [3]
- Proposed a StyleGAN-based model (BiOcularGAN) for generating pixel-aligned visible and near-infrared ocular images along with segmentation masks based on a handful of human annotations

Other research

3D reconstruction – *Computer Vision Laboratory*
- Proposed a deep model for reconstructing superquadric volumetric primitives from RGB images [4]

Music Information Retrieval – *Laboratory for Computer Graphics and Multimedia*
- Developed a framework for annotating musical patterns and analysed patterns of musicologists [5]

Publications

[1] D. Tomašević, F. Boutros, N. Damer, P. Peer, and V. Štruc, "Generating bimodal privacy-preserving data for face recognition," *Engineering Applications of Artificial Intelligence (EAAI)*, vol. 133, p. 108495, 2024, DOI.

[2] D. Tomašević, P. Peer, and V. Štruc, "BiFaceGAN: Bimodal face image synthesis," *Face Recognition Across the Imaging Spectrum (FRAIS)*, pp. 273–311, 2024, DOI.

[3] D. Tomašević, P. Peer, and V. Štruc, "BiOcularGAN: Bimodal synthesis and annotation of ocular images," in *IEEE International Joint Conference on Biometrics (IJCB)*, 2022, pp. 1–10, DOI.

[4] D. Tomašević, P. Peer, F. Solina, A. Jaklič, and V. Štruc, "Reconstructing superquadrics from intensity and color images," *Sensors*, vol. 22, no. 14, 2022, DOI.

[5] D. Tomašević, S. Wells, I. Y. Ren, A. Volk, and M. Pesek, "Exploring Annotations for Musical Pattern Discovery Gathered with Digital Annotation Tools," *Journal of Mathematics and Music (JMM)*, vol. 15, no. 2, pp. 194–207, 2021, DOI.

Skills

Languages	English (C2, Proficient), French (Basic), Slovenian (Fluent)
Programming	Python (PyTorch), JavaScript, R, Java, SQL
Organization	International Joint Conference on Biometrics (IJCB 2023)

Education

University of Ljubljana, Faculty of Computer and Information Science

PhD in Computer and Information Science	**2022 – 2026** (expected)
Master's degree in Computer and Information Science	**2019 – 2022**
Faculty Award for Master's thesis	
Bachelor's degree in Computer and Information Science	**2016 – 2019**