Lorenzo Agnolucci

PhD Student

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Education

2021 - Present **PhD in Computer Vision and Artificial Intelligence**, *University of Florence - Media Integration and Communication Center*, Florence, Italy
Topics: Low-level Vision; Image Quality Assessment; Vision and Language; Video Restoration;

2019 - 2021 **M.Sc in Computer Science and Engineering**, *University of Florence*, Florence, Italy, Grade: 110/110 cum laude
Thesis: Deep Learning Techniques for Improving Video Visual Quality Using Keyframes

2016 - 2019 **B.Sc in Computer Science and Engineering**, *University of Florence*, Florence, Italy, Grade: 110/110 cum laude
Thesis: Localization of Figures in Scientific Articles

Publications

2023 A. Baldrati*, L. Agnolucci*, M. Bertini, A. Del Bimbo, Zero-Shot Composed Image Retrieval with Textual Inversion, *International Conference on Computer Vision* **(ICCV)**.

2023 L. Agnolucci, L. Galteri, M. Bertini, A. Del Bimbo, ARNIQA: Learning Distortion Manifold for Image Quality Assessment, **Under review**.

2023 L. Agnolucci, L. Galteri, M. Bertini, A. Del Bimbo, Reference-based Restoration of Digitized Analog Videotapes, **Under review**.

2023 L. Agnolucci*, A. Baldrati*, F. Todino, F. Becattini, M. Bertini, A. Del Bimbo, ECO: Ensembling Context Optimization for Vision-Language Models, *International Conference on Computer Vision Workshop* **(ICCVW)**.

2023 G. Burbi, A. Baldrati, L. Agnolucci, M. Bertini, A. Del Bimbo, Mapping Memes to Words for Multimodal Hateful Meme Classification, *International Conference on Computer Vision Workshop* **(ICCVW)**.

2023 L. Agnolucci, L. Galteri, M. Bertini, A. Del Bimbo, Perceptual Quality Improvement in Videoconferencing using Keyframes-based GAN, *IEEE Transactions on Multimedia* **(TMM)**.

2023 L. Agnolucci*, A. Baldrati*, M. Bertini, A. Del Bimbo, Zero-Shot Image Retrieval with Human Feedback, *Proceedings of the 31st ACM International Conference on Multimedia (***ACM MM Demo***)*.

2022 L. Agnolucci, L. Galteri, M. Bertini, A. Del Bimbo, Restoration of Analog Videos Using Swin-UNet, *Proceedings of the 30th ACM International Conference on Multimedia (***ACM MM Demo***)*.

* Equal contribution.

Projects

2021 **Utilizing BERT for Aspect-Based Sentiment Analysis via Constructing Auxiliary Sentence**
Implementation of an NLP model with PyTorch and Hugging Face Transformers. Aspect-Based Sentiment Analysis is converted to a sentence-pair classification task and approached by fine-tuning a pre-trained BERT language model.

2020 **Social distancing detector**
A tool built with Python to monitor people's compliance to social distancing in crowded places in real-time. It leverages an object detection model developed with Keras for people detection and OpenCV for measuring distances in various types of input video streams.

2019 **Localization of figures in scientific articles**
Project developed with Python for my Bachelor's thesis. At first, a dataset of figures and tables is built by using decision trees and several image analysis techniques. Then, an object detection model is trained to detect figures and tables in documents.

Most of the projects (in addition to others not mentioned here) are available on my Github profile.

Technical skills

Machine Learning Technologies

- PyTorch
- OpenCV
- scikit-learn

Programming Languages

- Python
- Java
- Javascript

Misc

- Git
- NumPy
- Matplotlib

Languages

Italian, Native language

English, B2 level, Cambridge Assessment English - First Certificate in English

Achievements

2021 **First Ascent 2021**, *Bending Spoons*, Milan, Italy
I was selected by Bending Spoons, one of the world's leading mobile developers by the number of app downloads, to participate in First Ascent, a 3 days event organized in Milan in order to celebrate Italy's top Computer Science students. I was selected among the 20 best students out of more than 500 applicants. Event page: `http://firstascent.io`

Other

2022 **Italian state professional information engineer examination**, *University of Florence*
Professional examination prescribed by Italian laws to become a professional engineer

(Last updated: October 2023)