CS PhD Seminar Series

July 8th | 14:30-15:30 | Room 217

Place with Purpose: Pose-and-Prompt Guided Human Synthesis in Real Scenes

We present the task of Pose-and-Text Guided Human Blending into real-world images. Given a natural scene, a skeletal pose representation, and a textual description of a person's appearance or action, the goal is to synthesize and blend a realistic human figure that respects the spatial layout, object affordances, and semantic consistency of the environment. Unlike traditional image editing or inpainting, this task presents unique challenges, including a large solution space and the need for high-level reasoning about scale, pose feasibility, scene clutter, and compositional realism. We address this task by introducing a pipeline built upon state-of-the-art pretrained models and propose a benchmark dataset with pose-conditioned insertions across diverse backgrounds. Our approach supports automatic region selection, a two-stage scale estimation process, and alpha-based blending, enabling context-aware and photorealistic human-scene composition. This work establishes a strong baseline and sets the foundation for advancing semantically grounded and spatially coherent visual content generation in real images.

Speaker: **Dadan Khan**

Dadan Khan is a third-year Ph.D. student in Computer Science. He obtained his master's in computer science and engineering from the University of Electronics Science and Technology of China. He is working under the supervision of Professor Francesca Odone on deep-learning techniques applied to video surveillance.

Confidential and Permissioned Blockchains for the logistics domain

Nowadays data are kept secret while in transit and at rest between parties. However, when data are in use, it is in clear in memory and superusers are able to see them, breaking privacy, confidentiality and even trustworthiness. Confidential Computing (CC) technology keeps the data in use secret. This is possible thanks to attested hardware-based Trusted Execution Environments (TEEs): ad hoc hardware which ensures that data can be seen in clear only by their owner and by the parties with which the owner itself wants to share them. Moreover, CC allows two processes to attest that they are running inside a TEE and are executing specific code (even one of them, and one verifies the other), thus improving the trustworthiness. There are several implementations of TEEs. One of them is Intel Software Guard Exstension (SGX), where a process can be split into trusted and untrunsted parts. The former is run in so called "enclaves". There are some frameworks, like Gramine, Occlum and EGo, which help in developing programs to be run in a TEE, even without the need to modify their source. Gramine lets you do this for Docker containers too, but also provides you other features, like automatic sealing (i.e., persisting file encrypted with a key generated within the enclave) for filesystem paths. Applying this technology to Permissioned Blockchain solutions allows the latter to have i) their nodes running in Intel SGX enclaves and ii) to seal the Blockchain. In this way, the privacy and the confidentiality of the data are preserved at filesystem and hardware-level. This is important in environments like the logistics one, where entities and organizations communicate each other, but at the same time want to keep their data private. However, there can be third party softwares which could be interested in some of such data, for example to run Machine Learning algorithms. To obtain data, they need to interact with Blockhain network's entities. However, such entities do not want to share their data with anyone, but only with trusted ones. To ensure trustworthiness, the remote attestation feature can be used. In this way, entities know which third party softwares they are interacting with and trust them.

Speaker: **Stefano Avola**

I'm a PhD student of the XXXVIII cycle in Computer Science And Systems Engineering at University of Genoa. My supervisor is prof. Pierpaolo Baglietto. I graduated in Computer Engineering in 2019 and I obtained the master's degree in Computer Engineering (curriculum Software and Computing Platforms) in 2021, all in Genoa. My research activity is mainly focusing on study of solutions for sharing and maintaining data confidentiality through the use of the Confidential Computing technology applied to Permissioned Blockchains solutions.