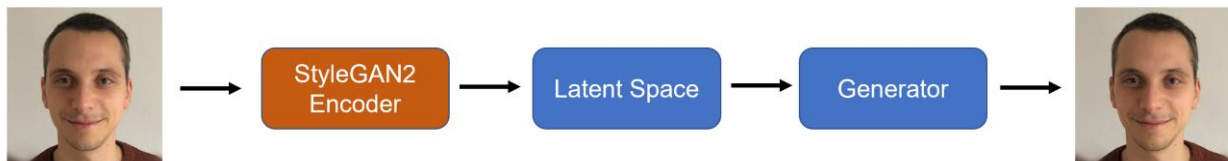


## Master Thesis

# Real Face Image Embedding into StyleGAN2 Latent Space

### OBJECTIVES & GOALS:

Synthetic face images gain more and more attention as the performance of deep generative networks continuously improves. Recently, the NVIDIA development team published StyleGAN2, capable of generating highly realistic synthetic face images that are non-distinguishable from real face images. Previous works have shown that the internal structure (latent space) of StyleGAN2 learns to break down individual features necessary to generate arbitrary faces. In this context, the main goal of this thesis is to construct an encoder that projects real face images into the latent space of StyleGAN2. Once the encoder is implemented and optimized (e.g. with Pytorch), the results will be compared to other state-of-the-art StyleGAN encoders.



### TASKS:

- Implementation and Optimization of StyleGAN2 encoder
- Comparison with state-of-the-art Image2StyleGAN techniques
- Optional: Manipulate facial attributes of the reconstructed face images

### PREREQUISITES:

- Interest in Deep Learning and Biometrics
- Basic Python and Tensorflow/Pytorch skills

### FURTHER READING:

- Abdal, R., Qin, Y., & Wonka, P. (2019). Image2stylegan: How to embed images into the stylegan latent space?. In *Proceedings of the IEEE/CVF International Conference on Computer Vision* (pp. 4432-4441).

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**NOTE:** Highly qualified foreign students can get financial support to cover cost of an internship.