Ph.D. Thesis proposal - GREYC Research Lab - IMAGE and SAFE Team - 2023

Latent representation manipulation for face editing in images and videos

Team and Lab : IMAGE tream, GREYC (UMR CNRS 6072) Research lab.

Thesis advisors : Christophe Charrier (Associate Professor at UNICAEN), Olivier Lézoray (Full Professor at UNICAEN), and Sébastien Bougleux (Associate Professor at UNICAEN).

Emails : {christophe.charrier,olivier.lezoray,sebastien.bougleux}@unicaen.fr

PhD thesis subject : A generative AI is a machine learning algorithm that can generate content such as images or text. They are used in many fields and some of them have received a lot of attention from the scientific and general public communities. Face image generative AIs can be considered to edit an existing face, i.e., to modify the characteristics of a person's face. In this thesis we propose to investigate the editing of facial attributes for biometric recognition. The editing of facial attributes of the searched person could then allow to improve the performance of face recognition by adding or removing facial attributes. The thesis work will focus on the development of new methods for editing facial attributes of faces with guarantees regarding the preservation of biometric properties. These methods will be applied to improve the search for people in databases, by counteracting possible changes in the appearance of faces.

Qualifications : Candidates must have an MSc or engineering degree in a field related to computer science, electrical engineering, or applied mathematics, with strong programming skills (in particular with deep learning frameworks). Experience with image processing and/or biometrics will be a plus. Candidates are expected to have abilities to write scientific reports and communicate research results at conferences in English.

Information and application : Applications should include the following documents in electronic format : i) A short motivation letter stating why you are interested in this thesis, ii) A detailed CV describing your experience / research background related to the position iii) The transcripts for master degrees. iv) The contact information for three references (do not include the reference letters with your applications as we will only ask for the reference letters for short-listed candidates). Please send your application package by email to the co-advisors.

The position will start in October 2023, and will be located in Caen, France. Ideally located in the heart of Normandy, two hours from Paris and just 10 minutes away from the beaches, Caen, William the Conqueror's hometown, is a lively and dynamic city.