Research track project suggestion

Task Description

Modality fusion for biometric recognition - Fusing modalities and comparing performance based on fusion type / fused modalities. Suggested modalities: Iris, Face, Gait

Suggested datasets:

1. Create synthetic data from merging separate datasets, eg. CASIA-B (Gait), CelebA (Faces) and Casia-Iris-Thousand (Iris) from the set of available datasets from the table below.
2. Find a multimodal dataset, however not many with sufficient data

Found datasets:

Dataset	# Subjects	Modality	# Samples
Casia-Iris-Thousand	1000	Iris	20 000
Mobius	/	Iris, Sclera	16 717
SBVPI	55	Iris, Sclera	1868
Casia Palmprint	312	Palmprint	5502
Casia-FaceV5	500	Face	2500
CelebFaces	10 177	Face	202 599
Casia-B	124	Gait	13 640
Casia-E	1014	Gait	384 000

Experiments

1. Create a new dataset from combination of a subset of datasets from table
2. Find a feature extraction model for each modality (eg. FaceNet for face)
3. Pick a fusion model (EmbraceNet)
4. Evaluate performance with different combinations of modalities (for recognition).

Goal

Test how different combinations of modalities improve mulitmodal recognition (up to 3-4 modalities). Test EmbraceNet fusion techniques. Determine a more specific goal due to time constraint.

Embracenet