

# iMARS - image Manipulation Attack Resolving Solutions



## Motivation

- Concerns on ID documents frauds caused by lookalikes, forgeries and fraudulently obtained documents.
- Morphed passports undermine border security

## Goals

- Propose efficient solutions to detect ID Documents containing manipulated/morphed images
- Ensure that the technologies developed are accepted by citizens and respect privacy and legal rules
- Improve standards in Presentation Attack Detection (PAD) and face image quality

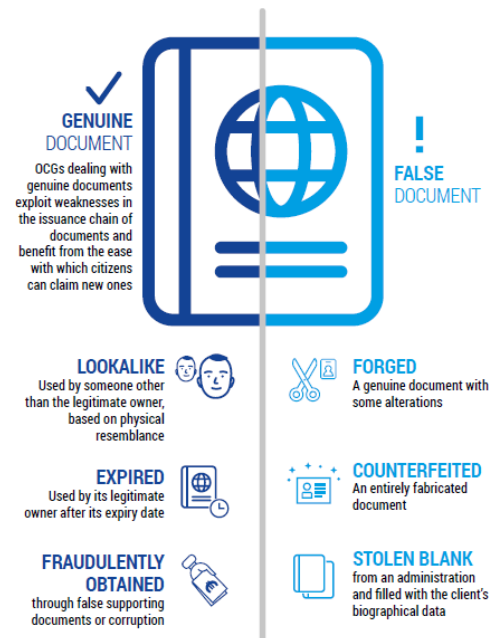
## Approach

- Develop best practices and a training curriculum for improving the officers' skills on manipulated/morphed image and document fraud detection
- Develop robust Morphing Attack Detection (MAD) algorithms

## Related Work

- S. Venkatesh, R. Raghavendra, K. Raja, L. Spreeuwers, R. Veldhuis, C. Busch: "Detecting Morphed Face Attacks Using Residual Noise from Deep Multi-scale Context Aggregation Network", in Proceedings of WACV, 2020
- S. Venkatesh, R. Raghavendra, K. Raja, L. Spreeuwers, R. Veldhuis, C. Busch: "Morphed Face Detection Based on Deep Color Residual Noise", in Proceedings of IPTA, 2019
- U. Scherhag, C. Rathgeb, J. Merkle, R. Breithaupt, C. Busch: "Face Recognition Systems under Morphing Attacks: A Survey", in IEEE Access, (2019)

## Understanding the different types of document fraud



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