

Facial Analysis for Real-Time Profiling

Summary

The main aim is that this project will provide a decision aid to Border Control Agencies in the form of a real-time dynamic passive profiling technique, which has the potential to improve hit rates; i.e. to improve targeting the people that carry contraband and hence ensure less is entering the UK. The dynamic passive profiling will be compared to a baseline model, both of which are based on the response to a series of questions. The multi-modal facial analysis will provide additional information to the current profiling and the developed techniques will have a wider remit into other domains. It is envisioned that this will be easily integrated into the current process.

Team

- UK Border Agency
 - Andy Cole & Richard Tomsett
- QinetiQ
 - Several People
- University of Bradford
 - Hassan Ugail & PostDoc
- Aberystwyth University
 - Reyer Zwiggelaar & PostDoc

Research Challenges

- Real-time facial modelling
- Development of various facial models related to intent
- Combination of facial models: thermal, visual and hyper-spectral
- Dealing with visual and thermal noise aspects
- Buy-in from stakeholders for the evaluation

Plans & Progress

- 9 Workpackages
- Not started yet (hopefully Dec 1st)
 - Contract almost there
 - PostDoc offered
- Some similar work happening in the States

WP 1 - 3

- WP 1 - Literature review
- 2 ½ Years
 - Month 1-8
 - All involved
- WP 2 - Establish baseline for visual and thermal face/eye imaging
 - Month 1-24
 - QinetiQ
- WP 3 - Face/eye models
 - Month 7-18
 - Bradford & Aberystwyth

WP 4 - 6

- WP 4 - Dynamic modelling aspect
 - Month 19-20
 - Aberystwyth
- WP 5 - Dynamic tracking of faces
 - Month 15-24
 - Bradford
- WP 6 - Guidelines for interface for profiling
 - Month 20-21
 - QinetiQ

WP 7 - 9

- WP 7 - Implementation of interface for profiling
 - Month 21-24
 - Bradford
- WP 8 - Integrated system
 - Month 19-30
 - QinetiQ, Bradford & Aberystwyth
- WP 9 - Operational evaluation at border control points
 - Month 25-30
 - All involved

Potential Challenges

- Image resolution
- Real-time tracking
- Operational evaluation
- Can effects be hidden
- Will effects be significant

Summary

- Baseline – QinetiQ
- Thermal Information – Aberystwyth
- Face/Eye modelling – Bradford
- Face tracking – Bradford
- Dynamic modelling – Aberystwyth
- Operational evaluation - All