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## Multisample biometric fusion for non-cooperative moving targets

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It is a paramount importance for the government and private organizations including secret service, military and civil aviation to establish a robust, reliable and accountable surveillance zone for their field of view (FOV). More importantly, law enforcement organizations often require to track the people or suspect in motion; where they need to verify within their FOV, if this is the same person who had entered the room or the crowd. As a result, a step in the direction of the biometrics is being regarded as the conclusive solution in this area; since they offer an undeniable deterministic anatomical, physiological and behavioral attributes for identifying an individual.

In this paper, a biometric tracking system for moving targets within the region of interest based on multisample facial physiology has been proposed. Dynamic targets under the surveillance zone are always non-cooperative; and required shorter and inexpensive execution time. As a result, facial physiological features are the most viable biometric trait; however, which are always obstructed due to the uncontrolled background clutter images and transformation of position orientation. In this proposed system, extended Kalman filter is being used for the elimination of these interferences and tracking the subject of interests. Furthermore, acquisition of multiple samples from the same target in time domain are processed individually and these individual outcomes are then fused for template generation. More importantly, this biometric architecture has twofold: on the one hand, generated template is compared with stored template in the local database for primary authentication and continuation of tracking in real-time domain; and on the other hand, system sends a biometric request to the central database for final identification. Simulation results presented herehave illustrated the performance of this propped hypothesis.

## Biography

Obaidul Malek received his Bachelor of Science (B.Sc. - honours) and Master of Science (M.Sc.) from the department of Applied Physics, Electronics and Communication Engineering, University of Dhaka, Bangladesh. He received his Master of Applied Science (M.A.Sc) from the department of Electrical and Computer Engineering, McMaster University, Ontario, Canada. He is currently a Ph.D. candidate, Electrical and Computer Engineering, Ryerson University; and working on biometric authenticity and cryptography for noncooperative moving target under the supervision of Prof. Anastasios (TAS) Venetsanopoulos.

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