

Video Challenge Problem Multiple Biometric Grand Challenge Preliminary Results of Version 1

05 December 2008

National Institute of
Standards and Technology

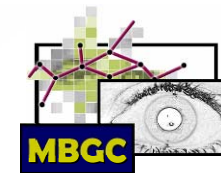
NIST

...working with industry to foster innovation, trade, security and jobs

Goals and Motivations

- Operational environment
 - Recognition from video.
 - Unconstrained illumination.
 - Unconstrained movement / pose.

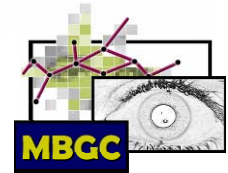




Meet the Data

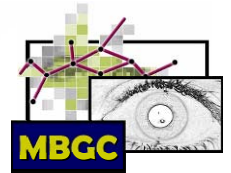
- Two different mediums of video.
 - High definition video (1440 x 1080)
 - Standard definition video (720 x 480)





Meet the Data

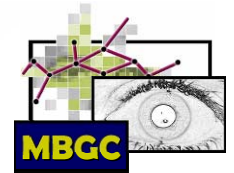
- Walking footage
 - Subject walks towards camera.
- Activity footage
 - Non-frontal footage of subject performing an activity.
- Footage taken concurrently in both standard definition and high definition.



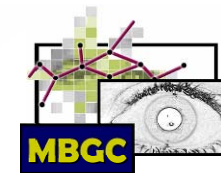
Video Challenge Breakout

- Walking vs. Walking
 - Both formats
- Walking vs. Activity
 - Both formats
- Activity vs. Activity
 - Both formats

Video Challenge Submissions



Organization	Legend
Lockheed Martin	FF
L-1 Identity Solutions AG	GG
Pittsburgh Pattern Recognition	II
SAGEM	DD



Walking vs. Walking

High Definition Video
197 sequences



High Definition Video
197 sequences

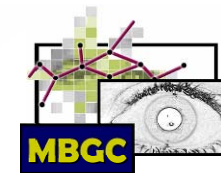


Standard Definition
202 sequences



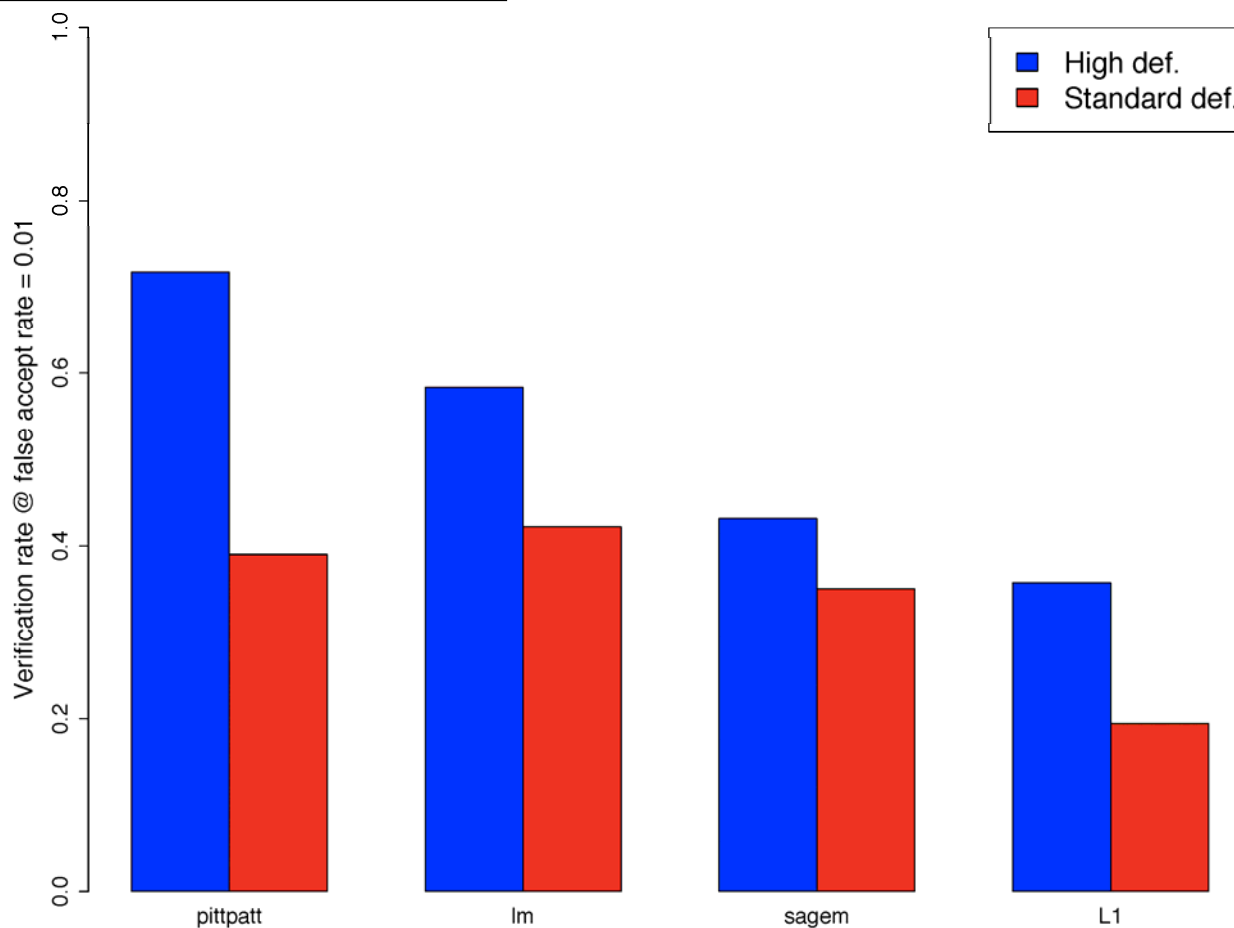
Standard Definition
202 sequences



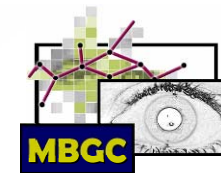


Summary Bar Graph

Plotted at FAR = 0.01



Results from an Open Book Challenge Problem, NOT an Independent Evaluation



Walking vs. Activity

Walking

399 sequences



Activity

371 sequences



Activity

371 sequences

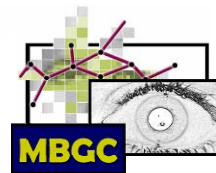


Walking

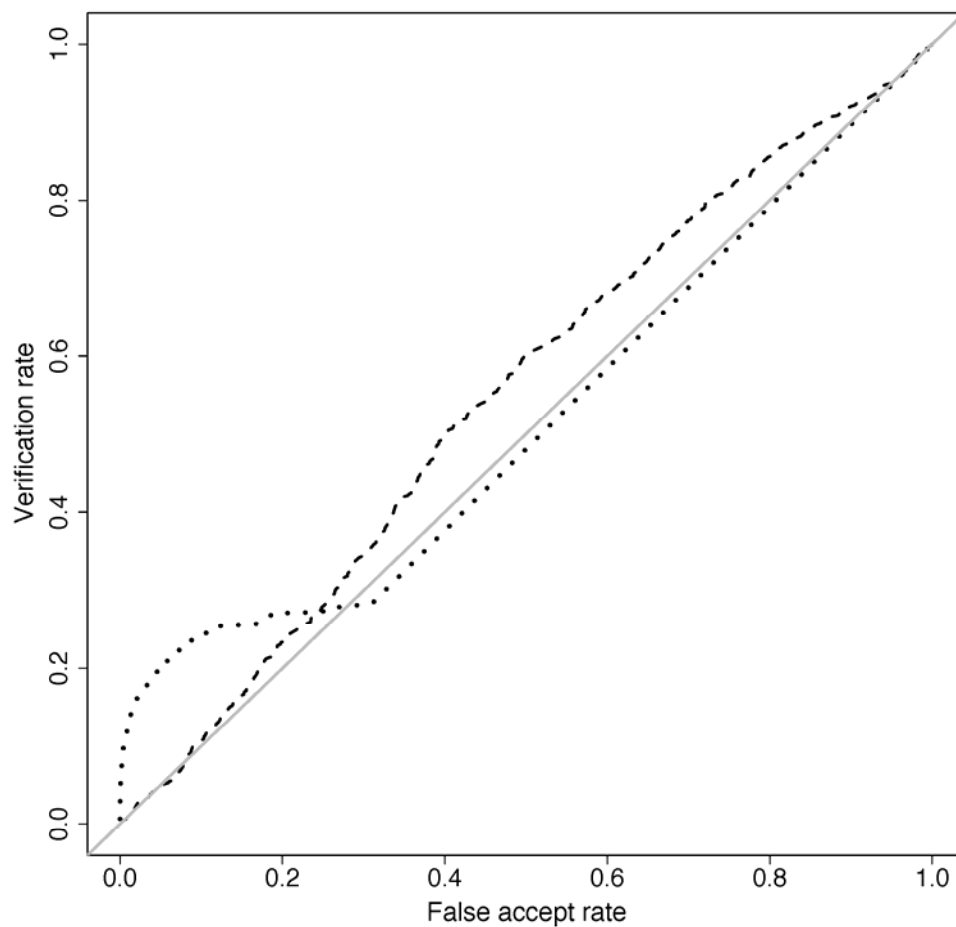
399 sequences



Experiment uses both high definition and standard definition.

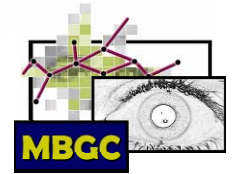


Walking vs. Activity ROC



Results from an Open Book Challenge Problem, NOT an Independent Evaluation

Activity vs. Activity



High Definition Video



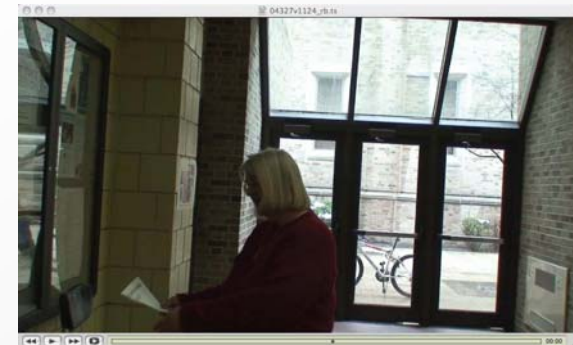
High Definition Video



Standard Definition

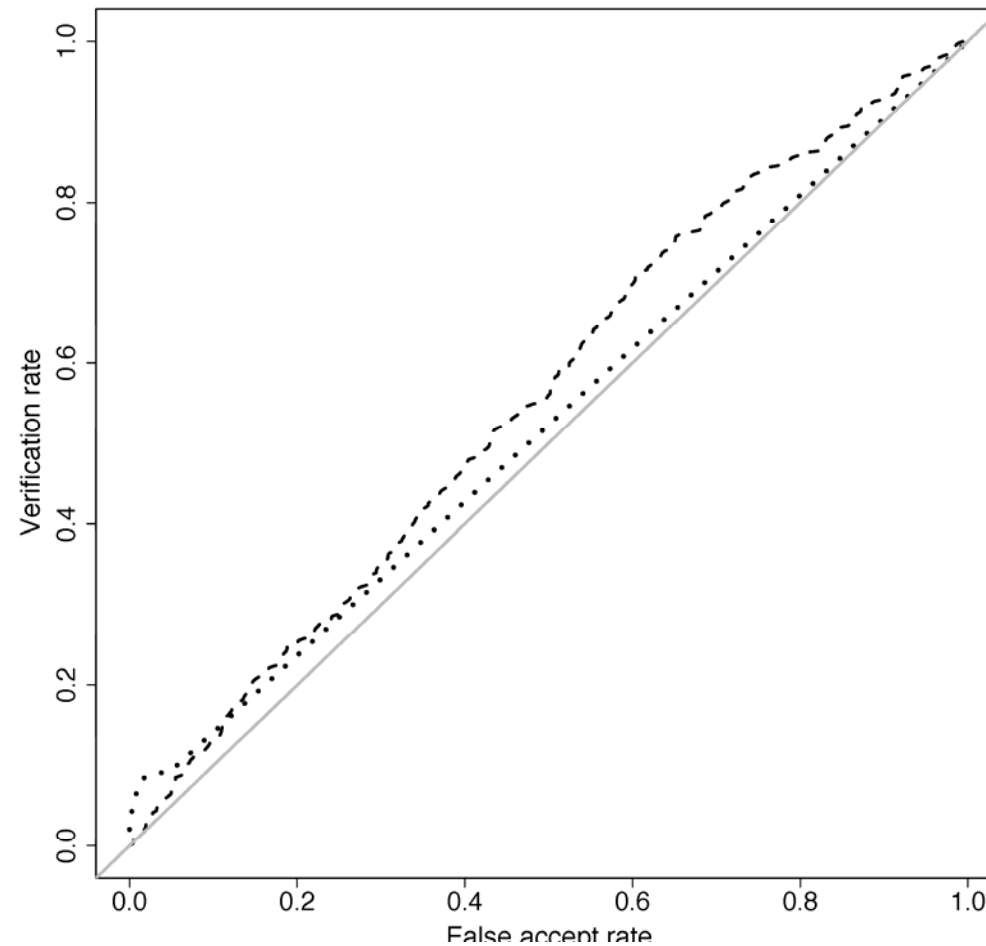
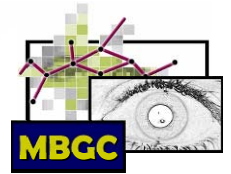


Standard Definition

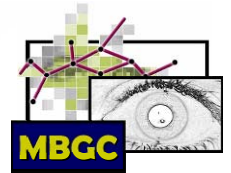


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Activity vs. Activity ROC

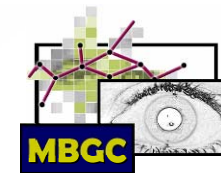


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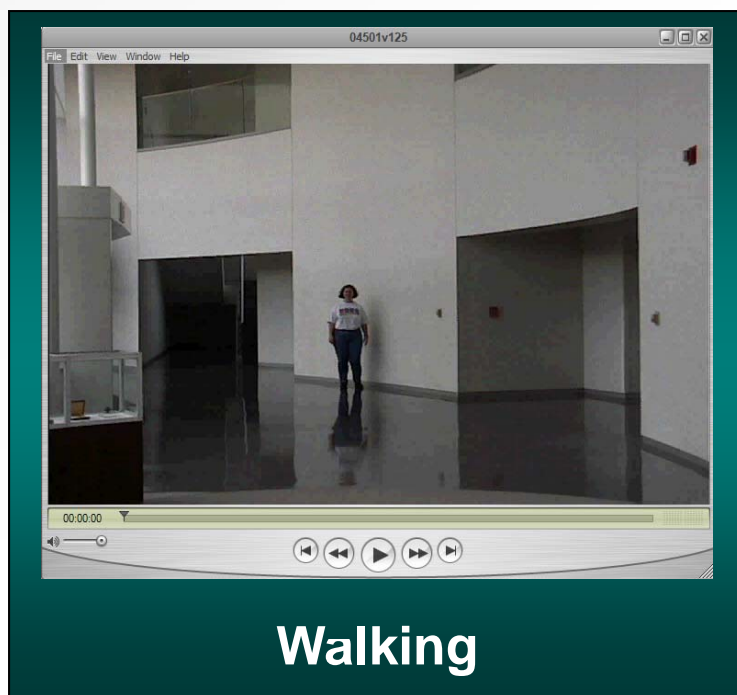


Conclusions

- Performance was better on high definition than standard definition.
- Highlights new challenges.
- Algorithms cannot handle non-frontal activity.



Next steps experiment:



Walking



Conversation

NIST



Target



Query