

Multiple Biometric Grand Challenge Third Workshop

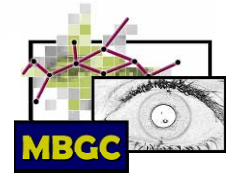
04 December 2009

National Institute of
Standards and Technology

NIST

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

MBGC Sponsors



Executing Agency

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Sponsoring Agencies

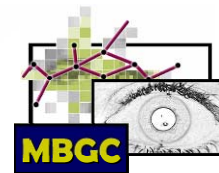
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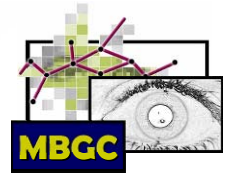
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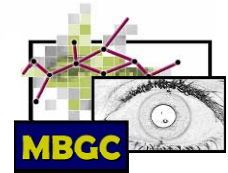
The MBGC Team

- NIST
 - Test Director, Dr. P. Jonathon Phillips
- Colorado State University
 - Prof. Ross Beveridge, Prof. Geof Givens, Prof. Bruce Draper, David Bolme, Yui Man Lui, Nayeem Teli
- SAIC
 - Dr. Todd Scruggs, Dr. Grace E. Cho
- Schafer Corporation
 - Jay Scallan
- University of Notre Dame
 - Prof. Kevin Bowyer & Prof. Patrick Flynn
- University of Texas at Dallas
 - Prof. Alice O'Toole



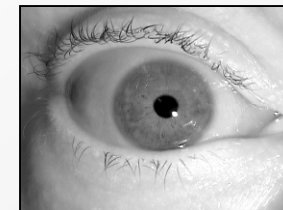
Overview

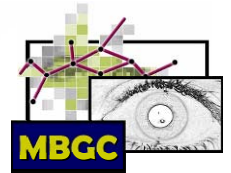
- MBGC Overview
- Results MBGC Version 2.0 Part 1
 - Still Face
 - Video
- Talk & Lunch
- Results MBGC Version 2.0 Part 2
 - Portal
- Future Challenges
- Multiple Biometric Evaluation 2010



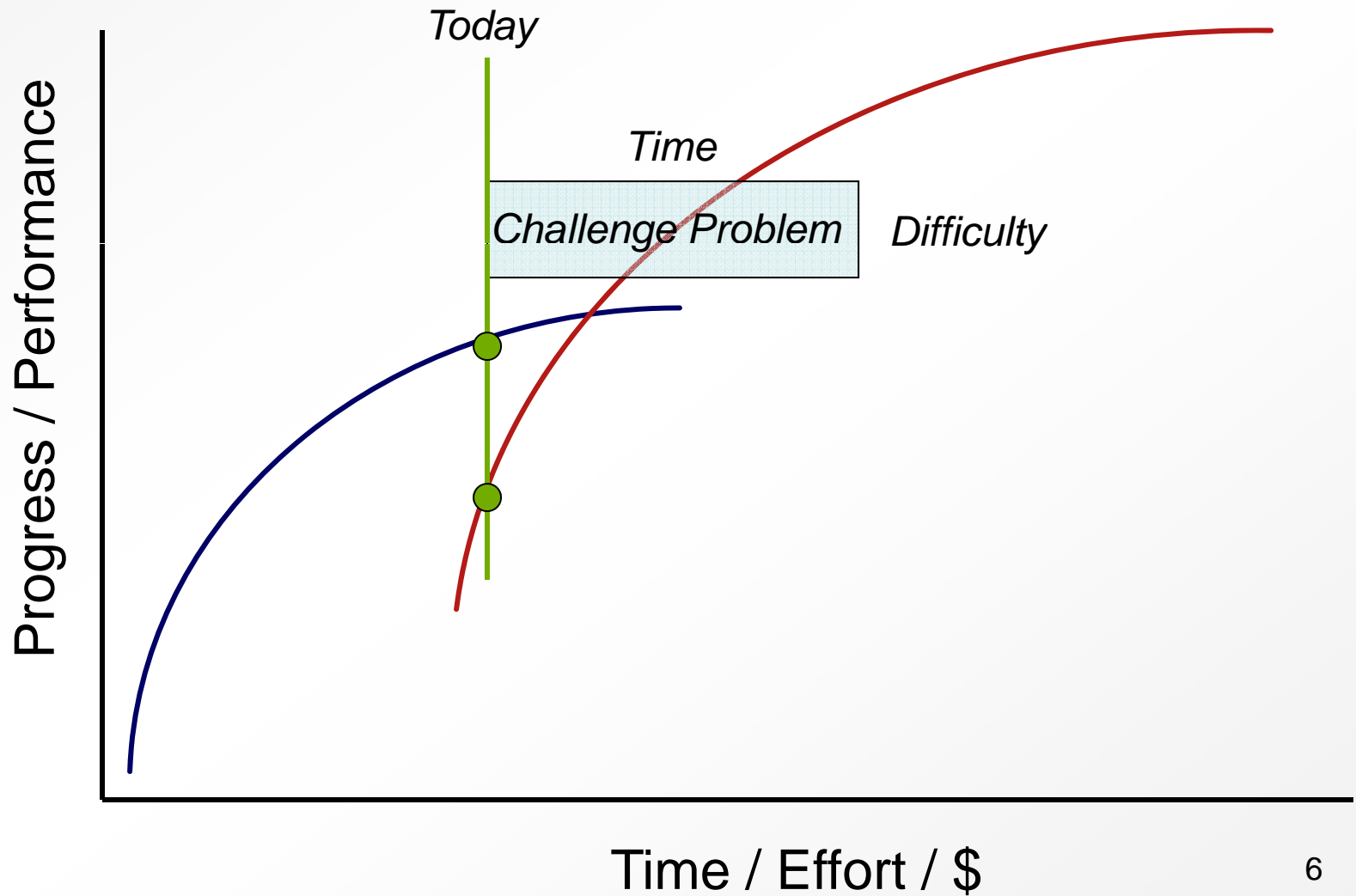
Challenge Problems

- What are challenge problems?
 - A series of experiments designed to advance a technology's state-of-the-art
 - Experiments designed
 - Experiments and test data distributed to researchers
 - Researchers complete experiments and submit results
 - Scores are consolidated and reported
 - Introduction of new technology

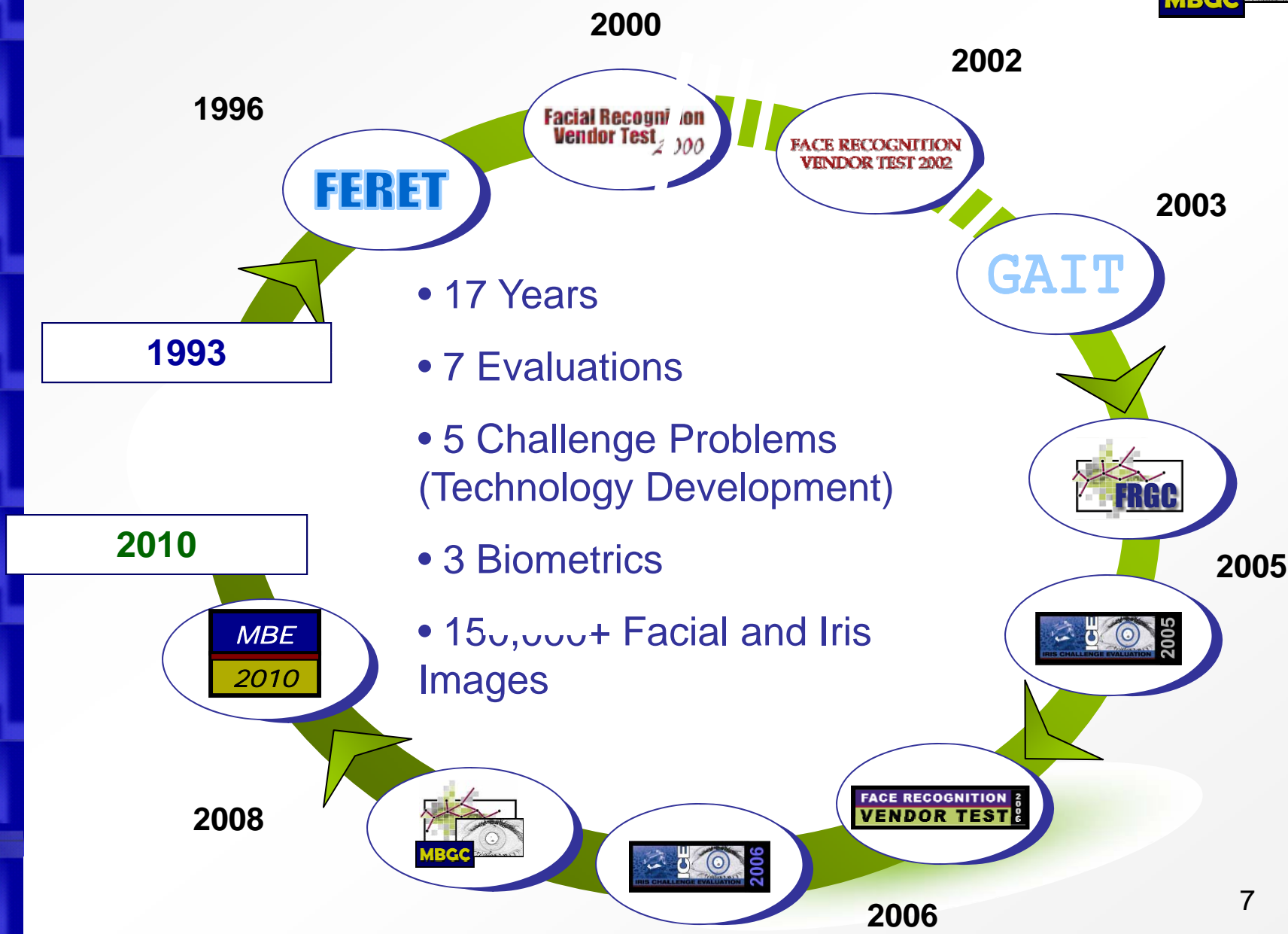
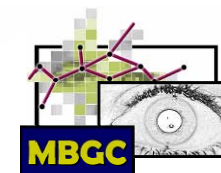


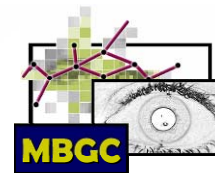


Ideal Challenge Problem



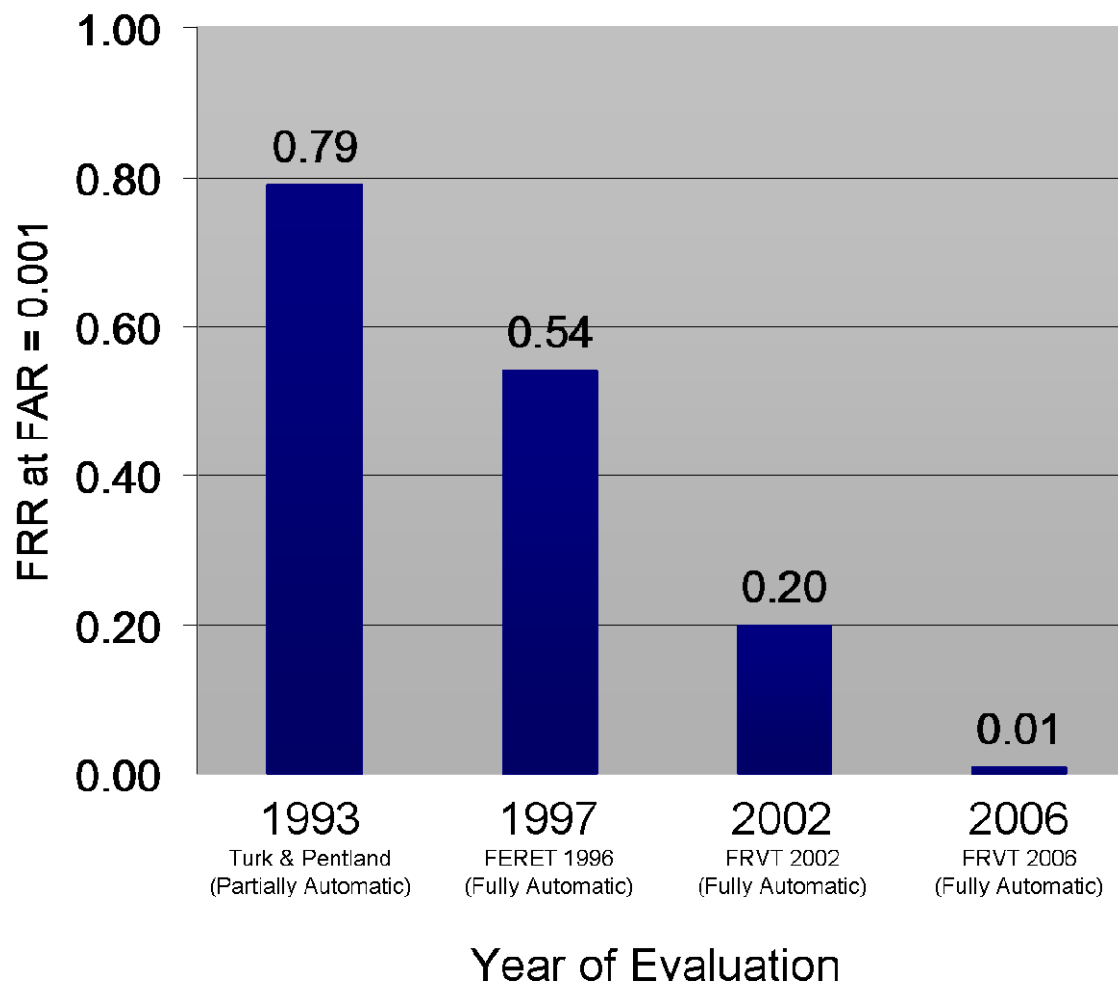
Technology Progress





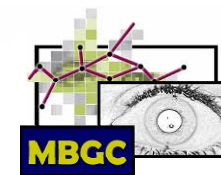
Improved FR Performance

Face Recognition Error Rate

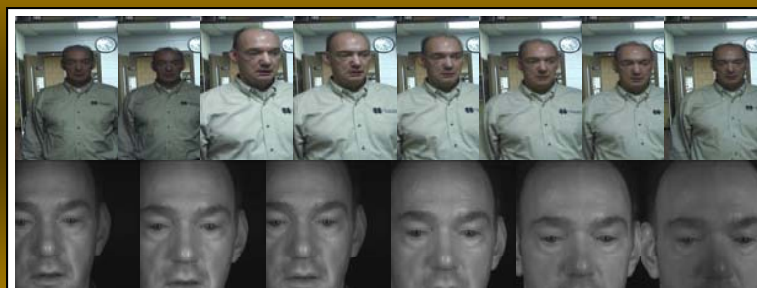


**Single Still
Controlled
Different Days**

MBGC Challenge Problems



Portal Video



Video



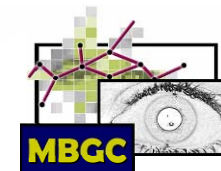
Still Face



Mugshot



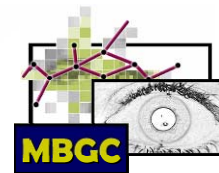
ICAO-ISO
Standard



MBGC Goal

- The main goal of the Multiple Biometric Grand Challenge (MBGC) is to

- Address face and iris recognition problems that are more relevant to those found in operational data
 - Low to medium resolution face
 - Still and video iris
 - Near Infrared (NIR) & High Definition (HD) video from portals
 - Unconstrained recognition from still & video

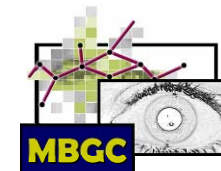


MBGC Goal

- Programmatic method

Sequence of challenge problems

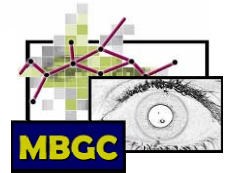
- Modeled after the FRGC and ICE 2005
- Challenge problems and data distributed to researchers
 - Workshops
 - Multiple Biometric Evaluation 2010



Timeline

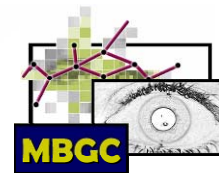
- Estimated task schedule for MBGC:

Schedule	
December 2007	Formal announcement of MBGC project Begin data collection at University of Notre Dame Design protocols, challenge problems and prepare test infrastructure
April 2008	1st MBGC Workshop Release 1st challenge problem
December 2008	2nd MBGC Workshop Results Challenge Problem Version 1
May 2009	Release Challenge Problem Version 2
December 2009	3rd MBGC Workshop Results Challenge Problem Version 2



MBGC Implementation

- **MBGC Team**
 - Collect and prepare data
 - Define challenge problems
 - Develop challenge problem protocols
 - Prepare data for distribution
 - Score submitted results
- **Participants**
 - Develop technology and algorithms
 - Submit self reported similarity matrices for challenge problems.



MBGC Participation to Date

- Organizations given access to MBGC data.

78

- Organizations submitting results for MBGC version 2.0.

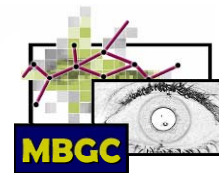
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- Both industry and academic organizations participated

- Industry 8
- Academic 5

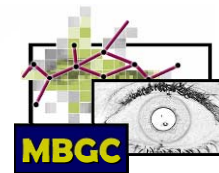
- Countries

- China
- France
- Germany
- Japan
- Lithuania
- United Kingdom
- United States



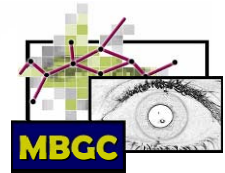
MBGC Version 2 Results

- Challenge problems released late spring 2009.
- Results were submitted in November 2009.
 - Portal 2 November
 - Video 9 November
 - Still Face 16 November
- Similarity matrices submitted.
- Similarity matrices are self reported.
- These matrices represent participants best efforts.



Challenge problem assessments

- Provides snapshot at one date
 - MBGC v2: Beginning of November 2009
- Power from multiple results
- Reasonable assessment



Summary

- Solid Progress
 - Frontal Face
 - Portal
- Challenge areas identified.