

Multiple Biometric Grand Challenge Second Workshop

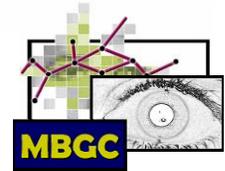
05 December 2008

National Institute of
Standards and Technology

NIST

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

MBGC Sponsors

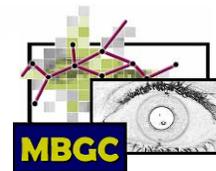


Executing Agency



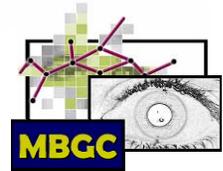
Sponsoring Agencies





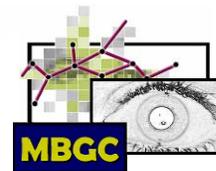
The MBGC Team

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



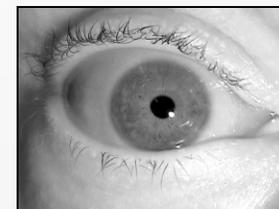
Overview

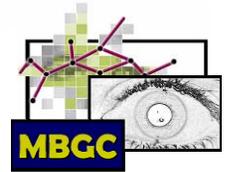
- MBGC Overview
- Results MBGC version 1.0 Part 1
 - Still Face
 - Video
- Talk & Lunch
- Results MBGC version 1.0 Part 2
 - Portal
- MBGC version 2.0
- Multiple Biometric Evaluation 2009



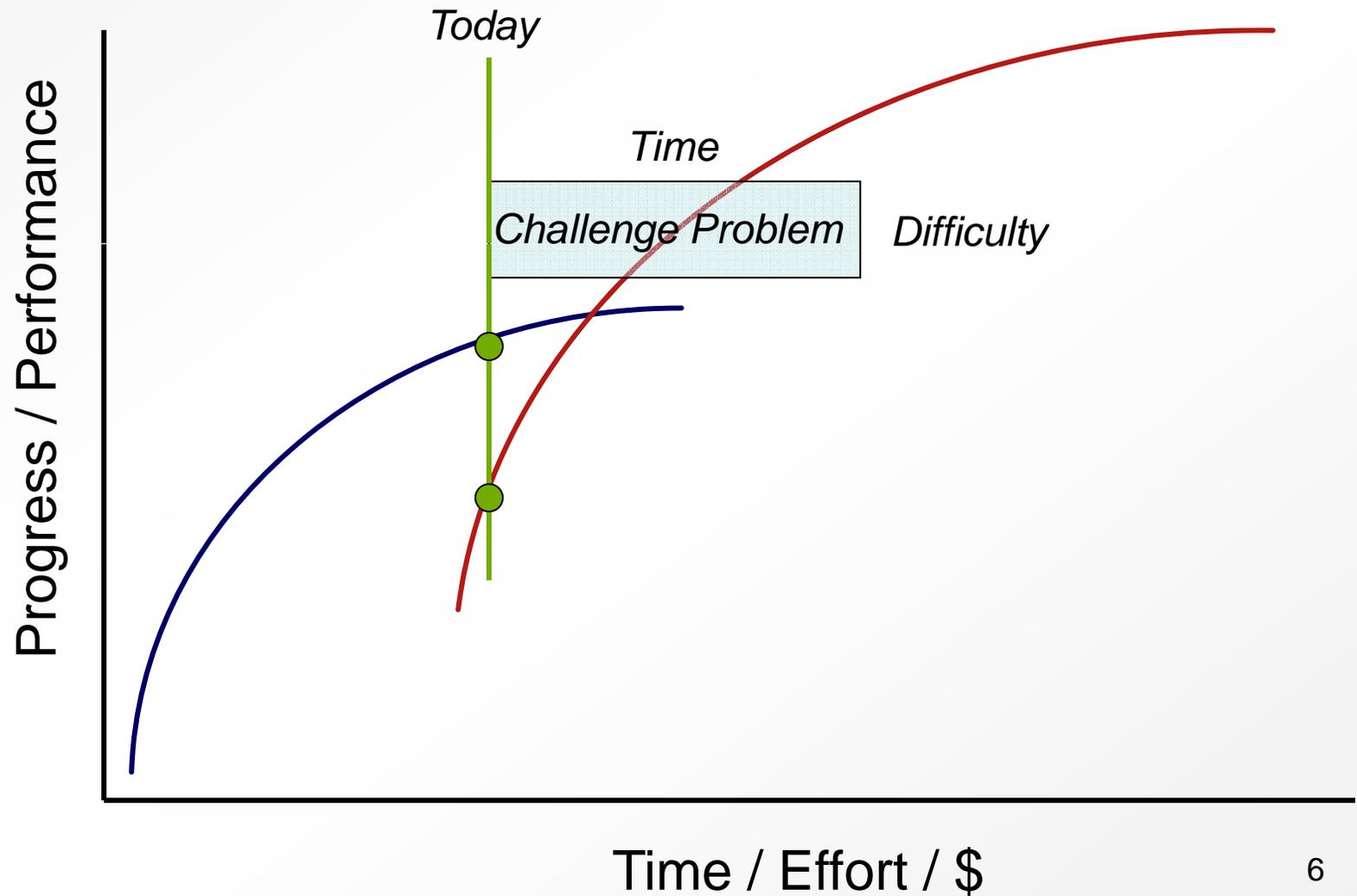
Challenge Problems

- 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

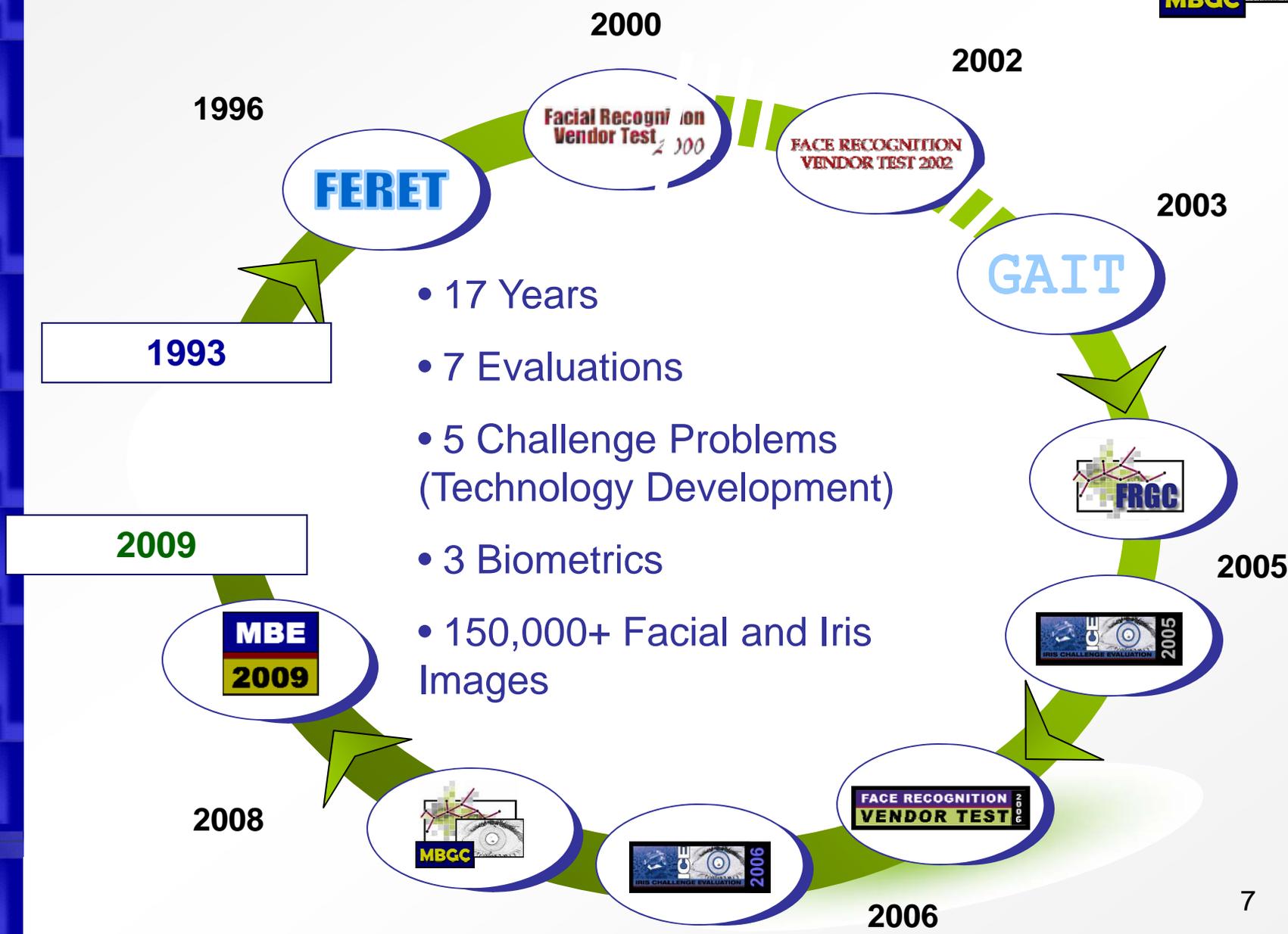




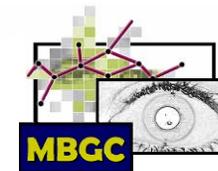
Ideal Challenge Problem



Technology Progress

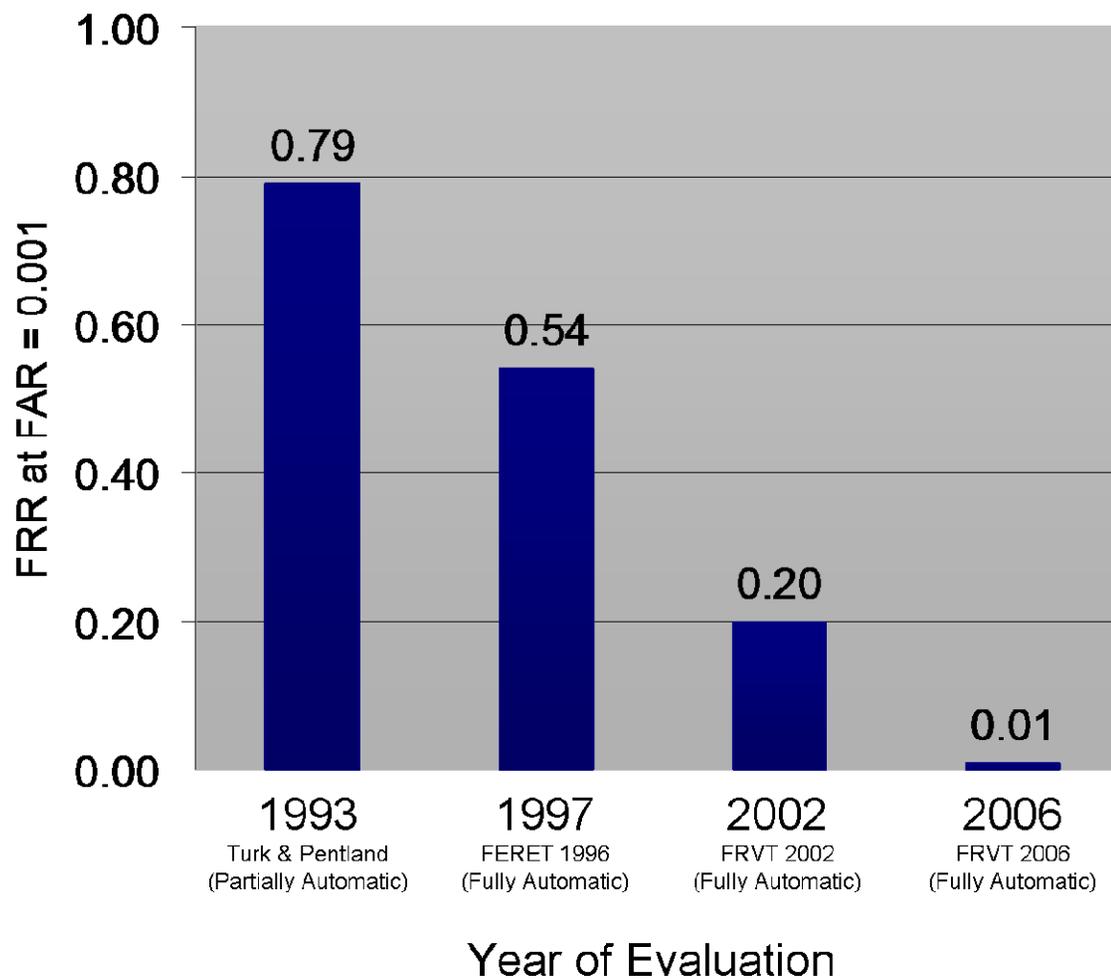


- 17 Years
- 7 Evaluations
- 5 Challenge Problems (Technology Development)
- 3 Biometrics
- 150,000+ Facial and Iris Images



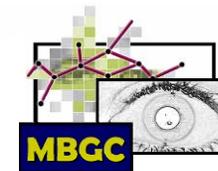
Improved FR Performance

Face Recognition Error Rate

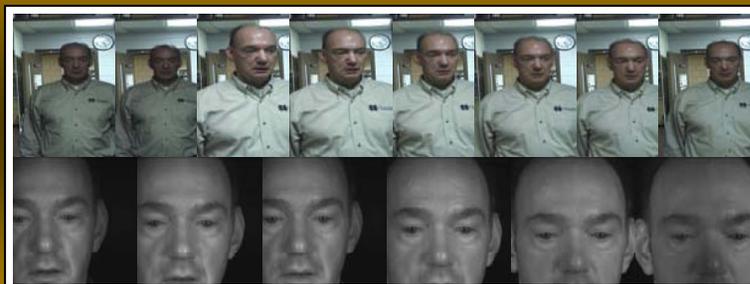


**Single Still
Controlled
Different Days**

MBGC Challenge Problems



Portal Video



Video



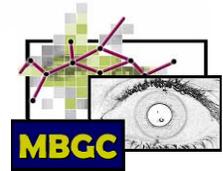
Still Face



Mugshot



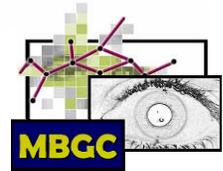
ICAO-ISO
Standard



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

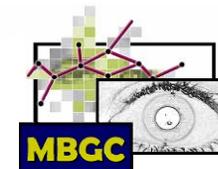
- Programmatic method

- **Sequence of challenge problems**

- **Modeled after the FRGC and ICE 2005**
- **Challenge problems and data distributed to researchers**

- **Workshops**

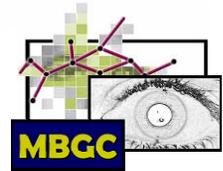
- **Multiple Biometric Evaluation 2009**



Timeline

- Estimated task schedule for MBGC:

Schedule	Task
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
January 2009	Release Challenge Problem Version 2
June 2009	3rd MBGC Workshop Results Challenge Problem Version 2



MBGC Version 1

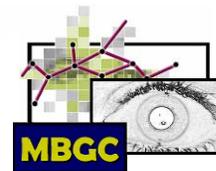
- Goals

- Familiarize community with problem and data. ✓

- Introduce participants to challenge protocol and experiment environment. ✓

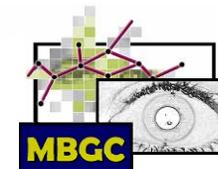
- Grow the research community that works on these problems. ✓

- 1st Characterization of the state of the art. ✓



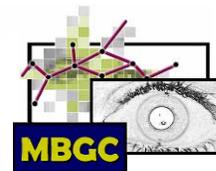
MBGC Implementation

- MBGC Team
 - 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.
 - Submit quality scores.



Quality Scores

- No quality scores submitted
- The data reflects the natural variations encountered during data collection or in subsequent processing.
- Representative of operational data.
- An appropriate mechanism for dealing with data variation are quality scores.



MBGC Participation to Date

- Organizations given access to MBGC data.

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- Organizations submitting results for MBGC version 1.0.

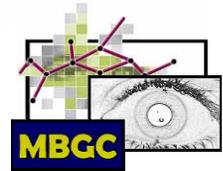
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- Both industry and academic organizations participated

- Industry 7
- Academic 7

- Countries

- China
- France
- Germany
- Greece
- United Kingdom
- United States



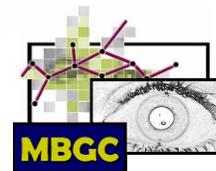
MBGC Version 1 Results

- Challenge problems released summer 2008.
- Results were submitted in November 2008.
 - Portal 3 November
 - Still Face 10 November
 - Video 20 November
- Similarity matrices submitted.
- Similarity matrices are self reported.
- These matrices represent participants best efforts.



Challenge problem assessments

- Provides snapshot at one date
 - MBGC v1: Beginning of November 2008
- Power from multiple results
- Reasonable assessment
- FRGC predictive of FRVT 2006



Multiple Biometric EVALUATION

2009

Planned for Summer 2009