WELCOME to the Biometrics Consortium Conference - 2005

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Biometrics in the 21st Century

Biometrics for Identification and Authentication

- Smartcards
- Access Control
- National Health IT Network
- Social Service Programs
- Passport Programs
- Driver Licenses
- Electronic Banking
- Investing
- Retail Sales
- Law Enforcement
- Time Clocks
Biometrics: NIST’s Role in Value Creation through Science and Technology Leadership

Border security, terrorist screening, law enforcement, personnel identification, etc

- Fingerprint Testing
  - Patriot Act and HSPD-11
- Personal Identity Verification (PIV) std.: FIPS 201
- Facial Recognition Vendor Test (FRVT) and Face Recognition Grand Challenge (FRGC)
- Iris Challenge Evaluation (ICE)
- Biometric Standards (Face, Fingerprint, Iris, Multimodal; Performance Testing, Image Quality)
- Multimodal Biometric Accuracy Research Kiosk (MBARK) (face, finger, iris).

NIST Infrastructure for Science and Technology Development and Value Creation

- Pre-commercial Technology Development
- Technology Extension
- Standards Development
- Productivity / Trade / Quality of Life
- Quality
- New Invention Period
- Technology Improvement Period
- Mature Technology Period
- S&T DEVELOPMENT OVER TIME
- Measurement Methods & Tools
- Scientific Discovery
- Basic Science

National Institute of Standards and Technology
NI ST Value Creation: US VIS IT

- Fingerprint Vendor Technology Evaluation (FpVTE) Report delivered to DOJ
- NISTIR on performance for US VIS IT IDENT System
- NISTIR on Studies of Plain-to-Rolled Fingerprint Matching
- INCITS M1 standard on finger image-based data interchange formats
- Tested vendor fingerprint Software Development Kits (SDKs)
- Established new laboratory for multimodal biometrics accuracy research and data collection
NIIST Value Creation
- Creating Measurable Security -

NIIST produces standard measurements of accuracy for biometric systems, standard scoring software, and accuracy measurements for specific biometrics.

- Standards, tests for vendors, recommendations
- Measurable security
- Increased security

NIST recommends 10-print capture for US VISIT - 2005
CBEFF, the Common Biometric Exchange File Format revision - 2004
Fingerprint Vendor Technology Evaluation - 2003
NIST recommends dual approach (fingerprint and face) - 2002

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<tr>
<th>Scientific Discovery</th>
<th>New Invention Period</th>
<th>Technology Improvement Period</th>
<th>Value Creation</th>
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<td>1880 Faulds introduces fingerprints as a means of identification</td>
<td>1903 First systematic use of fingerprints in U.S. for criminals (NY State Prison)</td>
<td>1924 Identification Division of FBI established</td>
<td>1996 IAFIS Build A - Test and Evaluation</td>
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<td>1946 FBI has 100 million fingerprint cards</td>
<td>1971 FBI has 200 million cards</td>
<td>2005 46 million individual computerized fingerprint records for known criminals</td>
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46 million individual computerized fingerprint records for known criminals
Measurement Science Leads to Innovation - Face Recognition

FERET – Face Recognition Technology (1993-97)
- image corpus was assembled to support government monitored testing and evaluation of face recognition algorithms using standardized tests and procedures

FRVT – Face Recognition Vendor Test
- series of large scale independent evaluations for face recognition systems
- measure progress of prototype systems/algorithms and commercial face recognition systems
  - High resolution still imagery (5 to 6 mega-pixels)
  - 3D facial scans
  - Multi-sample still facial imagery
  - Pre-processing algorithms that compensate for pose and illumination

FRGC – Face Recognition Grand Challenge
- develop new face recognition techniques and develop prototype systems while increasing performance by an order of magnitude
NI ST/ITL at the Biometrics Conference

NI ST Session: Tuesday, 8:30am, Ballroom E
• Introduction to NIST's Biometrics Programs
• Fingerprint SDK (Software Development Kit) Testing
• ANSI/NIST Fingerprint Standards Update
• NIST Fingerprint Image Quality
• Quantitative Review and Meta-analysis of Biometrics
• Personal Identity Verification (PIV)
• Biometrics and E-Authentication
• NIST ITL Biometrics Standards Program

Biometrics Standards Session: Tuesday, 1:30pm, Ballroom B
• National and International Biometric Standards – Status and Adoption
• Standards for Performance Testing

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Have a Great Conference!

Shape of Things to Come

Biometrics in an interconnected world
- Person to Person
- Person to Machine
- Machine to Person
- Machine to Machine

Forrester Research, May 2001

Internet Computers
Internet Users
Automobiles 663 Million
Telephones 1.5 Billion
Electronic Chips 30 Billion

Today's Internet
X-Internet