New Development of IPR, Big Data, and Applications ©
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New Development of Biometrics and Forensics, AI, PR and Big Data in Interactive Learning Environment

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Abstract :

This talk deals with fundamental aspects of Similarity, Semantics, Ambiguity, Intelligent Pattern Recognition (IPR) and applications. It basically includes the following: Overview of 3D Biometric Technology and Applications, Importance of Security: A Scenario of Terrorists Attack,, What are Biometric Technologies? Biometrics: Analysis vs Synthesis, Analysis: Concept of Syntax. Semantics, Ambiguity and Interactive Pattern Recognition, Importance of Measurement, How it works: Fingerprint Extraction and Matching, Iris, and Facial Analysis, Authentication Applications, Thermal Imaging: Emotion Recognition. Synthesis in Biometrics, Modeling and Simulation, and more Examples and Applications of 3D Biomedical Imaging, Interactive IPR, Big Data, Learning Environment. Finally, some future research directions are discussed.

Intended Audience:

Scientists and engineers, with some computer science, artificial intelligence, pattern recognition, and/or image processing background or working experience.

Why this topic would be of interest to a substantial part of the audience:

Attendees can learn basic concept of "biometrics", which is of growing interest and importance in recent years, and its applications in many fields, including engineering, scientific experiments, bio-medical imaging, pattern recognition, and homeland national security.

Purpose of the talk: For a tutorial, keynote or short course or series of mini seminars

Evidence of teaching experience and evidence of scholarship in the area:

Preliminary versions of this talk have been successfully presented in various international conferences, and have received warm responses, including: CISCYN2013, Madrid, Spain, 2013, AMS2013, Hong Kong, 2013, MLDM 2013, WIPRA2013, New York, USA, ICCI2013, Chengdu, China, UKSim2014, Cambridge, UK, 2014, WCSC2014, U C Berkeley, USA, 2014, AMS2014. Taipei, Taiwan, and ICCI2014, Kunming, China.

Brief Biography of the Presenter

Prof. Patrick S.P. Wang, PhD. ***Fellow, IAPR, ISIBM, WASE*** and ***IEEE and ISIBM Outstanding Achievement Awardee,*** and is Tenured Full Professor, Northeastern University, USA, iCORE (Informatics Circle of Research Excellence) Visiting Professor, University of Calgary, Canada, Otto-Von-Guericke Distinguished Guest Professor, Magdeburg University, Germany, Zijiang Visiting Chair, ECNU, Shanghai, China, as well as honorary advisory professor of several key universities in China, including Sichuan University, Xiamen University, East China Normal University, Shanghai, and Guangxi Normal University, Guilin.

Prof. Wang received his BSEE from National Chiao Tung University (Jiaotong University), MSEE from National Taiwan University, MSICS from Georgia Institute of Technology, and PhD, Computer Science from Oregon State University.

Dr. Wang has published over 26 books, 200 technical papers, 3 USA/European Patents, in PR/AI/TV/Cybernetics/Imaging, and is currently founding Editor-in-Chief of ***IJPRAI (International Journal of Pattern Recognition and Artificial Intelligence)*** , and Book Series of ***MPAI***, WSP. In addition to his technical interests, Dr. Wang also published a prose book, "***Harvard Meditation Melody***"《哈佛冥想曲》and 《劍橋狂想曲》many articles and poems regarding Du Fu and Li Bai's poems, Beethoven, Brahms, Mozart and Tchaikovsky's symphonies, and Bizet, Verdi, Puccini and Rossini's operas.

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Advisory Board

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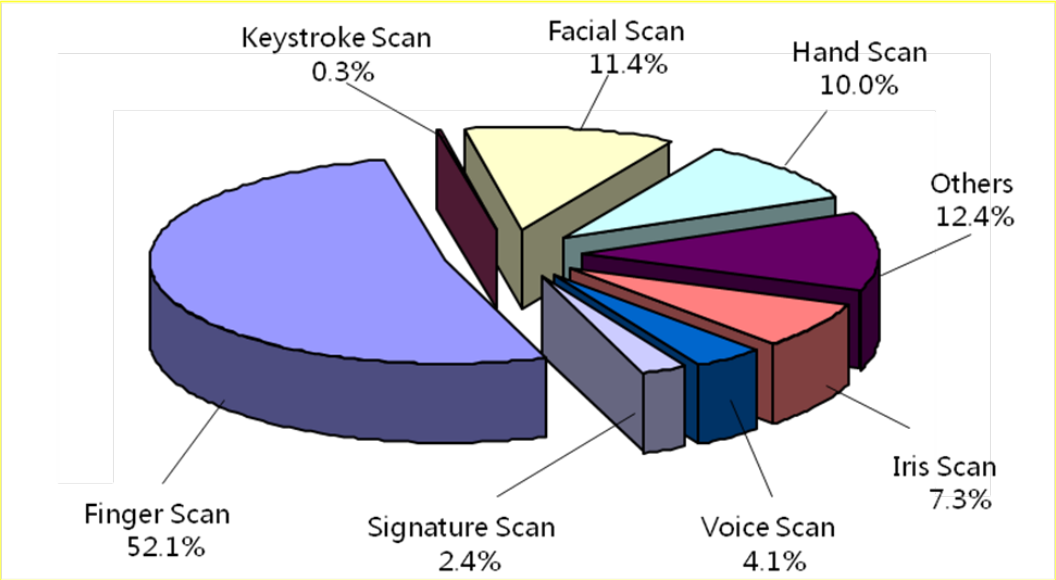
USA DHS (Department of Homeland Security) uses [6] as reference for its CFP 2010

Appendix: **Some Highlighted Illustrations of the Presentation**

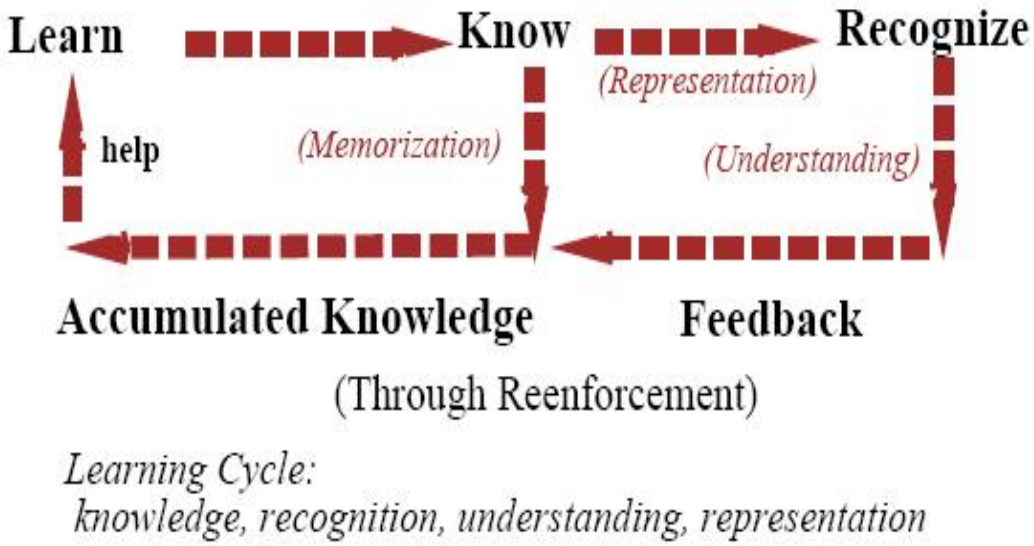
What are Biometrics?

Biometrics are automated methods of recognizing a person based on the acquired physiological or behavioral characteristics



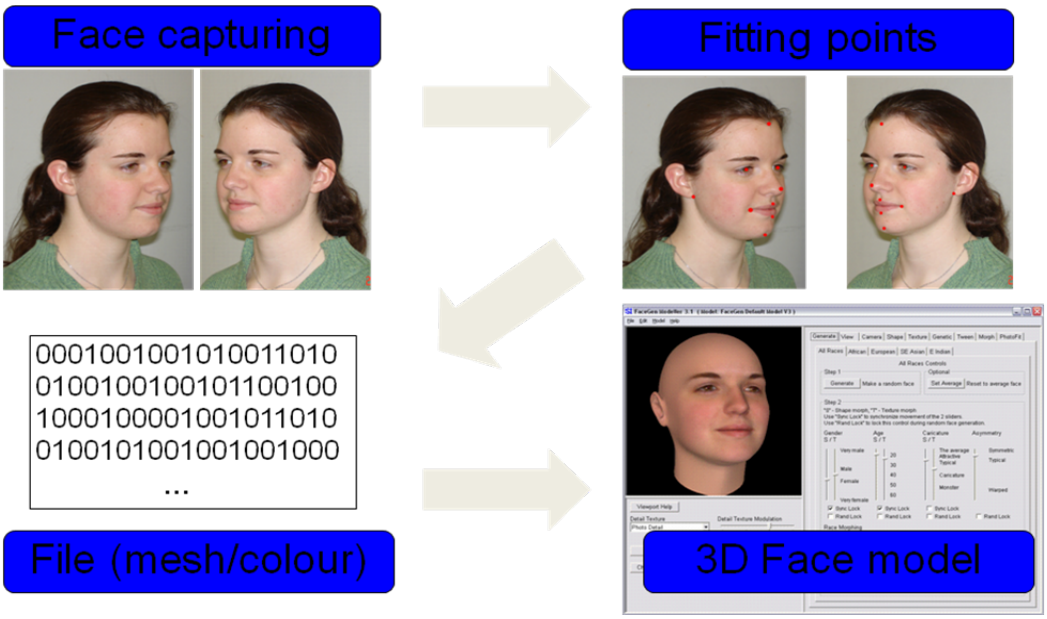
Percentage of usage (Source: International Biometrics Group)

Learning, Knowledge, and Recognition

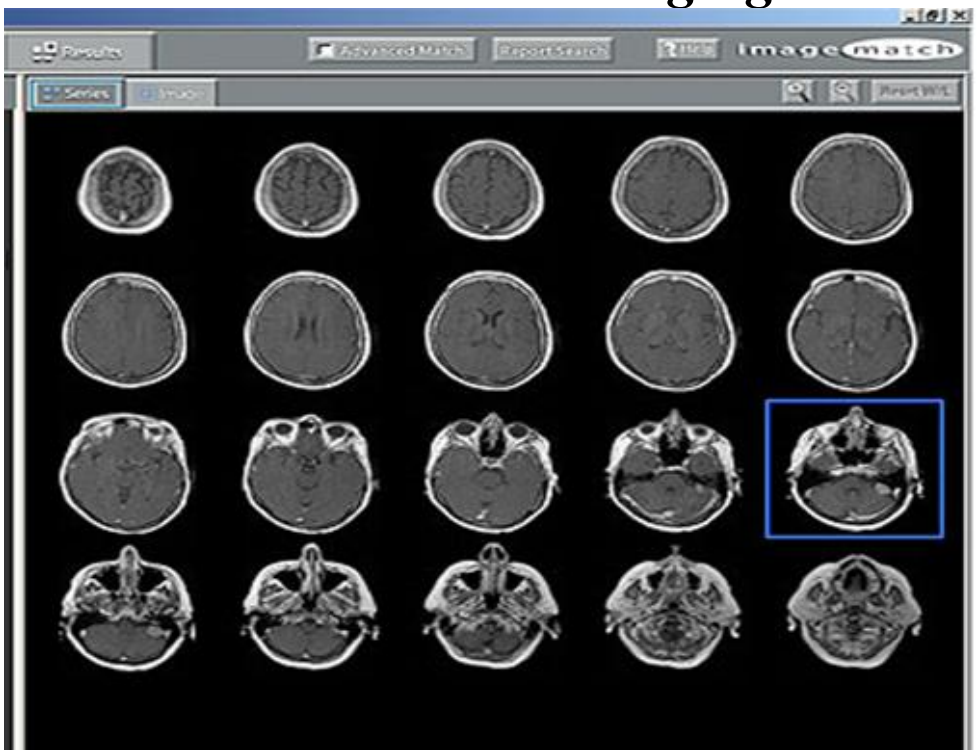


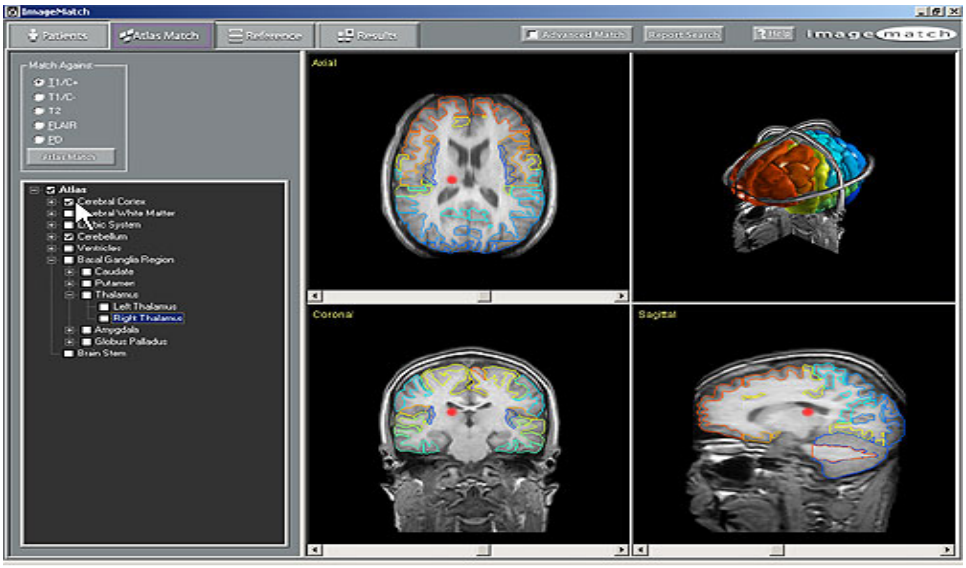
Learning Cycle:
knowledge, recognition, understanding, representation

Face Analysis, Comparison and Matching:



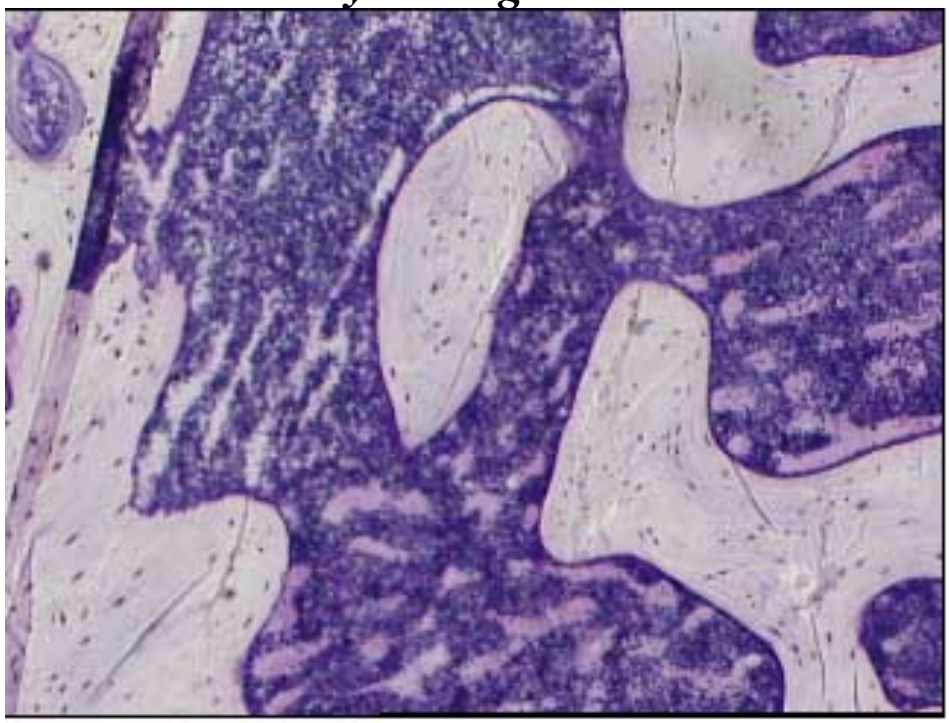
Biomedical Imaging





Marking the checkboxes displays the anatomy in the 3D rendering.

Color Image Segmentation – An Experiment
Intensity Distinguishable



1,024 Gigabytes = 1 Terabyte.
1,024 Terabytes = 1 Petabyte.
1,024 Petabytes = 1 Exabyte
(In 2000, 3 exabytes of information was created.)
1,024 Exabytes = 1 Zettabyte.

Big Data=> Also depends on complexity of problems

What is a terabyte? What is bigger than a terabyte?
searchstorage.techtarget.com/answer/Whats-bigger-than-a-Terabyte