

BOSTON UNIVERSITY
METROPOLITAN COLLEGE
COMPUTER SCIENCE DEPARTMENT

MET CS 599 C1 BIOMETRICS (Special Topics)
Spring 2012

Most lectures at: FuLLeR Building, 808 Commonwealth Ave, Room 247

Lab sessions at: 808 Comm. Ave, Room 247

Class meets every Wednesday from 6-9PM starting January 18, 2012

Course Introduction

Automatic and reliable identification of individuals for issuing official documents (e.g., passport and visa) and providing access to secure facilities (e.g., military base) and proprietary information (e.g., corporate websites) has become an essential part of our modern networked society. Biometric recognition systems utilize the physiological or behavioral characteristics of an individual for identification. By using biometrics, it is possible to establish an identity based on "who you are", rather than by "what you possess" (e.g., an ID card) or "what you remember" (e.g., a password). The events of 9/11 have generated huge interest in the design, deployment and evaluation of biometric systems.

Learning Objective:

In this course we will study the fundamental and design applications of various biometric systems based on fingerprints, voice, face, hand geometry, palm print, iris, retina, and other modalities. Multimodal biometric systems that use two or more of the above characteristics will be discussed. Biometric system performance and issues related to the security and privacy aspects of these systems will also be addressed.

Prerequisites

Undergraduate courses or equivalent levels in Probability and Statistics.

Students are required to procure a copy the Student Edition of MatLab Software.

Textbook

Selected Papers. [Will distribute before every class]

Evaluation and Grading

Lecture material (papers) should be reviewed before the next class. The reading assignments should be done before the material is covered in lecture, and then reviewed afterwards. All assignments must be legible, well formatted, on time and complete.

Homework assignments will be assigned every week and will be due the following class. There will be no midterm project. We will have a final project.

Grades will be based on:

Class Participation 10%

Homework & Labs 70%

Final Project: 20%

Academic Honesty

The course is governed by the Academic Conduct Committee policies regarding plagiarism (any attempt to represent the work of another person as one's own). This includes copying (even with modifications) of a program or segment of code. You can discuss general ideas with other people, but the work you submit must be your own. Collaboration is not permitted.

Instructor Information

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Email: zdjordje@bu.edu, email is the preferred communication method

Schedule of Classes

Class	Date	Lectures	Labs
1	Jan 18	Overview of Biometrics: Definitions, biometric modalities, course outline, Basic applications: access control, e-commerce, forensics.	
2	Jan 25	Probability, Basic Matlab	Basic Matlab
3	Feb 01	Complex Numbers, Linear Algebra	Basic Matlab
4	Feb 08	Eigen Vectors, Eigen Values, Vector Spaces, Matlab	Matlab
5	Feb 15	Fourier Analysis, Fourier Transform	Matlab
6	Feb 22	Pattern Classification and Recognitions. Feature Extraction, Classification	Advanced Matlab
7	Feb 29	Voice Recognition fundamentals. Introduction to speech signal processing	Speech Recognition

		and pattern recognition. Using Matlab to represent signals in Time and Frequency domain.	
8	Mar 07	Advanced Speech Recognition Techniques	
	Mar 14	NO CLASS, Spring Break	
9	Mar 21	Speaker Recognition	Speaker Identification
10	Mar 28	Face Recognition	Face Recogniton
11	Apr 04	Wavelets	Matlab
12	Apr 11	Iris Recognition.	Iris Recognition
13	Apr 18	Fingerprint Recognition	Fingerprint Recognition
14	Apr 25	Face Recognition 2. Signature Recognition	Wavelets in Face & Signature Recognition
15	May 02	Class Presentation of Final Projects	

Important date you should keep in mind:

March 14th: No Class.