CSE 40537 / 60537: Biometrics

Course Introduction / Biometrics Basics 1
Course Info

- CSE 40537 / 60537: Biometrics
- Instructor: Walter Scheirer (wscheire@nd.edu; @wjscheirer)
- Office: 321C Stinson-Remick
- Lectures: MWF 12:50-1:40 DeBartolo Hall 116
- Office Hours: Mon. & Weds. 2-4pm and by appointment.

Course Website:
http://www.wjscheirer.com/teaching/biometrics/
TA

- Sreya Banerjee
- sbanerj2@nd.edu
- Office Hours: Fri. 3-5pm
  - Engineering Library, 1st Floor Fitzpatrick Hall (until Sept. 14th)
  - 212 Cushing Hall (after Sept. 14th)
About me

• Joined Notre Dame Summer 2015
  - Ph.D. from the University of Colorado 2009
  - 2012 — 2015 Harvard University Center for Brain Science

• Research in Computer Vision and Machine Learning

Reverse engineering biological vision
Tools for Neuroscience
Statistical methods for visual recognition
Digital Humanities
How about you?

- Undergrad / M.S. / Ph.D.?
- Any experience with Vision, Machine Learning, or Artificial Intelligence?
- What interests you about Biometrics?
Course Overview

• Course structure: 39 lectures, 2 invited talks

• No required prerequisite courses. We’ll learn the fundamentals of the material together.

  - Programming experience required (CSE 30331 Data structures or equivalent course)

• No required textbook. Supplemental texts are available on the resources page of the website.
Course Overview

Grading

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Class Participation</td>
<td>10 %</td>
</tr>
<tr>
<td>Homework Assignments (4)</td>
<td>70 %</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20 %</td>
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</tbody>
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100 points
4 x 175 points
200 points

Important Dates

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
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<tbody>
<tr>
<td>Homework #1 (Face Detection)</td>
<td>Released: Monday, September 14th; Due: Monday, September 28th</td>
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<tr>
<td>Homework #2 (Face Recognition)</td>
<td>Released: Monday, September 30th; Due: Wednesday, October 14th</td>
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<td>Homework #3 (Iris Recognition)</td>
<td>Released: Friday, October 30th; Due: Friday, November 13th</td>
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<tr>
<td>Homework #4 (Fingerprint Spoof Detection)</td>
<td>Released: Monday, November 23rd; Due: Friday, December 4th</td>
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<td>Final Exam</td>
<td>Thursday, December 17th, 8-10am</td>
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*Full syllabus on course website*
What is this course all about?

Biometrics: “the measurement of the properties of living beings”

(in Greek: βίος = “life”, μέτρον = “measurement”)

“What is the average size of a rat’s cranium?”
Or maybe it’s…

Biometrics: “the use of physical or behavioral properties of human beings for automatic identity recognition”

“But she warned him not to be deceived by appearances, for beauty is found within.”

Beauty and the Beast, 1991
Course Roadmap

Basics
(weeks 1 & 2)

Multi-Biometric
Fusion
(week 12)

Privacy & Security
(weeks 15-16)

3 Core Modalities
(weeks 7 & 8)

(weeks 10 & 11)

(week 14)