

Object and Face Recognition
MIT
Spring, 2001

Instructor: Prof. Pawan Sinha
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Lecture plan:

Feb 6: Introduction; Course overview

Experimental studies of recognition

Feb 8: Pattern recognition in insects, octopii and insect-inspired robots

Feb 13: Pattern recognition in birds

Feb 15: Characteristics of human object recognition psychophysics based on psychophysical experiments

Feb 20: No class (Monday schedule)

Feb 22: Brain mechanisms of object recognition – neurophysiological studies

Feb 27: Effects of brain damage on primate recognition performance

Mar 1: Scene perception and contextual influences on individual object recognition

Mar 6: Development of object perception in childhood and in adults

Computational studies of recognition

Mar 8: Classical pattern classification theory

Mar 13: Theories of recognition: 1. Theories based on 3D models of recognition; 2. Theories based on 2D image models

Mar 15: In Arlington for DARPA; Linear object models

Mar 20: Image and model correspondence; Image and object segmentation

Mar 22: Feedforward and feedback network models of recognition

Mar 27: Spring break

Mar 29: Spring break

Apr 3: Notable case-studies of machine-based recognition systems

Apr 5: In-class Midterm exam

Face recognition

- Apr 10: Are faces special? Evidence from physiology, neuropsychology, psychophysics, imaging; developmental studies
- Apr 12: Is face recognition feature-based or holistic? Studies of cue saliency in faces; caricaturing effects
- Apr 17: Patriot's day; no class
- Apr 19: Perception of facial affect, gaze, and aesthetics
- Apr 24: Psycho-forensic aspects of face recognition
- Apr 26: Case-studies of implemented face recognition systems

Synthesis and open issues

- May 1: Top-down influences of recognition on perception
- May 3: Recognition in other sensory modalities; Synthesis and open questions
- May 8: Away at Vision Sciences Meeting; No class
- May 10: An overview of object recognition research at MIT

Project presentations

- May 15: Project presentations
- May 17: Project presentations

Requirements:

- 10%: Class participation
- 15%: Lead a class discussion and scribe notes for one lecture; Roving microphone
- 10%: Send three questions to scribe after each lecture:
1. Open research question/project idea
 2. A short answer question
 3. A multiple choice question
- 25%: Mid-term exam
- 40%: Term project