

Examples of Project Topics

1. Implement a system based on a method of current research interest, and demonstrate and discuss the utility of the method for image processing tasks. Examples of possible methods include:

- a) Wavelets.
- b) Fractals.
- c) Neural networks.
- d) Models of the human visual system.

2. Write a paper on:

- a) Models of human spatial vision.
- b) Forensic applications of image processing.
- c) Knowledge-based systems for image processing.
- d) Image processing in cultural preservation.
- e) The role of voluntary and involuntary eye movement in visual perception.
- f) Medical imaging modalities.
- g) The application of multi-resolution representations to image processing and/or visual system modeling.
- h) Hardware emulations of visual processes ("silicon retinae").

3. Write a survey (covering at least 10 important papers) on:

- a) Image quality metrics.
- b) Nonlinear image processing techniques.
- c) Image processing applications of wavelets.
- d) Image compression.
- e) Image-based computer aided medical diagnosis.

4. Other, mutually agreed upon projects, relevant to image processing.

All projects require:

- Instructor approval of a one page written proposal, submitted no later than September 11.
- A written progress report (due in class, October 16).
- A term paper (due December 18 at 4:15 pm), *written in the specified (IEEE Transactions) format.*
- Two oral (in-class) presentations (midterm progress and final reports), 15 minutes in length, with an additional 5 minutes for questions.