

## **ESE 358 COMPUTER VISION**

Dept. Electrical and Computer Engg., Stony Brook University

**Lecture Time: TuTh 11.20 am to 12.40 pm, Credits: 3**

**Prerequisites: ESE 305; ESE 224 or CSE 230**

**Instructor: Prof. Murali Subbarao**

Email: [murali@ece.sunysb.edu](mailto:murali@ece.sunysb.edu);

**Office Hours:** Tues. & Thurs.: 10 am to 11 am, and 1 pm to 2 pm.  
Room 233 Light Engg. Bldg.

### **Text book:**

Machine Vision, Ramesh Jain, Rangachar Kasturi, and Brian G. Schunck,  
McGraw-Hill, Inc., 1995. ISBN 0-07-032018-7 OR ISBN 0-07-113407-7.

### **Reference Website:**

<http://homepages.inf.ed.ac.uk/rbf/CVonline/>

Introduces fundamental concepts, algorithms, and computational techniques in visual information processing. The course covers the following topics.

- |                        |   |
|------------------------|---|
| 1. Introduction        | 2. Binary Image Processing                |
| 3. Regions             | 4. Image Filtering                        |
| 5. Edge Detection      | 6. Contours                               |
| 7. Texture             | 8. Optics                                 |
| 9. Shading             | 10. Color                                 |
| 11. Depth              | 12. Calibration                           |
| 13. Object Recognition | 14. Medical Imaging (Computed Tomography) |

There will be about 4 programming projects using Matlab/Mathematica.

### **GRADING**

#### **Part I: Assignments**

Programming projects : 25 %

Homeworks: 15 %

#### **Part II : Tests**

Tests may contain two parts with the first part being closed-book and the second part being open-book.

Test 1 : 1 hr. 15 mins. : 20 %

Test 2 : 1 hr. 15 mins. : 20 %

Test 3 (Final exam): 1 hr. 15 mins. : 20 %