# Computer Vision and Robotics
CSE-437

**Course Objective**

- To understand the fundamentals of image classification, and object recognition
- Familiar with the major deep learning based algorithms involved in computer vision
- Build computer vision applications.

**Pre-requistie**

**1. Statistical Learning** 2. Machine Learning 3. Linear Algebra

Syllabus

| S.L | Topic | Resources |
|---|---|---|
| 1 | Computer vision overview | Course<br>Slides<br>Notes<br>Book<br>Others<br>Coursera<br>Youtube |
| 2 | Image Classification (Linear and Logistic) | |
| 3 | Loss Functions and Optimization | |
| 4 | Introduction to Neural Networks | |
| 5 | Convolutional Neural Networks | |
| 6 | Training CNN-based Networks | |
| 7 | Deep learning software, coding assignment | |
| 8 | CNN Architectures | |
| 9 | Recurrent Neural Networks | |
| 10 | Object Detection and Segmentation | |

**Marks Distribution**

| S.L. | Exam | Mark | Syllabus |
|---|---|---|---|
| 1 | Midterm | 20 | 1 – 4 |
| 2 | Final | 50 | 5 - 10 |
| 3 | Coding Assignment | - | Digit Recognizer (midterm), CIFAR-10 (final) |
| 4 | Class test | - | C-1 (midterm), C-2 (final) |
| 5 | Assessment | 30 | A1 + A2 + class test + class attendance |
| **Total** | | **100** | |

**Instructor**

Md Mahedi Hasan