

**January-May 2020 Semester**

**CS691: Fundamentals of Deep Learning**

**Programming Assignment II**

Date: **April 20, 2020**

Tentative Deadline for submission of PDF file of report: **Friday, May 15, 2020**

**Datasets:**

1. Real valued features extracted from image data
2. Black and white image data

**Task 1:** Dimension reduction on Dataset 1 using (a) PCA and (2) AANN. Use the reduced dimension representation as input to a MLFFNN based single-label multi-class classification model.

**Task 2:** Stacked Autoencoder based pre-training of a DNN based classifier for Dataset 1

**Task 3:** Stacked Autoencoder based pre-training of a DNN based classifier for Dataset 2

**Task 4:** Stacked RBM based pre-training of a DNN based classifier for Dataset 2, using Binary-Binary RBMs

**Task 5:** Stacked RBM based pre-training of a DNN based classifier for Dataset 1, using Gaussian-Binary RBMs

Stacked Autoencoder with 3 autoencoders may be used in Tasks 2 and 3.

Stacked RBM with 3 RBMS may be used in Tasks 4 and 5.

**Report should include details of experimental studies, results, observations and analysis of results.**