



School of Engineering
Daniel J. Epstein
Department of Industrial
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ISE529 Predictive Analytics

Instructor: Dr. Tao Ma

2025 Fall

Homework 6

Due by: April 30, 2025, 11:59 PM

Instructions:

1. Print your First and Last name and NetID on your answer sheets
 2. Submit all your answers to Brightspace by due date. No late submission will be accepted.
 3. Total 1 problem. Total points: 100
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You need to use the **CARC-HPC** cluster computers to complete this modeling work.

Concrete Dataset

- Dataset info and download: <https://data.mendeley.com/datasets/5y9wdsg2zt/2>

The CNN Network

- Develop your own CNN model to classify all classes with *tensorflow.keras* library.
- Provide the training and test confusion matrices.
- Provide the test accuracy and confusion matrix to a text file.
- Provide the Loss curves for training and validation (you can use a single plot for these two curves)
- Expected results: High 90's for training, validation, and testing without overfitting or underfitting.

Submit:

- Python file(s) (.py)
- Confusion matrix image (.png or .jpg)
- Curve image(s) (.png or .jpg)
- The text file with all the metrics
- The SLURM/.OUT files used for the **CARC-HPC** cluster execution