CSC311H5 Introduction to Machine Learning

Tutorial 4

University of Toronto Mississauga

Plan for today

- ML Challenge Overview
- Group Formation
- Data Collection Survey
- Homework 1 office hours

Machine Learning Challenge

- We will be running a survey that asks students questions about several AI generated images.
- Renato (TA) will collect the survey responses from students and share the data with you in CSV file.
- **Task**: use the provided data to build a classifier related to this data set e.g. to predict which AI generated image a student is referring to in their response.
- Classifier should produce good results on a test set that will not be shared with you
  - Test set is collected by asking TAs/faculty to complete the same survey

The exact task will be determined after the course staff has a chance to experiment with the data ourselves.

Logistics

To be completed in teams of 3-4. The team sizes are strict.

- Data Collection Survey (1%) – Due Oct 11, 10pm
- Model Predictions Script (4%) – Due Dec 5, 10pm
- PDF Report (10%) – Due Dec 5, 10pm

Data Collection Survey

> *"That was the best Quercuz quiz I think I've ever had to take"— Sonya Allin*

- Very short, 5-10 min.
- Should be fun!
- Try to produce good data
- The test data will be the responses to the same survey, collected from faculty/TAs

Do it today! (But officially due Tues, October 11, 2022, 10pm)

Model Predictions Script

- python3 script called `pred.py`
- takes as parameter the name of a CSV file containing the test set, and produces predictions for that test set.
- can import numpy, pandas, but *not* sklearn, pytorch, etc
- can use other files, up to 10MB

See more in the handout at
https://q.utoronto.ca/courses/274049/files/folder/Challenge

PDF Report

Description of your final model, plus (more importantly) the steps that you took to develop this model. Also submit other `.py` or `.ipynb` files used to develop your model.

- (2 points) Data Exploration
- (2 points) Model Description
- (4 points) Model Choice and Hyperparameters
- (2 points) Prediction of Test Set Performance
- Workload Distribution

See more in the handout at
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PDF Report

We are looking for reasoned application of ML design principles.

- Are you making reasonable decisions to avoid underfitting/overfitting?
- Are you being methodical about choosing hyperparamters? (vs using the first one that you think of)
- Do you understand how to apply models that we discussed on real data?

The Challenge

- Your model should perform reasonably on the test set
  - What does "reasonable" mean?
  - Threshold will be set so that groups who follow good machine learning practises should be able to pass the threshold.

There will be a prize for the group(s) who perform the best on the unseen test set! (TBD)

The Challenge

- Your model should perform reasonably on the test set
  - What does "reasonable" mean?
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Questions?

Plan for rest of today

Group Formation:

- Raise your hand if you need a group!
- Introduce yourself to other students here!

But also. . .

- Complete the Data Collection Survey
- Homework 1 office hours