Introduction

TOTAL POINTS 5

1. A computer program is said to learn from experience E with respect to some task T and some performance measure P if its performance on T, as measured by P, improves with experience E. Suppose we feed a learning algorithm a lot of historical weather data, and have it learn to predict weather. In this setting, what is T? 1 point

   - ○ The process of the algorithm examining a large amount of historical weather data.
   - ◉ The weather prediction task.
   - ○ The probability of it correctly predicting a future date's weather.
   - ○ None of these.

2. The amount of rain that falls in a day is usually measured in either millimeters (mm) or inches. Suppose you use a learning algorithm to predict how much rain will fall tomorrow. Would you treat this as a classification or a regression problem? 1 point

   - ◉ Regression
   - ○ Classification

3. Suppose you are working on stock market prediction. You would like to predict whether or not a certain company will win a patent infringement lawsuit (by training on data of companies that had to defend against similar lawsuits). Would you treat this as a classification or a regression problem? 1 point

   - ◉ Classification
   - ○ Regression

4. Some of the problems below are best addressed using a supervised learning algorithm, and the others with an unsupervised learning algorithm. Which of the following would you apply supervised learning to? (Select all that apply.) In each case, assume some appropriate dataset is available for your algorithm to learn from. 1 point

- [ ] Take a collection of 1000 essays written on the US Economy, and find a way to automatically group these essays into a small number of groups of essays that are somehow "similar" or "related".
- [x] Given 50 articles written by male authors, and 50 articles written by female authors, learn to predict the gender of a new manuscript's author (when the identity of this author is unknown).
- [x] Given historical data of children's ages and heights, predict children's height as a function of their age.
- [ ] Examine a large collection of emails that are known to be spam email, to discover if there are sub-types of spam mail.

5. Which of these is a reasonable definition of machine learning? 1 point

- (•) Machine learning is the field of study that gives computers the ability to learn without being explicitly programmed.
- ( ) Machine learning learns from labeled data.
- ( ) Machine learning is the field of allowing robots to act intelligently.
- ( ) Machine learning is the science of programming computers.