

## Quiz 3

Friday, May 6, 2022 1:36 PM

- This is an open-notes, open-book quiz.
- You are not allowed to discuss the questions with any individual at any time.
- You have 90 minutes to complete and upload your solution file.
- On the first sheet, next to your name, write down your start and stop times.
- You must upload a single PDF file.
- You must name your file Lastname\_Firstname\_Quiz3.pdf
- Failing to follow these instructions will result in a grade of zero.

1. N data points in the  $l$ -dimensional space are known to all lie on a line. Propose a method to find the parametric equation of this line.
2. Is the following similarity measure between  $x$  and  $y$  invariant to rotations? Why?
$$S(x, y) = \frac{x \cdot y}{\|x\| \|y\|}$$
 where  $x \cdot y$  represents the dot product
3. Would you expect k-means to be sensitive to the presence of outliers? Why?