

Assignment 1

Max Brehmer

2023-09-09

Setup

```
## R.matlab v3.7.0 (2022-08-25 21:52:34 UTC) successfully loaded. See ?R.matlab for help.
##
## Attaching package: 'R.matlab'
##
## The following objects are masked from 'package:base':
##
##      getOption, isOpen
```

Part 1: Centroid Method

Step 1a: Calculating distance between means and test image

Digit	Norm.distance
0	2409.921
1	2079.023
2	2098.627
3	1952.903
4	1980.993
5	1968.943
6	2193.677
7	1564.493
8	1933.084
9	1669.573

Step 1b: Classifying the test set of a digit

Step 1c: Success rate of each digit

Digit	Score
0	85.8%
1	96.2%
2	70.6%
3	79%
4	78.8%
5	68.8%
6	78.6%
7	75.6%
8	64.6%

Digit	Score
9	77.8%

Part 2: PCA Method

Step 2a: Finding principal components of the test training set

Step 2b: Test and reporting of success rate