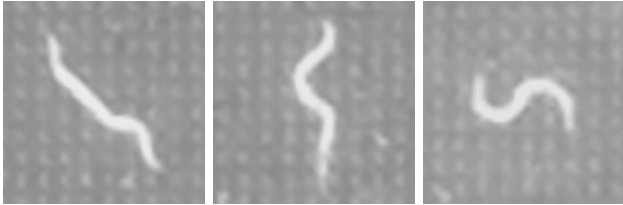# ECE 4363 Projet 4 Report

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1. C. elegans dataset

a. Training information

Visual verification of Input Data	 Figure 1: Training images classified as 1 (worms) Figure 2: Training images classified as 0 (no worms) Figure 1 shows three images classified with the label 1, corresponding to containing a worm. Figure 2 shows three images classified with the label 0, corresponding to no worms present. Visual verification was performed across the entirety of the dataset.
Image Preprocessing	1. Input Images are sized down from 101x101 pixels to 28x28 pixels for both sets. 2. Canny Edge detection was used to pre-process the images before training.
Parameters of SVM	1. SVM type: C-SVC 2. Kernel Type: Radial Basis 3. Kernel Degree: 3 4. Termination Criterion: 0.001
Training, validation, and testing data splits	Training set - 8,301 images Test Set - 2,075 images Splits: 80.0% training data, 20.0% testing data.

b. Accuracy and Confusion Matrix

Accuracy = 85.7349%

N = 2,075 images	Actual Class = 0	Actual Class = 1
Predicted Class = 0	854	113
Predicted Class = 1	183	925

c. Training and testing execution times

- Training Time: 12.15 seconds

- Testing Time: 2.53 seconds