

Lab 6 Exercise - Reflections on transfer learning

Jonathon Hare (jsh2@ecs.soton.ac.uk)

March 16, 2023

This is the exercise that you need to work through **on your own** after completing the sixth lab session. You'll need to write up your results/answers/findings and submit this to ECS handin as a PDF document along with the other lab exercises near the end of the module (1 pdf document per lab).

You **will use no more than one side** of A4 to cover your responses to *this* exercise; **answers need only be brief and ideally you will use considerably less space**. This exercise is worth 5% of your overall module grade.

1 Transfer Learning

In the lab notebook you built two different approaches to solving the boat data classification problem utilising a pretrained ResNet50 network. In the first you modified the classification head of the network and performed fine-tuning, whilst in the second you used features from the network to train SVM classifiers.

Finetuning (2 marks)

Describe your methodology for finetuning your ResNet50 model and provide justification for your choices.

Reflect on the two different approaches (3 marks)

Briefly compare the performance of the two approaches. Which one did you find worked better? Which one was fastest?