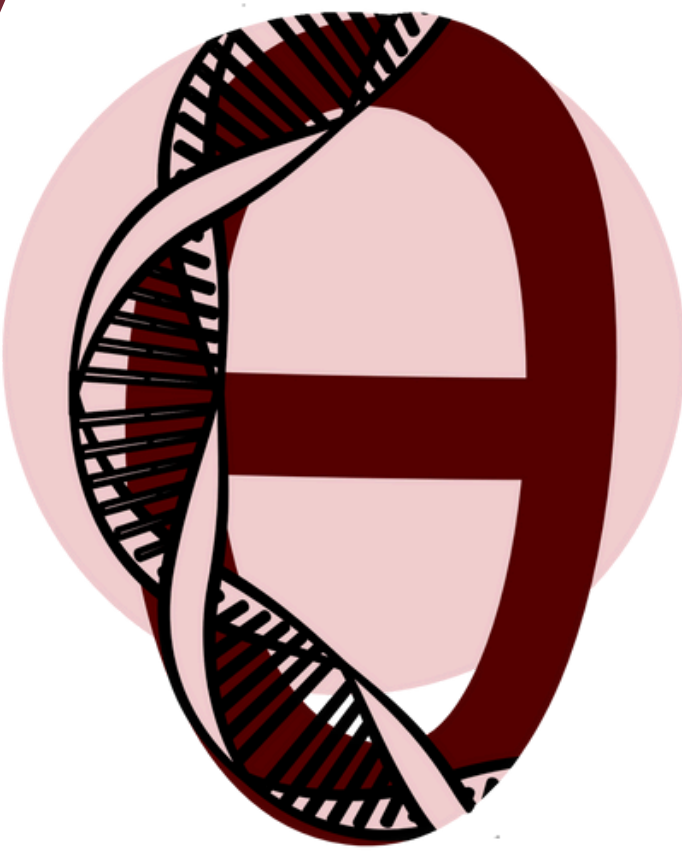




Deep Learning in the bioinformatic modelling of functionally annotated microbial communities in aquaculture



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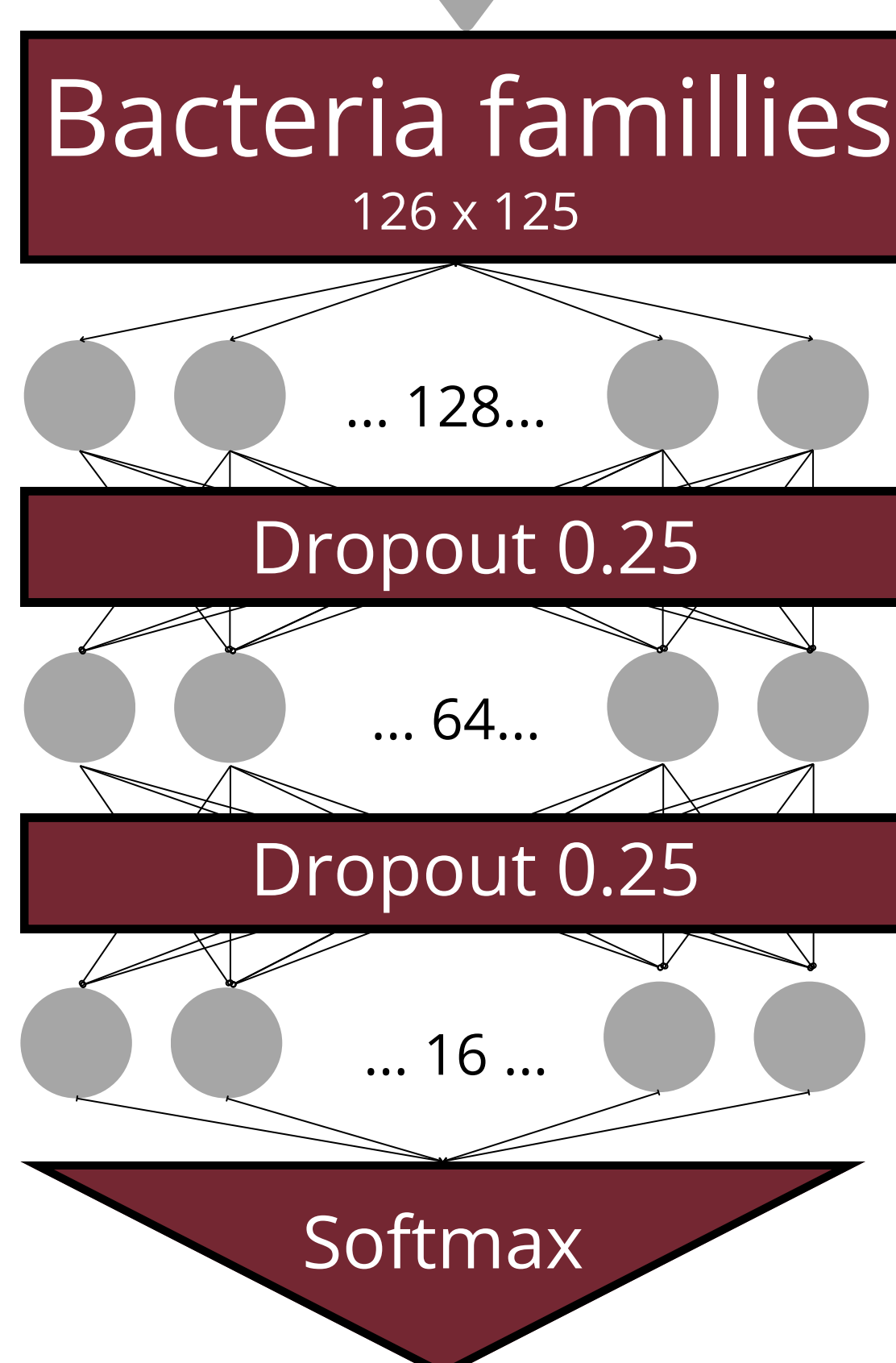
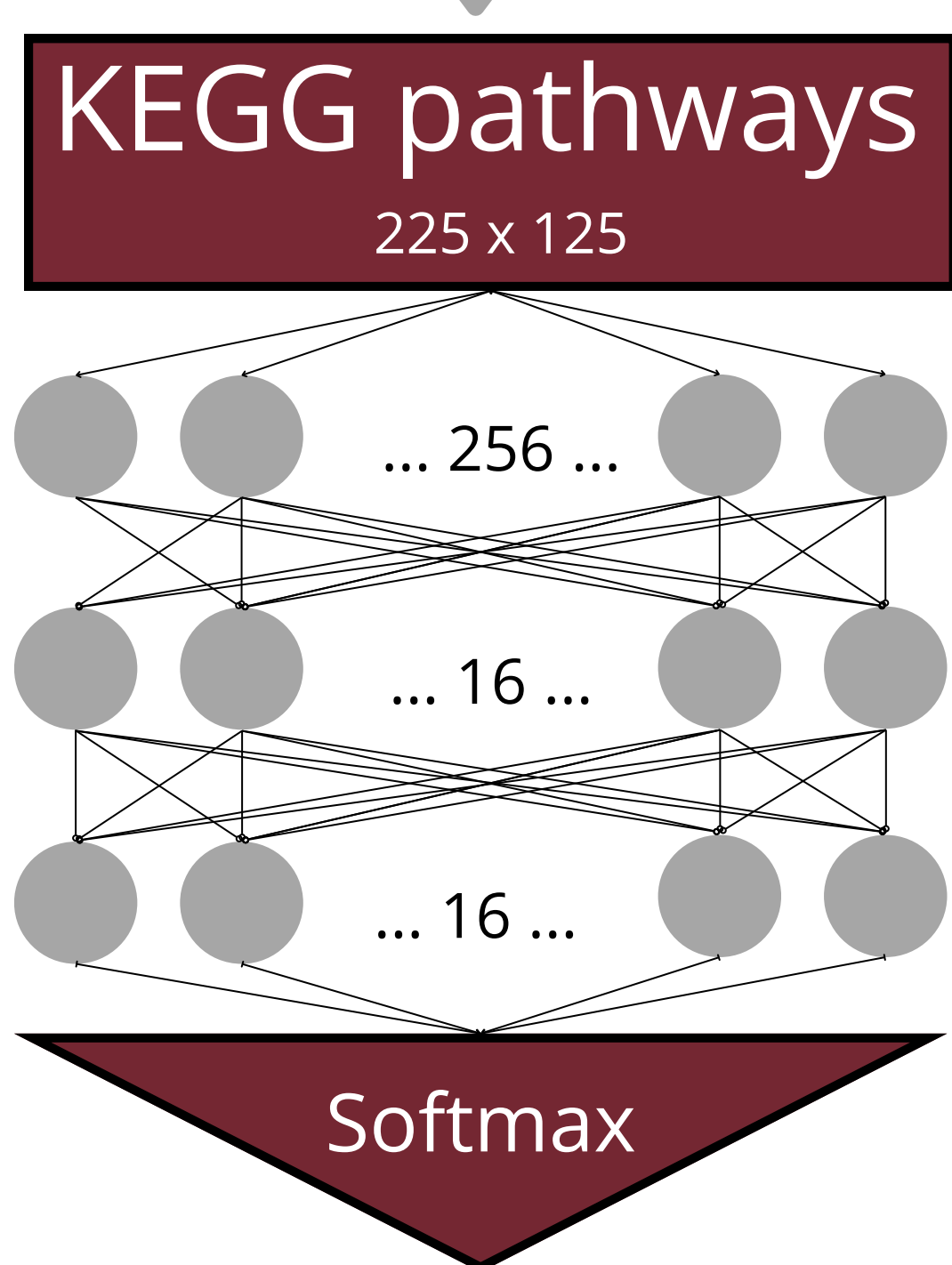
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Objective:

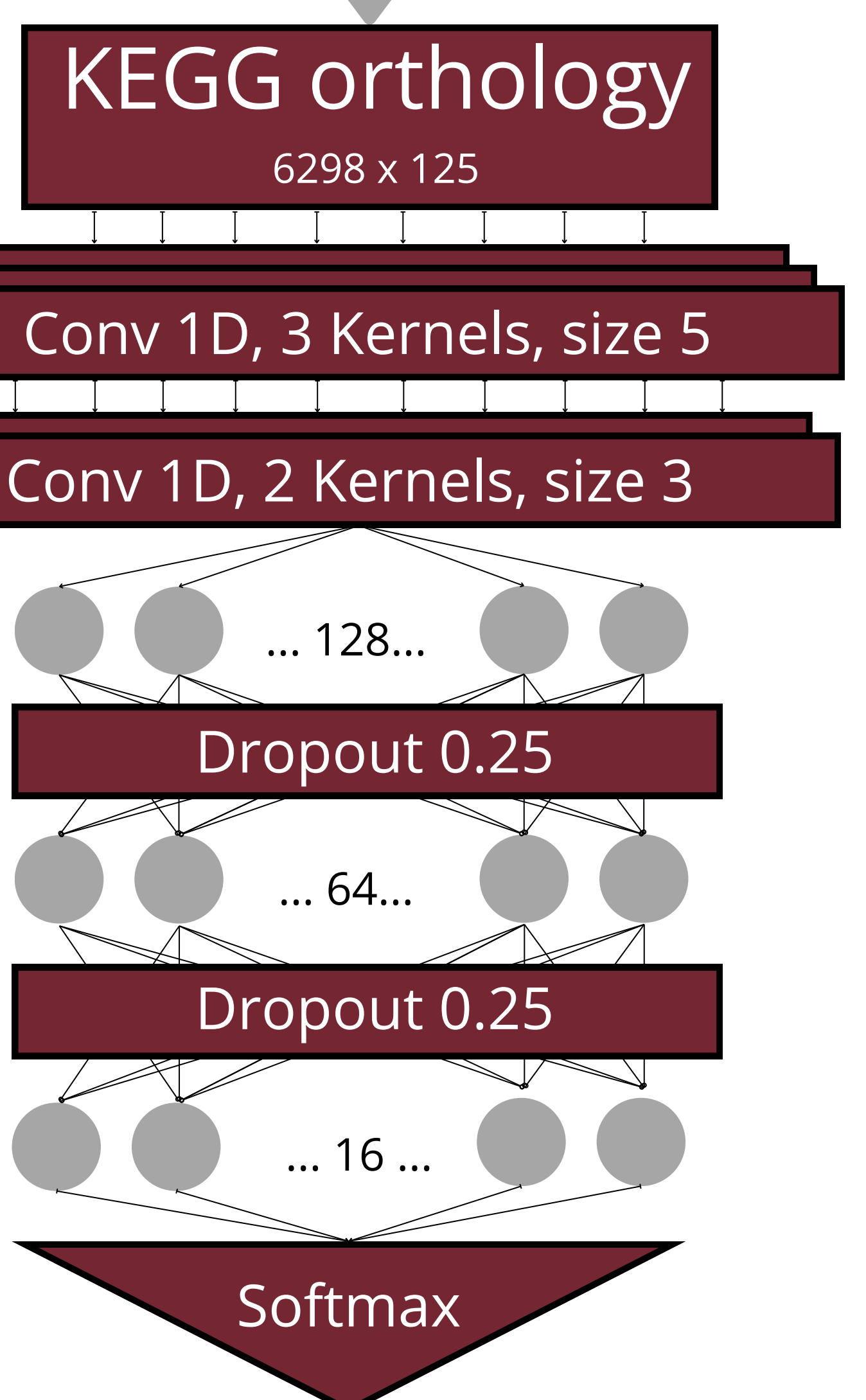
Create and compare different approaches to neural network classification based on *Common Carp* intestine microbiome data.

Best models:

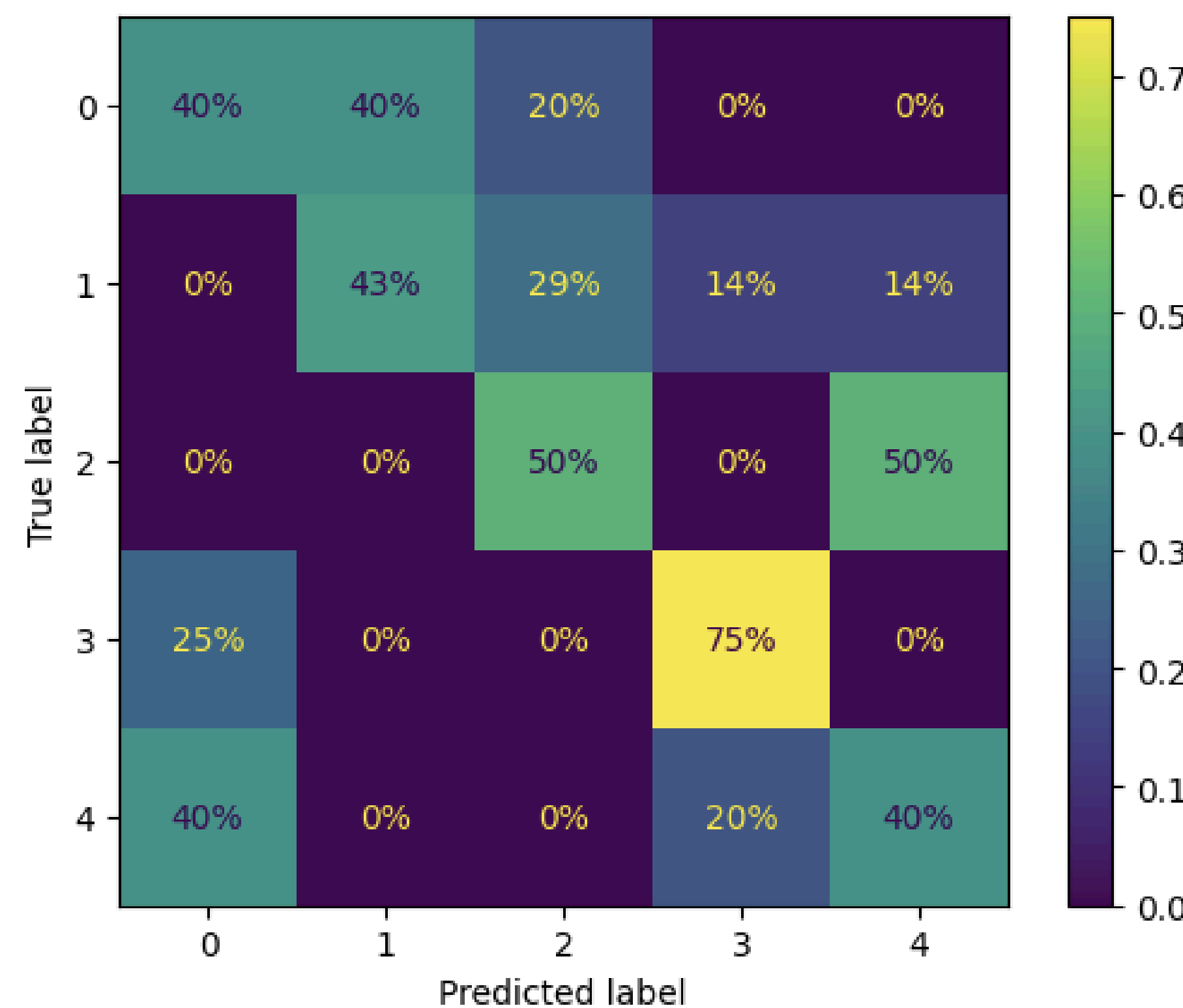
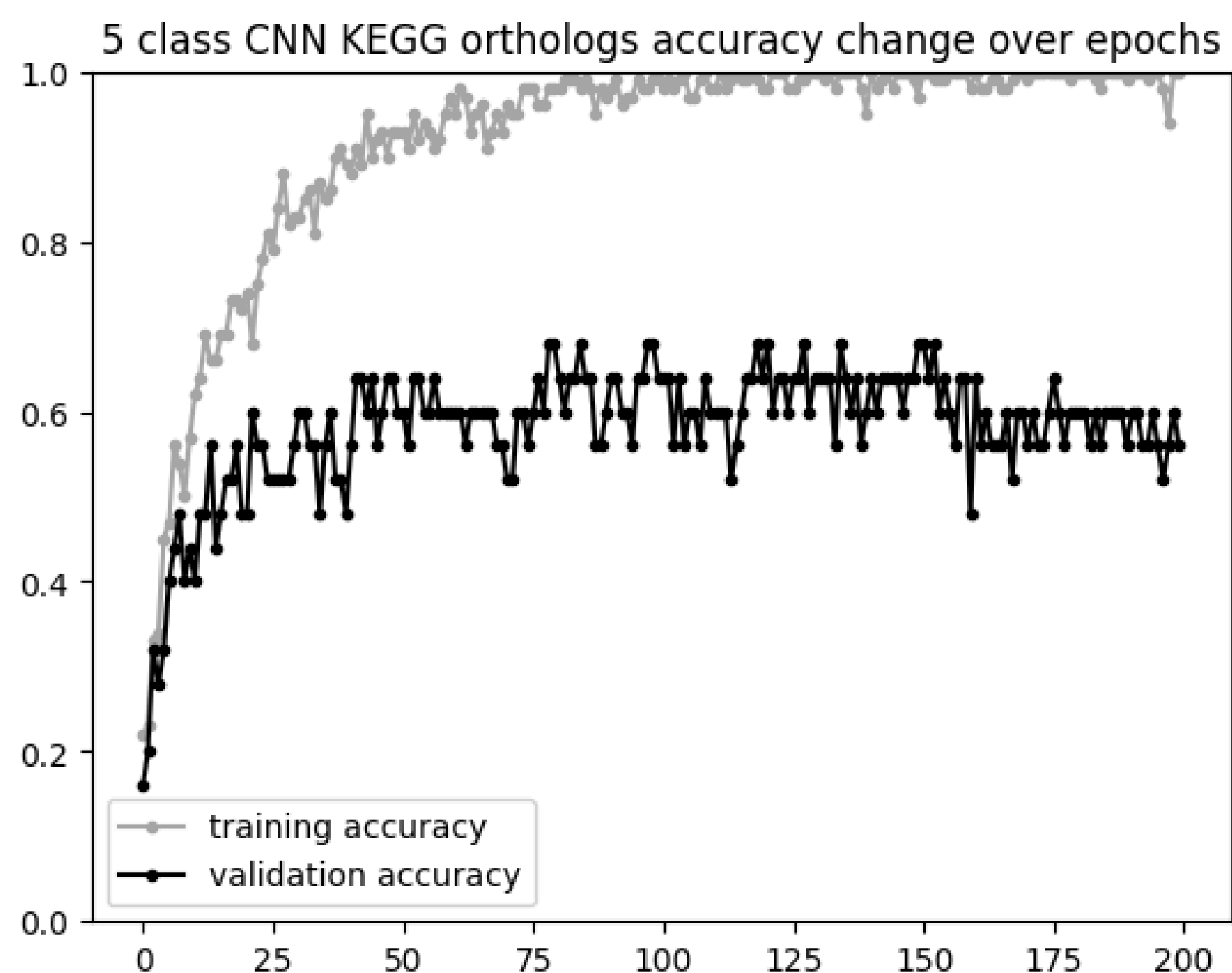


5 experimental setups
x 5 ponds per setup
x 5 fish per pond

Experimental setup	Control	1	2	3	4
Supplementation:					
Feed	NO	NO	EM	NO	EM
Environmental	NO	EM farma	EM farma	EM	EM

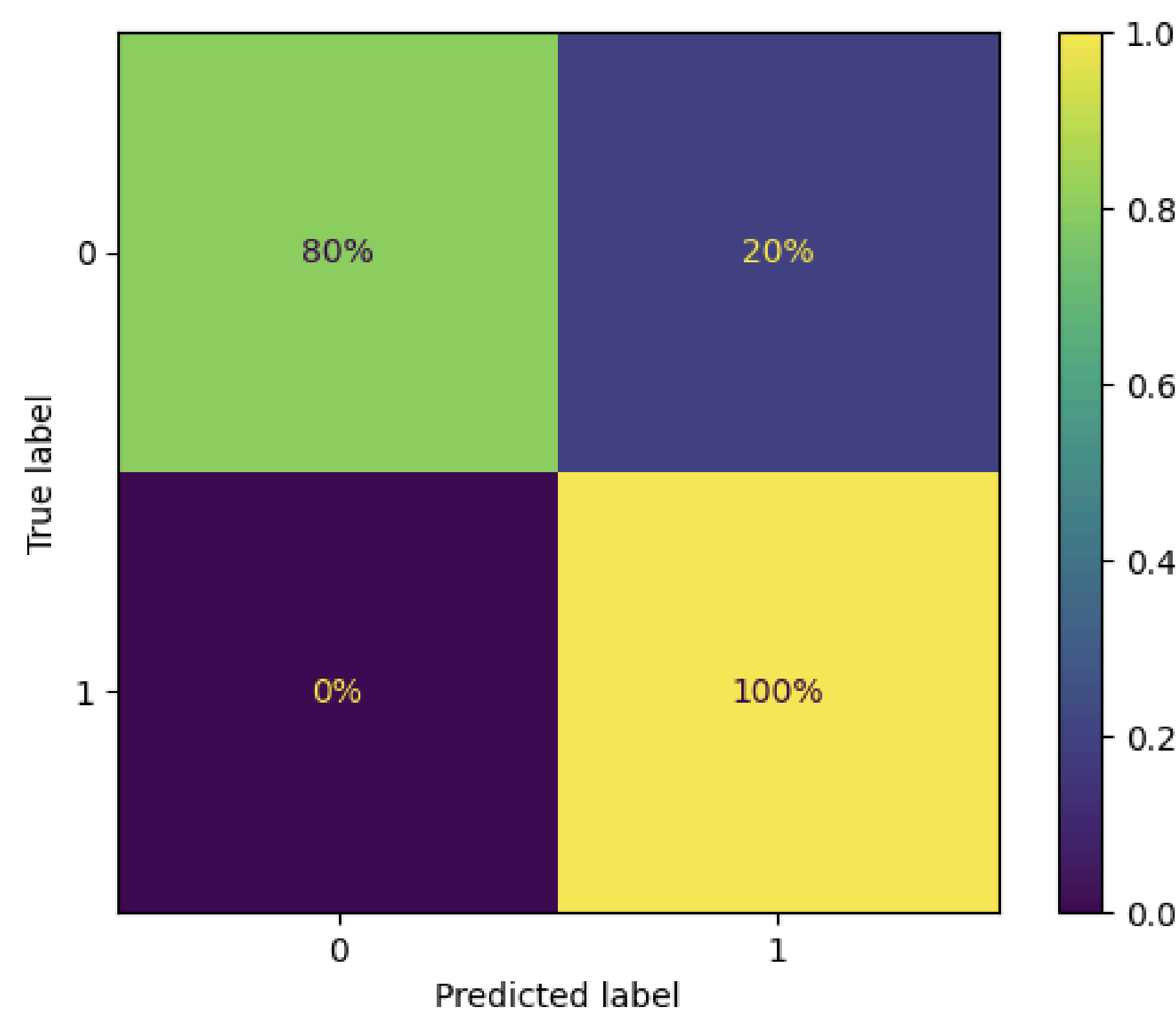
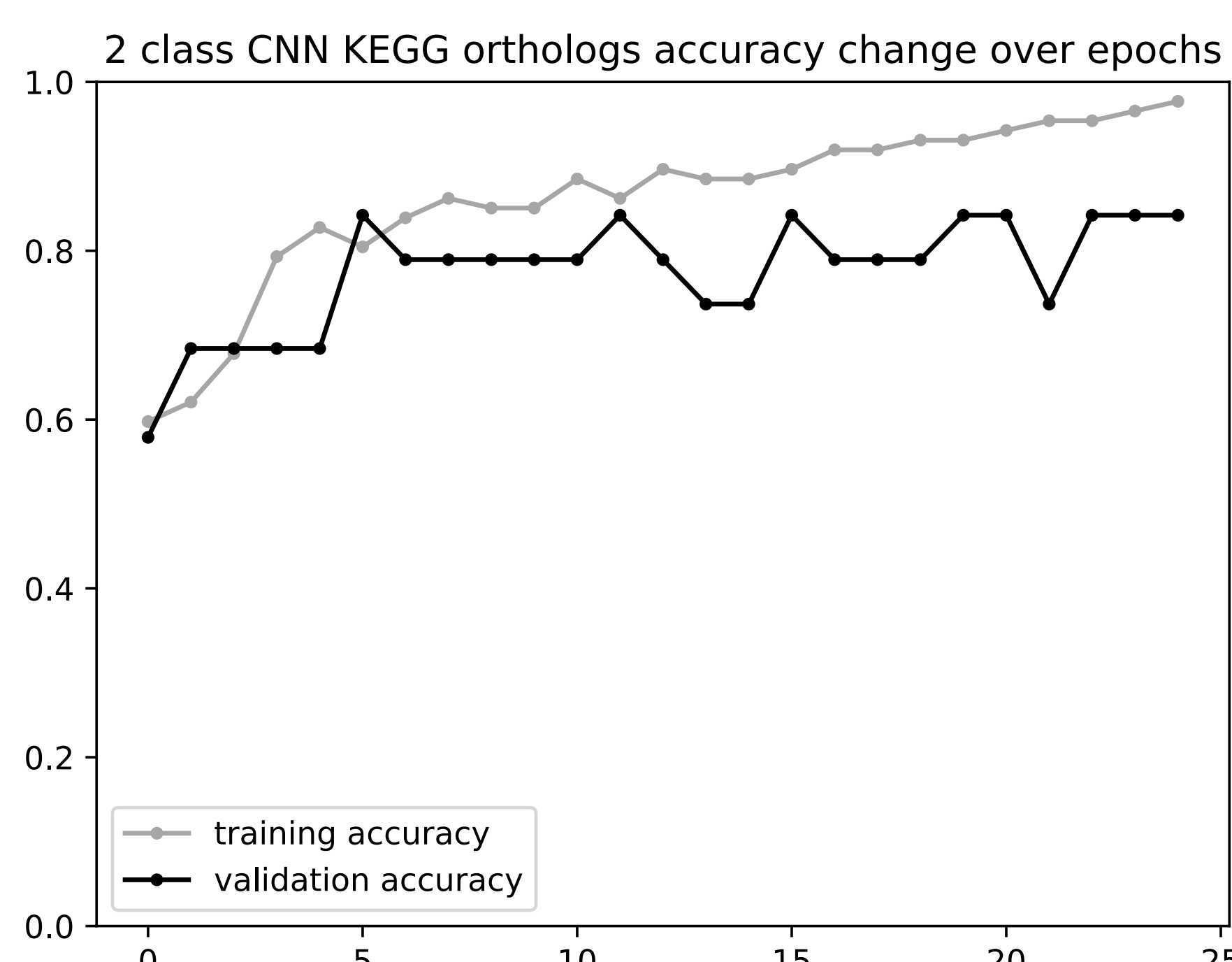


Results: 5 classes



2 classes

Classification based on feed supplementation



Conclusions:

- Great difference in results between 5 and 2 classes classification suggests that feed supplementation has much more impact on gut microbiome.
- Similar accuracy was achieved for each dataset although with different models.
- For high dimension data (KEGG orthology) CNN based architecture outperformed DNN.



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