6G6Z0048 Artificial Intelligence

1CWK100 Feedback Sheet

1. Final mark: 75

2. Written feedback

Longlist: Lots of relevant components with good explanations and links to image classification. Good coverage of some supervised learning models. Then ambitious coverage of other relevant components beyond that, including image-specific models like CNNs, feature extraction techniques, and unsupervised learning methods.

Analysis: Making relevant technical points and then clearly linking them back to the company and the context surrounding their problem. There is good coverage of the longlisted components in section 1, based on thoughtful consideration of the company's requirements as set out in the Appendix.

Recommendation: An interesting and strongly argued recommendation. Drawing on the previous analysis section to acknowledge strengths as well as some weaknesses perhaps, in relation to the company and their specific requirements.

Well done on a really good submission!

Possible areas for extension/future reflection:

- Could you have been clearer on what data you recommended using, and exactly how?
- Should you have given more serious consideration to using a feature extraction technique (e.g., before PCA)?
- Could you have done more with the unlabelled data (e.g., semi-supervised learning, unsupervised pre-training)?
- Could you have done more to address the imbalanced classes issue (e.g., extra labelling, crowdsourcing, generative models like GANs/autoencoders)?
- Could you have recommended the "recipe"-type components that are necessary for successful training/deployment of such a model?
- Could Founder 1 implement an ANN themselves? What implementation would you have recommended they use if not (e.g., Tensorflow, Pytorch)?
- Would Founder 1 consider an ANN to be efficient/scalable as the number of images being uploaded increases (i.e., how expensive is the prediction phase)?
- Did computational expense associated with the training phase deserve more consideration (i.e., how long was it likely to take, how many runs were likely to be needed, was re-training needed)?
- Founder 3 hopes to offload computation to users' devices – is this viable with an ANN and/or with PCA? (If not, then what would be the implications for the back-end and would Founder 3 have been concerned?)
- How well do ANNs generally align with Founder 4's hopes re the FAST principle of transparency in particular?

3. Highlighted marking criteria

Bad Fail (0-29%)	The submission fails to meet the Pass level (see below) with respect to the marking criteria for the majority of three report sections (see written feedback for details). Indicative language: Erroneous/wrong, missing, extremely limited, inappropriate, insufficient, incoherent, unstructured; absent/none, lacking, formless, detrimental
Marginal Fail (30-39%)	The submission is at Pass level (see below) with respect to the marking criteria for one of the three report sections (see feedback sheet for details). Indicative language: Incomplete, inadequate, inconsistent, derivative, contradictory, superficial, irrelevant, limited

Pass (40-49%)	(Generally:) Suitably presented and referenced throughout, including any necessary appendices, and commensurate with the overall word count (see also Sections 2&3): (1. "longlisting" section:) Identifies relevant algorithms, building blocks and techniques, giving explanations and potential links to image classification problems for each; (2. "analysis" section:) Critical analysis of identified options (in 1) based on **adequate** study of the context surrounding the problem (see Appendix A), and a **sufficient** corresponding analysis of the theoretical characteristics of those options and/or by presenting **sufficient** corresponding experimental investigations of your own; (3. "recommendation" section:) A **partly** reasoned conclusion is set out, which draws on earlier analysis (in 2) to argue **satisfactorily** for the adoption of a specific approach to the problem by the company, highlighting **some** relevant weaknesses **or** strengths. Indicative language: Satisfactory, sufficient, adequate, descriptive
II(II) (50-59%)	(Generally:) Suitably presented and referenced throughout, including any necessary appendices, and commensurate with the overall word count (see also Sections 2&3): (1. "longlisting" section:) identifies a range of relevant algorithms, building blocks and techniques, giving explanations and potential links to image classification problems for each; (2. "analysis" section:) critical analysis of identified options (in 1) based on a **clear** study of the context surrounding the problem (see Appendix A), and a **congruent** corresponding analysis of the theoretical characteristics of those options and/or by presenting **congruent** corresponding experimental investigations of your own; (3. "recommendation" section:) a reasoned conclusion is set out, which draws on earlier analysis (in 2) to argue **clearly** for the adoption of a specific approach to the problem by the company, highlighting **some** relevant weaknesses **and** strengths. Indicative language: Clear, confident, consistent, thoughtful, accurate, careful, congruent, coherent
II(I) (60-69%)	(Generally:) Suitably presented and referenced throughout, including any necessary appendices, and commensurate with the overall word count (see also Sections 2&3): (1. "longlisting" section:) identifies a **wide** range of relevant algorithms, building blocks and techniques, giving explanations and potential links to image classification problems for each; (2. "analysis" section:) critical analysis of identified options (in 1) based on a **thorough** study of the context surrounding the problem (see Appendix A), and a **precise** corresponding analysis of the theoretical characteristics of those options and/or by presenting **precise** corresponding experimental investigations of your own; (3. "recommendation" section:) a reasoned conclusion is set out, which draws on earlier analysis (in 2) to argue **fluently** for the adoption of a specific approach to the problem by the company, highlighting **most** relevant weaknesses **and** strengths. Indicative language: Fluent, thorough, analytical, precise, rigorous
I (70-100%)	(Generally:) Suitably presented and referenced throughout, including any necessary appendices, and commensurate with the overall word count (see also Sections 2&3): (1. "longlisting" section:) identifies a **comprehensive** range of relevant algorithms, building blocks and techniques, giving explanations and potential links to image classification problems for each; (2. "analysis" section:) critical analysis of identified options (in 1) based on a **meticulous** study of the context surrounding the problem (see Appendix A), and a **sophisticated** corresponding analysis of the theoretical characteristics of those options and/or by presenting **sophisticated** corresponding experimental investigations of your own; (3. "recommendation" section:) a **fully** reasoned conclusion is set out, which draws on earlier analysis (in 2) to argue **convincingly** for the adoption of a specific approach to the problem by the company, highlighting **all** relevant weaknesses **and** strengths.

	Indicative language: Persuasive, sophisticated, original, reflective, ambitious, meticulous, critical, convincing, unexpected