# Week 10 Meeting

2357351G - MSci Half Project

What I've done this week

- Completed *'Generating Sound with Neural Networks'* tutorial series.

- Cloned and ran Style Transfer code.

- Created plan for rest of the year with some targets.

- Started a doc to organise/group papers I've read and think about the narrative of the interim report.

- Read *β-VAE: Learning Basic Visual Concepts with a Constrained Variational Framework (2017)*.

- Updated architecture diagram with feedback from last week.

Architecture Diagram
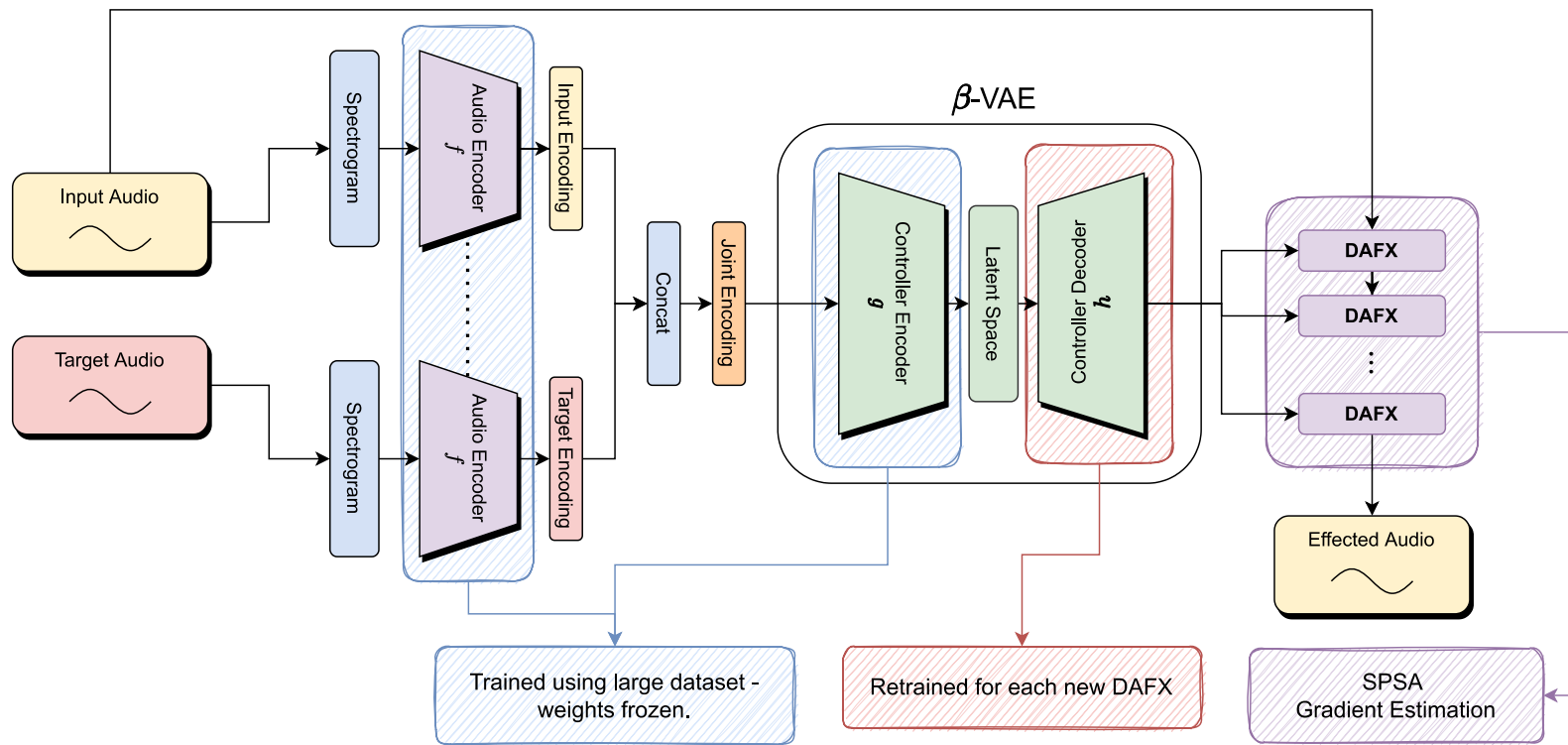
Questions

- As far as I understand, if the latent space dimensionality using β-VAE is 'too-big' there will be dimensions which won't 'do much' - i.e. changing the values in these redundant dimensions take don't really change the reconstructed signal.
- Is there a way of using this to tune the dimensionality of the latent space? I.e. a measure of the variance of the output w.r.t each dimension?

Plan for next week

- Perform preprocessing on audio dataset.
- Train the model on small subset of processed audio.
- Look at inference script to see how pre-trained weights are being loaded into the model.
- Pick library to use for loading in DAFX (Pedalboard or similar).
- Look at current SPSA implementation and whether it can be used directly with the above library.
- Write up summary/takeaways of β-VAE paper.
- Read *A Feature Learning Siamese Model for Intelligent Control of the Dynamic Range Compressor (2019)* and write up summary/takeaways.

Where I am in schedule

- Have much clearer idea of the scope of the project, both from solidifying the idea of the output of the project as well as making a short-term plan.
- Aim is to have a prototype model which is at least trainable by the end of the year.
    - Take in input and reference track.
    - Calculate loss and back-propagate updating (a fixed subset of) DAFX parameters.