Ethics Discussion #4

**Q1.1**

They used a single NVIDIA Titan X GPU to train the models then captured the data using the NVIDIA System Management Interface to sample the power consumption and then to sample the CPU power consumption they used the Intel’s Running Average Power Limit interface. Finally, they measured the power draw from all the DRAM sockets.

**Q1.2**If we look at Table 3, the models near the top are prime candidates to look at for an efficient algorithm which could help reduce environmental impact as they have a significant decrease in hours and power used compared to NAS or GPT-2.

**Q1.3**

Google says that the overshoot for NAS was 88x times larger in the paper than actually seen. Which they say was 3,223 kg (7105 lbs.) for CO2e. Which as stated in the paper says air travel from NY to SF and back is 1,984 lbs. so Google is claiming it would only be flying from NY to SF and back 3.5 times compared to 315.5 roundtrip flights that the article says.

**Q2.1**

Alright some math here, 24.69 tonnes of CO2eq to equal to 54,432 lbs. which is the same as 27.5 roundtrip flights from NY to SF.

I chose the paper *Bridging the Microwave Data Gap; Using Bayesian Deep Learning to “See” the Unseen (Paper Track)* [*https://www.climatechange.ai/papers/neurips2022/22*](https://www.climatechange.ai/papers/neurips2022/22)

For the reason why I chose this paper was because I was hungry and saw microwave was like hmm that seems interesting. The paper is the result of the trying to use Bayesian Deep Learning to get the loss of microwave satellite coverage. As there are gaps in the microwave satellite coverage on the planet. Which leads to a harder job for forecasters and climate scientists, for them to tracking evolution of oceanic deep convection in near-real time and reducing uncertainty in energy budgets by using the product to create less uncertain cloud and precipitation climatology. The impact for this paper is that for atmospheric scientists to use the product of the deep learning of microwaves and IR to learn about the atmosphere and improve the models and forecasts. The model that was created to learn more about the loss of microwaves found a less than 3% mean percentage error in the data. This was due the decrease in the wave frequency led to a higher percentage error. But the relative level of uncertainty matched the level of error.