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CSCI 101 section A

HW 9

November 22, 2019

1. I believe that while increases in technology will provide substantial reductions in some cases, overall, we will see a rise in emissions. This is because while big companies, like Facebook and Google, that operate thousands of servers have incentive to reduce their energy emissions with things like hyperscale centers, smaller companies do not have the same incentives. For a lot of smaller companies, the infrastructure costs of more efficient systems generally make them cost prohibitive for smaller companies. And smaller companies are increasing going to be gathering data, especially with the proliferation of smart home Internet of things devices.
2. I think the most impactful method mentioned will be purpose built hyperscale centers being able to cool a server is helpful but does not make them more energy efficient. Creating servers that are more efficient computing power wise is the best way to make them more efficient electrically. Some interesting things I learned was that amazon dominates in the hyperscale center market, and in the data center market in general, and nearly 50% of all data centers are located inside the US, with China being the next closest with 8%. Hyperscale data centers allow scale incredibly well compared to cloud of other data center technology.
3. I think self-driving cars will create a huge environment for data centers. In order to continue becoming safer, self-driving car companies are going to increasingly need to analyses what their cars are doing in order to effectively move forward. As self-driving cars increase in number, the pure amount of data that needs to be stored and interpreted from cars is going to be absolutely massive. Readings from virtually every sensor in the car will need to be logged, including camera footage, which could take us massive amounts of storage moving forward.