1. Automatization of process adjustment
2. A large part of chemical engineering is performing minute adjustments and troubleshooting unexpected changes. There was a slight decrease in product or the product is being mixed slightly less than earlier today, why? Building a model which could make/generate adjustments to account for these automatically without human oversight would save time and money.
3. Having to troubleshoot and adjust chemical processes causes a loss of efficiency or quality and slows down production- which on large scale can cost thousands to millions. Additionally, for pharmaceutical processes or processes where purity/optimal conditions are a requirement slight deviations can cause a total loss of product.
4. Input space: variables like pressure, temperature, flow rates etc..
5. Output space: molecular concentrations or level of mixing.
6. The most likely source of data would be experimental data gathered by a professor. An example would be the raw data generated from small scale chemical reactions.
7. Supervised learning