Data Science

Deep Learning

Artificial neural networks adopt adapt and learn from large datasets

AI

Machine Learning:

Algorithms with the ability to learn without being explicitly programmed

1. **Work Environment**

Python (Libraries: pandas; matplotlib; numpy)

Sources:

* [Data Analysis with Python - Full Course for Beginners (Numpy, Pandas, Matplotlib, Seaborn) (youtube.com)](https://www.youtube.com/watch?v=r-uOLxNrNk8) (Basic Python & Datascience)
* [Harvard CS50’s Artificial Intelligence with Python – Full University Course (youtube.com)](https://www.youtube.com/watch?v=5NgNicANyqM) (AI CS50)
* [Generative AI Full Course – Gemini Pro, OpenAI, Llama, Langchain, Pinecone, Vector Databases & More (youtube.com)](https://www.youtube.com/watch?v=mEsleV16qdo)
* [Stanford's FREE data science book and course are the best yet (youtube.com)](https://www.youtube.com/watch?v=yNYflGw6kJI)

1. **Github basics**

In order to understand the code of others

1. **Projects**

By downloading from Github and try to reverese engineer

Kaggle Project Pro



**Application of AI in the Biopharma industry**

- Ideas can be found on GitHub (search term: “biopharma”)

- Predicting the function of a protein

- What are the usual processes/inefficiencies in the drug discovery process?

1. AI sifts through large datasets, identifying potential drug candidates and biomarkers much swifter than by manual means

2. AI’s predictive modeling algorithms refine drug target validation, thus reducing the attrition rates during the expensive clinical testing phases

3. In silico trials, powered by AI simulations, researchers can forecast the efficacy and safety profiles of new drugs before they reach human trials

**Streamlining Drug Discovery Processes**

Advanced algorithms predict molecular behavior, expediting compound selection, sequencing and synthesis