Lesson 0: Introductions
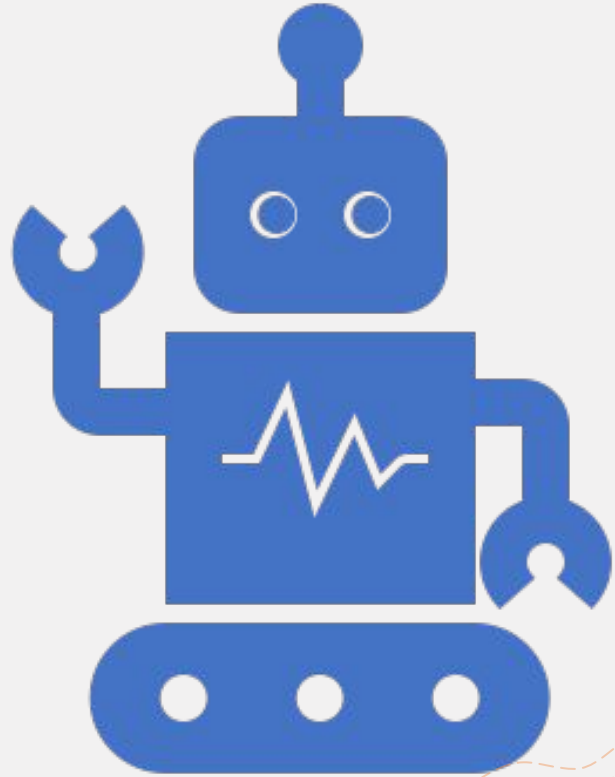
+ Who is your Mentor?

+ Ice Breaker Game: "Two Truths and a Lie"

    + Say your name

   + Tell us two honest facts and one fake fact about yourself for everyone to guess.

Discussion

+ Artificial intelligence is a hot phrase nowadays and for good reason! It's changing the world as we know it.

+ Discussion Question: What does AI mean to you?

Lesson 1: Hugging Face Demo

+ Llama 2 is an advanced AI language model developed by Meta that can understand human text and is similar to ChatGPT.
+ Navigate to this link: https://huggingface.co/spaces/huggingface-projects/llama-2-7b-chat
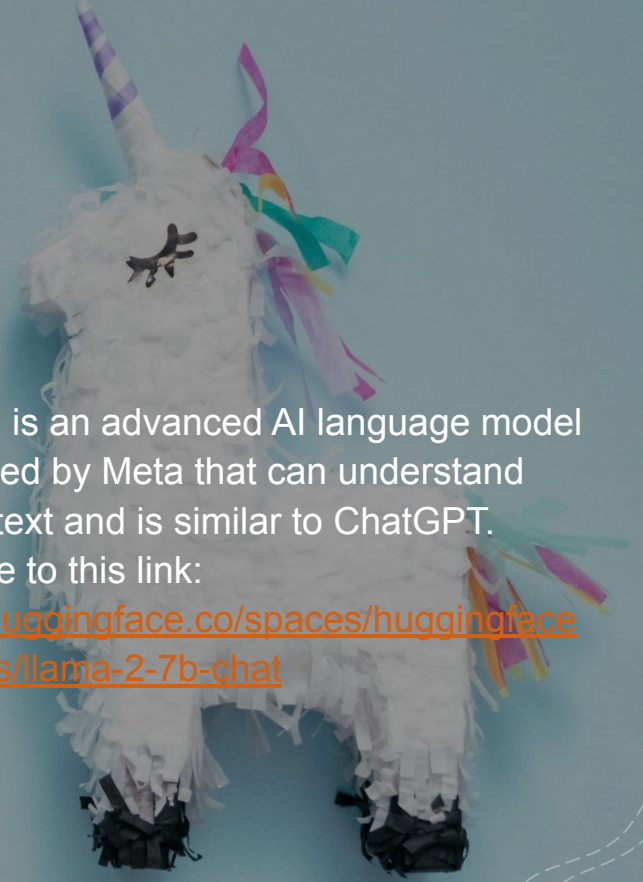
Prompting

+ You can ask the model anything. But here are a few fun and interesting prompts to get you started:
    + "Tell me a joke."
    + "Write a short story about a time-traveling cat."
    + "Can you explain what a black hole is?"
    + "How does a rainbow form?"
    + "Compose a poem about summer."
+ As you interact with the model, think about:
    + How realistic do the responses seem?
    + Where does the model excel, and where does it fall short?

Discussion

+ AI is more than chatbots and games; it subtly impacts our daily lives in our pockets, homes, and schools, revolutionizing how we interact with the world. Let's take a moment to think about the impact of AI in our lives.

+ Discussion questions:
    + Where else have you seen AI?
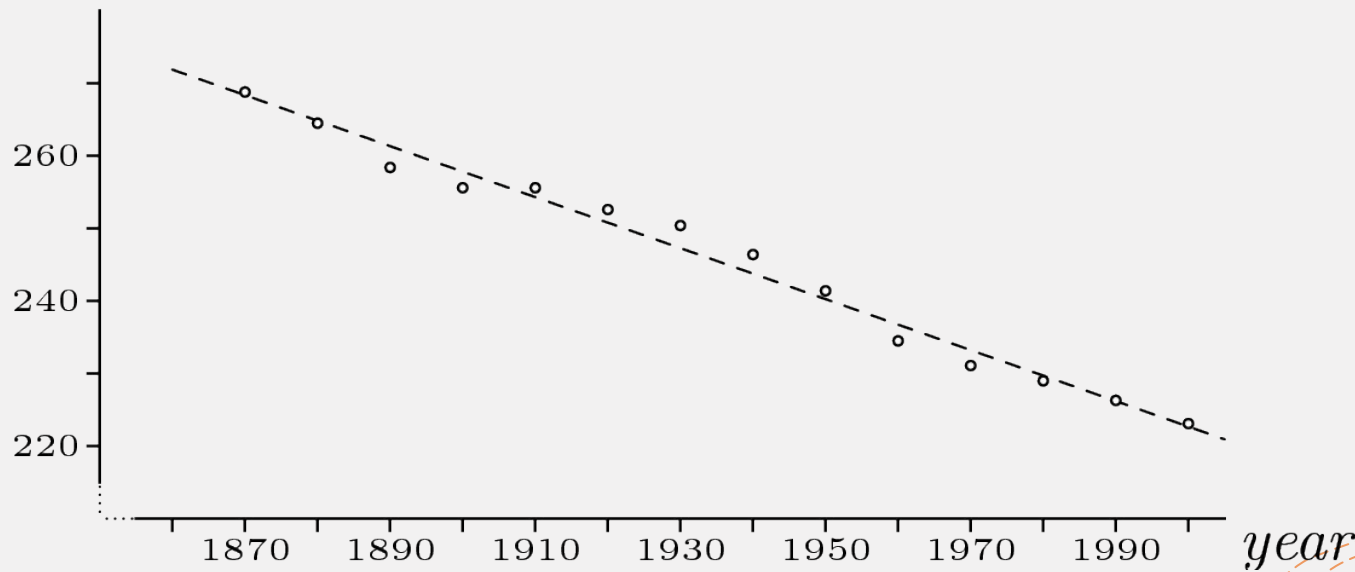   + How have you been affected by AI on a daily basis?

Lesson 2: Machine Learning Tools

+ There are many tools that are integral for your data science toolbelt. These are some, but not all, of the tools you'll use.
    + Google Colab
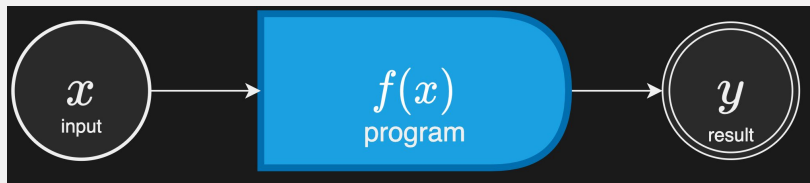   + Hugging Face
    + Gradio

Line of Best Fit

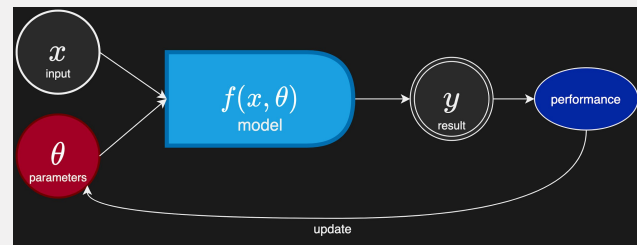Line Equation:
f(x) = mx + b

What is Machine Learning?

+ Machine learning is a branch of artificial intelligence that enables computers <u>to learn and make predictions based on patterns and data without being explicitly programmed</u>.

Regular Programming

The coder explicitly defines the relationship between inputs (x) and outputs (y) (e.g., data)

Machine Learning

The coder uses machine learning to discover the relationship between the inputs (x) and outputs (y) and make predictions.

Google Colab

+ Google Colab is like a playground for coding and AI experimentation! It's a website that allows you to write, run, and share python code without any setup. We call this a cloud-based environment.

+ Best of all, you can use free GPUs, which are specialized processors for supercharging your machine learning projects!

APIs - The Internet Messengers

+ APIs act like messengers. You ask them something or give them a command (that's your input), and they return the information (that's the output). Kind of like functions in Python!
+ They're crucial when we want to use complex code someone else wrote, even if we don't understand the code ourselves! For example, we will be using machine learning models later.
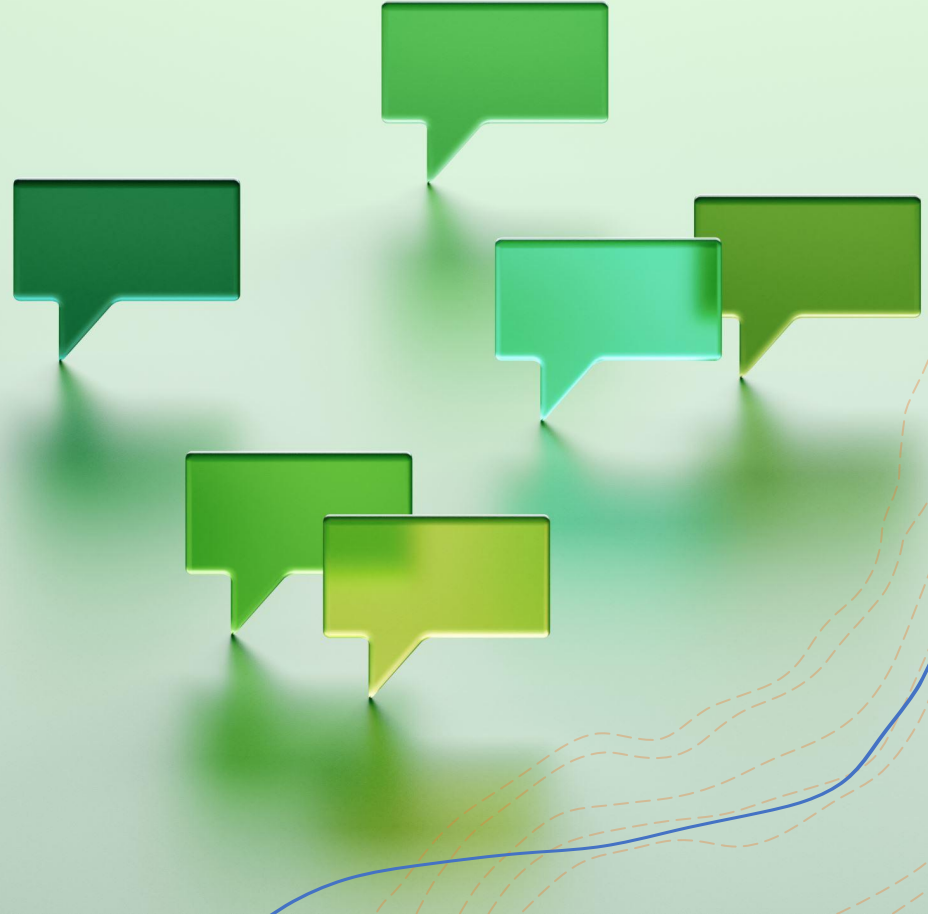
Hugging Face

+ Hugging face is an open-source library for machine learning that offers pre-trained models and tools.

+ You can use Hugging Face to build chatbots, analyze text sentiment, and so much more!

Gradio

+ Gradio is a library for building user interfaces that bring your machine learning models to life.

+ You can create interactive apps in just a few lines of code.

Coding Lab

+ https://colab.research.google.com/drive/1Be0f7gJD1kJYAg7K-nqmfSVy-aYe3dVV?authuser=1

+ First, everyone needs to sign into their Google account if they aren't already.

+ Click "copy to drive".

+ Now, let's run through the notebook together!
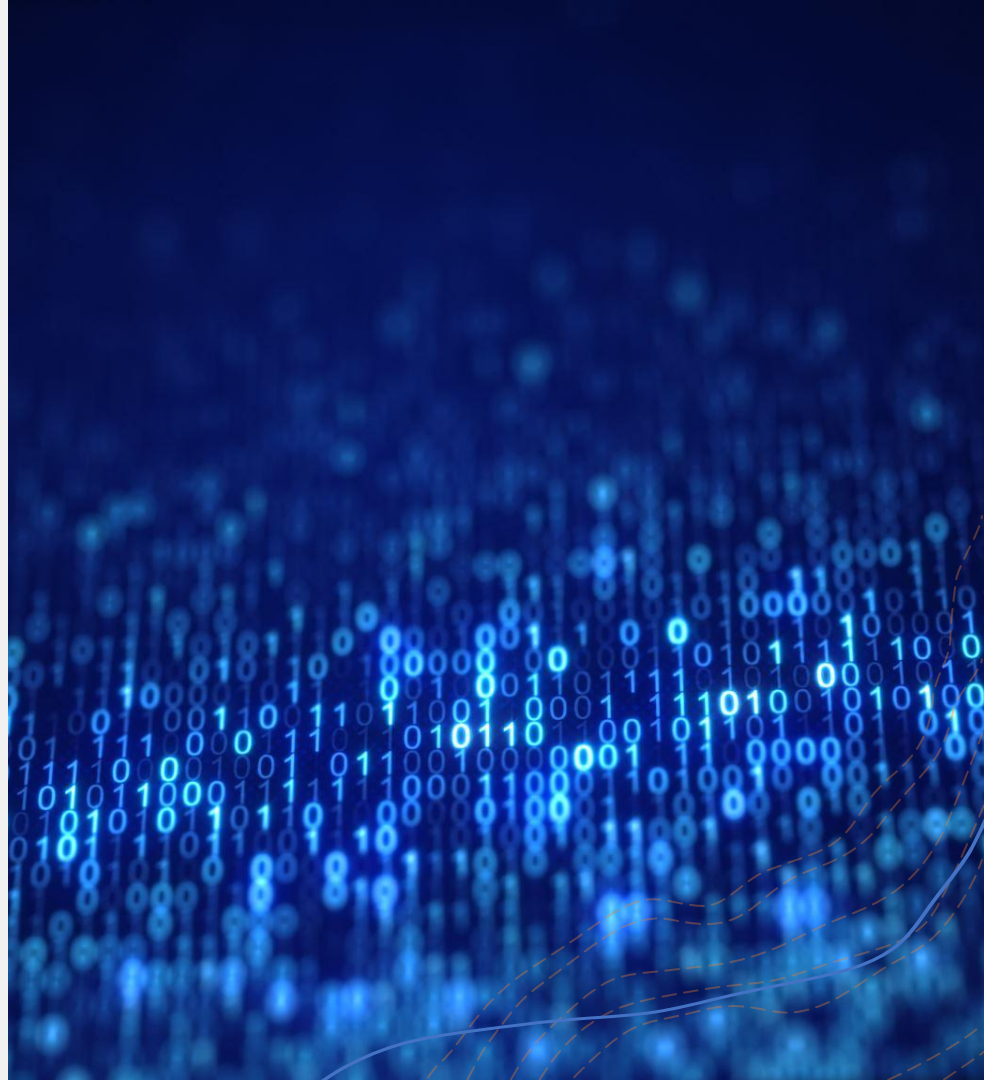
Next Steps

+ Congratulations on finishing your first lab!

+ Next we're going to learn about how to integrate a machine learning model into our Gradio Interfaces.

Lesson 3: Project - AI Assistant

+ AI chatbot assistants are software programs designed to mimic human conversation. Can you think of any examples?

+ We will use APIs (eg. Gradio + HuggingFace!) to create our own AI chatbot.

The First AI Assistant

+ The first AI assistant was IBM's Shoebox, unveiled at the 1962 Seattle World's Fair.
+ Could recognize 16 spoken words and digits 0 to 9.

Transformers - Not Just a Movie!

+ Transformers are a type of machine learning model that are really good at understanding text.

+ They consider every word in a sentence and how each word relates to the others, kind of like humans.

Lab Time

We will be creating our own AI assistant using the Hugging Face API and a Gradio interface.

https://colab.research.google.com/drive/1uyuv034ioMxgiS1IFVYgANg9SZ5fkSSh?authuser=1

Let your creative juices flow!

Afterwards we will have a show and tell where you show off your assistant! Keep track of any interesting convos.

Show and Tell

Now that we all have a personalized assistant, it's time to show them off!

Give us a short description of your assistant.

For example: "My assistant Peter Parker is super friendly and intelligent. He enjoys reading and programming, and he has a secret: he was bit by a radioactive computer bug! His goal in life is to become the greatest friendly, neighborhood AI assistant."

Show us how your assistant responds when prompted with:

"What is the meaning of the universe?"

Discussion

Reflection time! What stood out and what surprised you?

What are some use cases for your personal assistant?

The Impact and Future of AI Assistants

+ AI Assistants have made technology more accessible and improved multitasking.
+ They have found their place in businesses and homes, aiding with tasks like scheduling meetings, answering questions, and controlling smart devices.

Want to Learn More?

+ Sign up for a phone call with Kai, our machine learning director:

  https://calendly.com/kai-bm-ml/ml-consultation

+ Or send me an email:

  sj@breakoutmentors.com