



SCHOOL OF
SCIENCE &
TECHNOLOGY

ventureLab
transforming ideas into business

GENERATIVE AI BOOTCAMP

Embark on an immersive Three-Day Bootcamp and discover the potential of Generative AI, mastering its skills and fostering an entrepreneurial mindset crucial in a world redefined by Gen AI's transformative power.

BUSINESS SCHOOL STUDENTS, JOIN OUR AI BOOTCAMP!

Partner with tech enthusiasts, enter the Venture Lab, and turn teams into startups. Bridge business and technology in a unique opportunity.

PARTICIPATING IN THE BOOTCAMP OFFERS A FAST TRACK
TO THE VENTURE LAB



Friday, January 12, 2024 - 4:00 PM to
Sunday, January 14, 2024 - 6:00 PM (GMT +1)



PARTNER
WITH
VENTURE
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ie
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SCHOOL OF
SCIENCE AND
TECHNOLOGY

Welcome to the
**GenAI
Bootcamp**

Ikhlaq Sidhu
Dean & Professor
IE School of Science & Technology

Ikhlaq Sidhu

Dean, Science & Technology, [IE University](#), Madrid

Faculty Director Emeritus & Chief Scientist

Sutardja Center - UC Berkeley

Prof. Sidhu is an internationally renowned scientist, entrepreneur, and academic in the areas of Technology and Engineering and holds **+60 patents** in internet communication technologies, with influence on Skype, NetMeeting, Zoom, WhatsApp, Wireless...

Author of the highly acclaimed [Innovation Engineering](#) book, Prof. Sidhu created the hugely popular [Data-X course](#) and developed dynamic, high profile innovation labs in data, sustainable foods, and blockchain. Prof. Sidhu developed the [Berkeley Method of Entrepreneurship](#) for developing new ventures and the [Berkeley's Engineering Leadership Programs](#) for technology leaders.

Core: Communications, Networking, Data/AI

Programs: How to Innovate

Today: Dean focused on Next Gen Polytechnic and major new Tech Hub



Talk with my AI:

Submit

Question:

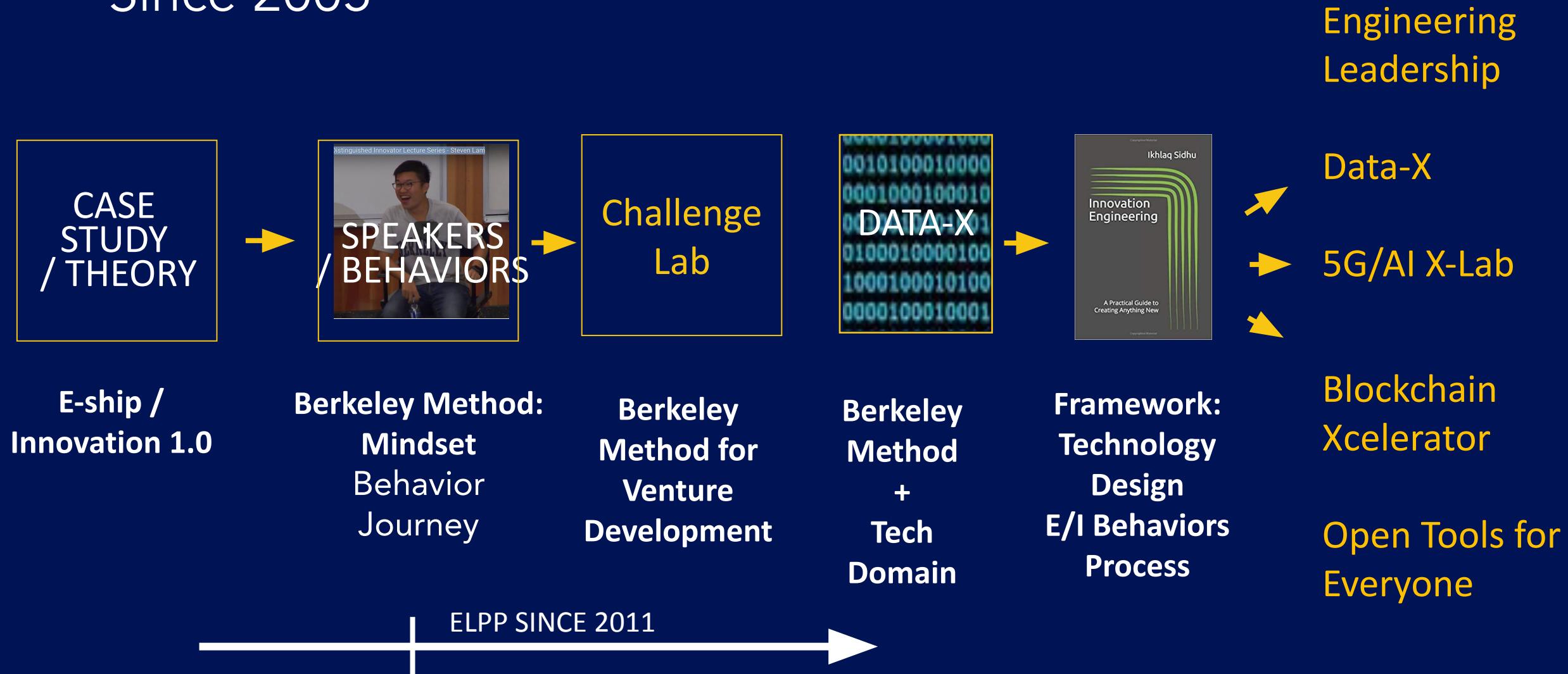
What is a photon?

AI:

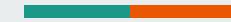
A photon is a fundamental particle of light. It carries energy and has no mass.

Bio: ikhlaqsidhu.net

My Learning Path at Berkeley Engineering Since 2005



Schedule at a Glance



Day 1- Friday 12th January

- 16:00-16:30: Registration and Coffee (all)
- 16:30-17:30: All - Welcome - All (Ikhlaq, Rafif & Paris).
Introduction (Ikhlaq) & Introduction to AI Applications
 - In this session we will cover ideas and examples of AI Applications.
- 17:30-18:30: Coffee Break & Brainstorming
- 18:30-20:00: Group Formation and Brainstorming (Ikhlaq and Paris).
By the end of this session we will have groups of 3-5 people. End of session - each group presents in 1 min

Day 2-Saturday 13th January

10:00-13:00 - Hands-On Working BootCamp

10:00-11:30 - 1.5 hours for Introduction To Bootcamp and GenAI

11:30-13:00:

(1) Business: Led by Venture Lab faculty for non-technical students to work on customer validation and business models, ensuring a holistic understanding of the entrepreneurial process. (Paris) - Reddit Survey?

(2) Robert / Federico -

1. Demo a React Web App - show a simple app (Robert) - 30'

2. Examples of Open API calls (Robert) 30'

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13:00-14:00 - Lunch

14:00-18:00 - Hands-on Working Bootcamp (Ikhlaq, Robert and Fede)

14:00-16:00 - work on their ideas

16:00-17:20 - exchange progress between groups - business update and tech update
17:20-18:00 - present wireframes and branding, begin integrations and plan

Day 3 - Sunday 14th January

Day 3-Sunday 14th January

Second day hands-on experience will culminate in a final demo session, where students showcase their creations through compelling presentations, combining slides and live demonstrations.

10:00-13:00 - Hackathon (Ikhlaq, Robert and Fede)

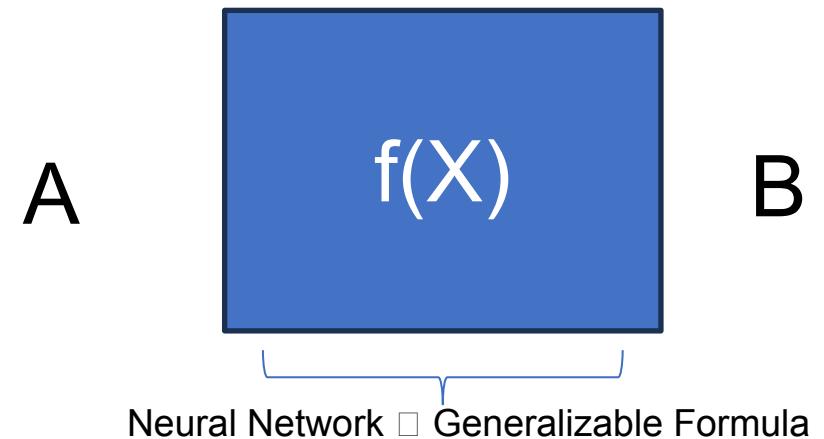
13:00-14:00 - Lunch.

14:00-18:00 - Demos and final ceremony with awards (all)

Traditional AI has been all about labeling (classification and prediction)

Supervised Learning (labeling things)

Input (A)	Output (B)	Application
Email	Spam? (0/1)	Spam filtering
Ad, user info	Click? (0/1)	Online advertising
Image, radar info	Position of other cars	Self-driving car
Ship route	Fuel consumed	Fuel optimization
Image of phone	Defect? (0/1)	Visual inspection



Next slide: A Powerful Classifier

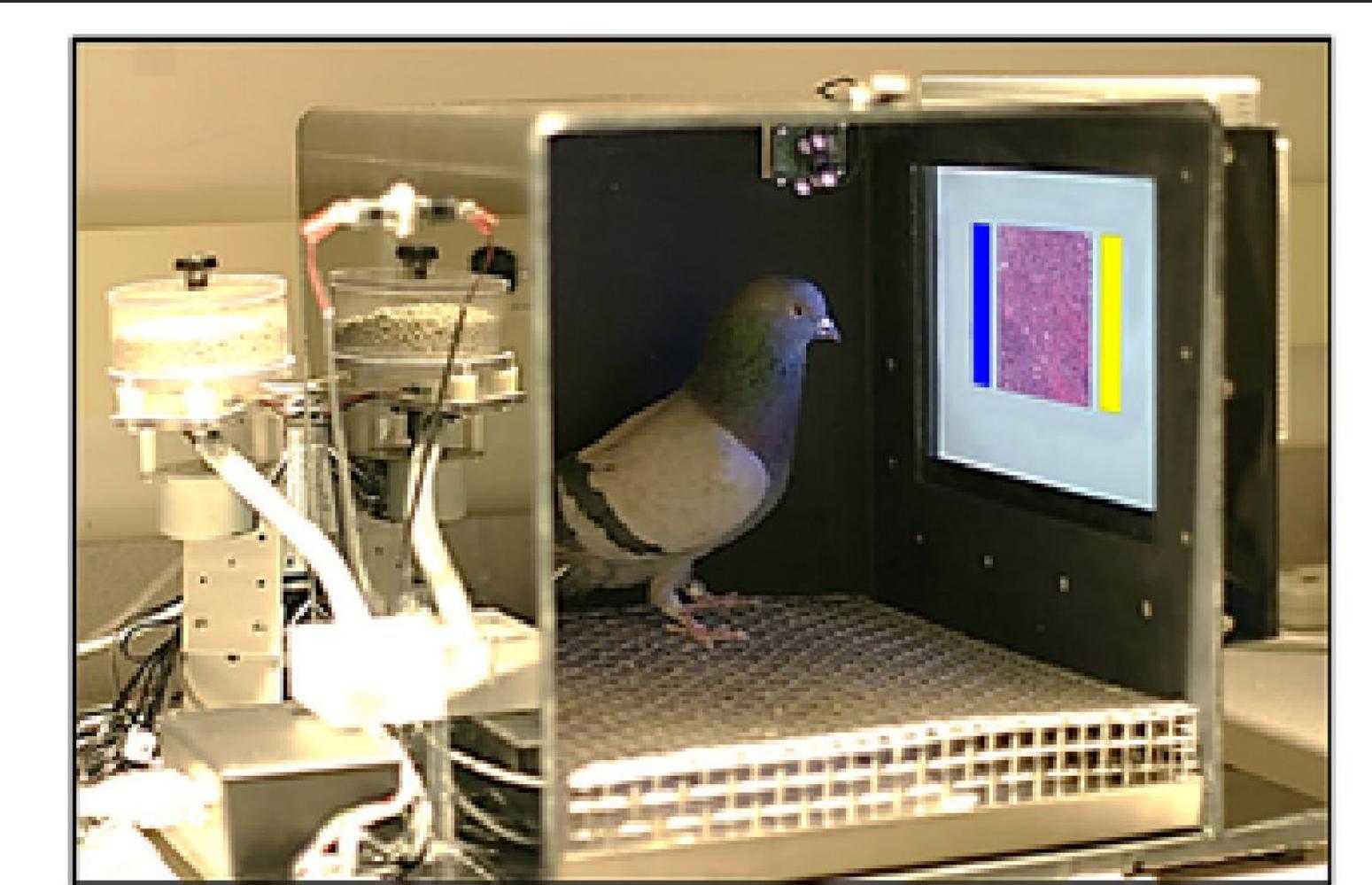
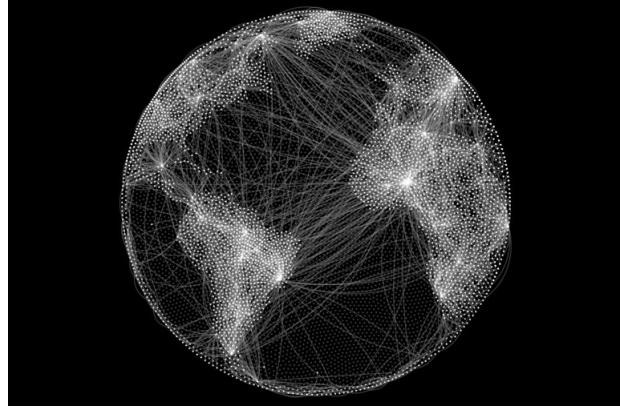


Fig 1. The pigeons' training environment.

ChatGPT Was the Biggest Tech Shockwave of 2023



Global Internet

Ref: NY Times



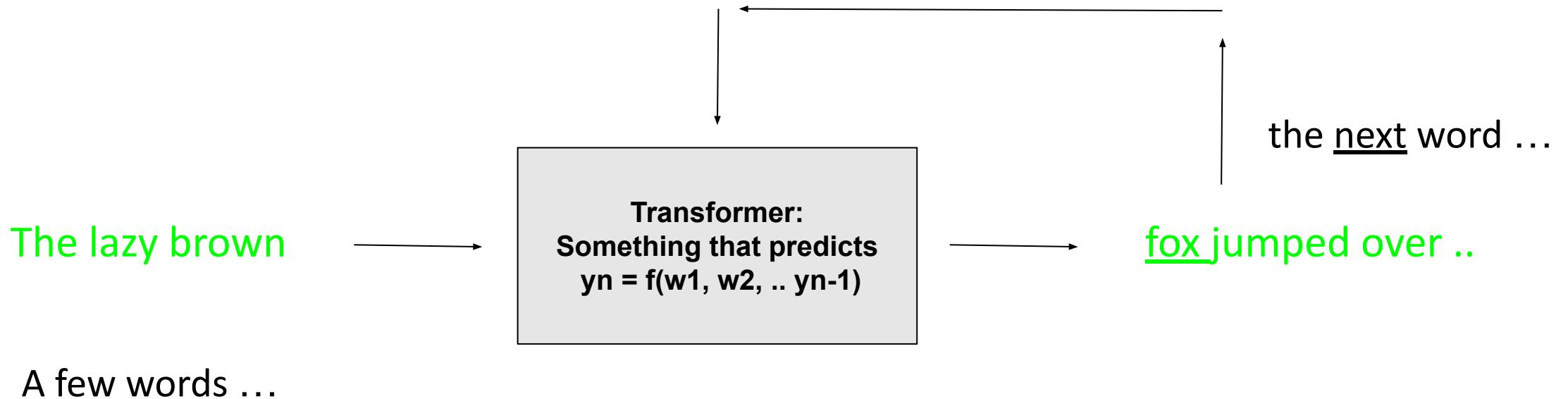
Ingest & Refactor

Q/A and Presentation

We now have an amazing “new text presentation layer”

But the “T” in ChatGPT is the key to the future.

Basic Idea: Chat GPT is based on a transformer that can predict the next word in a sequence of words



A few words ...

which are represented as numbers (vectors)

Using ChatGPT

The screenshot shows the ChatGPT interface. At the top, there are three sections: 'Examples' (with examples like "Explain quantum computing in simple terms" and "Got any creative ideas for a 10 year old's birthday?"), 'Capabilities' (with examples like "Remembers what user said earlier in the conversation" and "Allows user to provide follow-up corrections"), and 'Limitations' (with examples like "May occasionally generate incorrect information" and "May occasionally produce harmful instructions or biased content"). Below these sections is a message input field containing "Send a message..." and a 'Send' button. At the bottom, a footer note reads: "ChatGPT Mar 23 Version. Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts."

Also available to
developers via OpenAI API

The screenshot shows a Python code editor with the title "Python 3". The code is as follows:

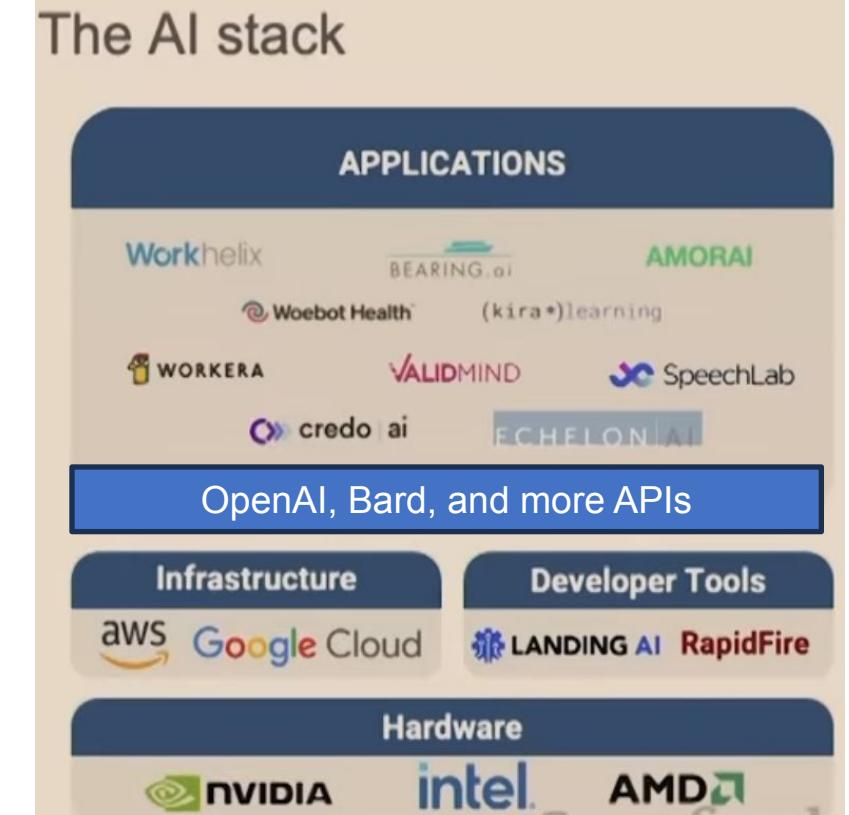
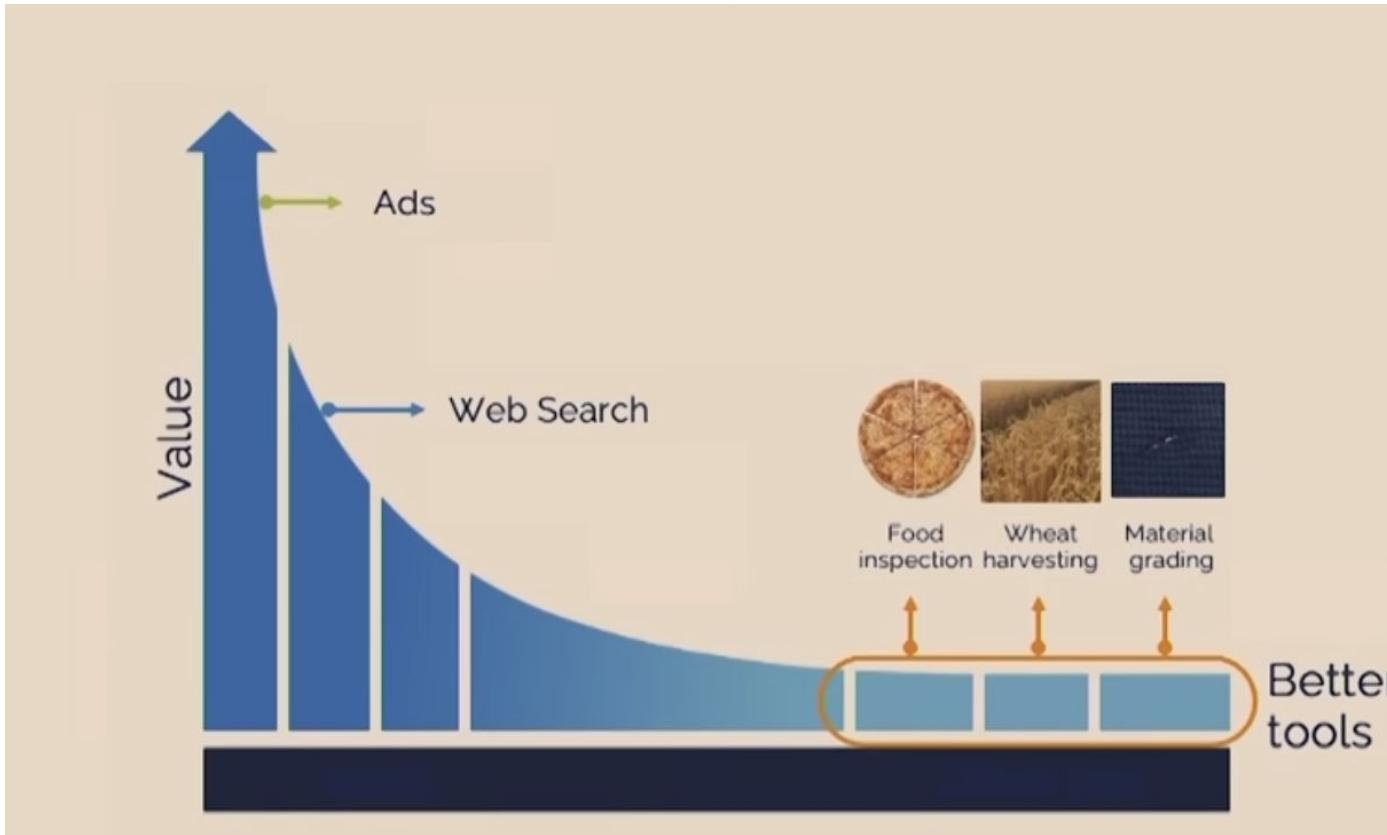
```
[5]: # Lets get an answer?
q = "What are the most common investment products?. I want a short of 5 with 10 words
ans = openai.ChatCompletion.create(
    model="gpt-3.5-turbo",
    messages=[
        {"role": "user", "content": q}
    ]
)
print(ans['choices'][0]['message']['content'])
```

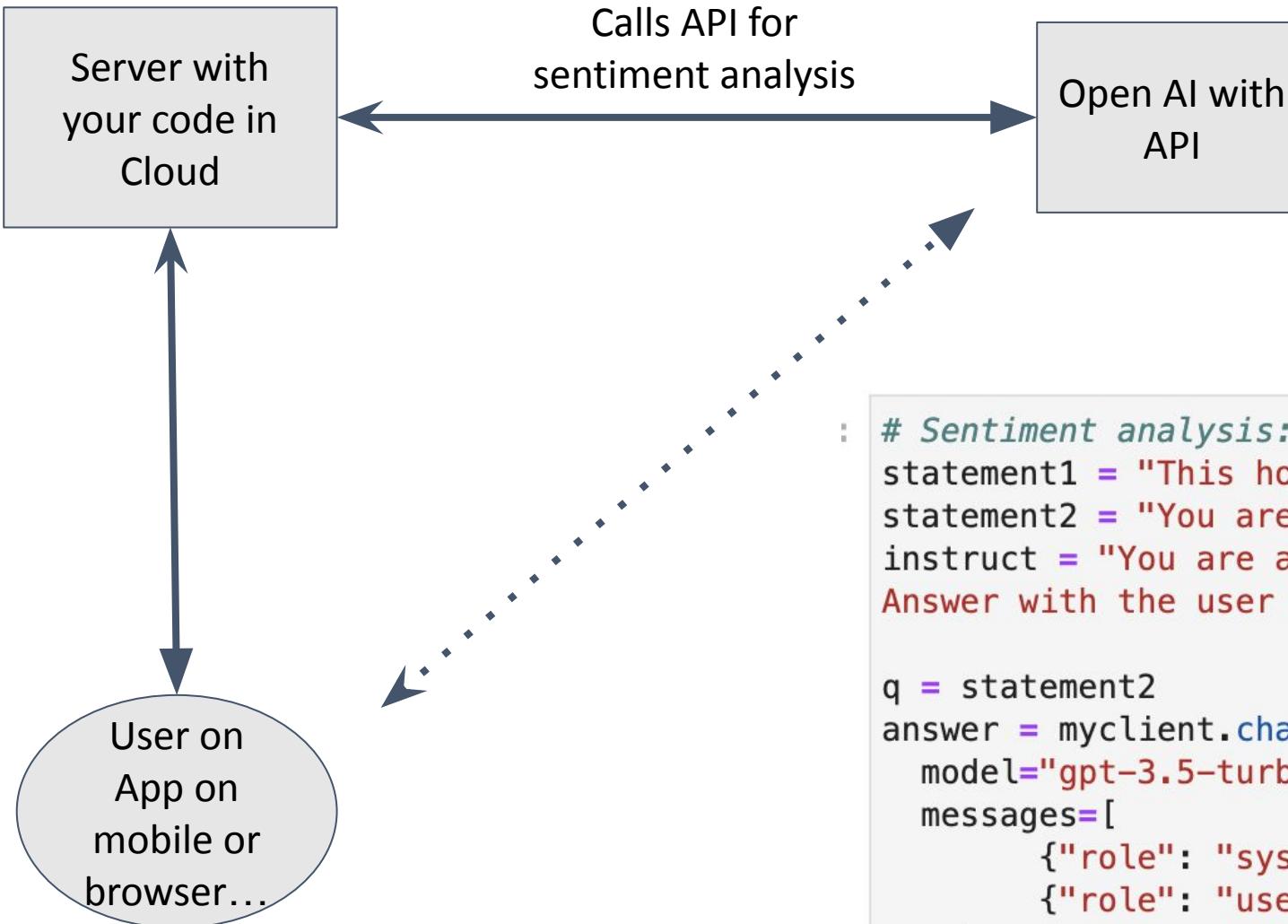
Below the code, a list of five investment products is shown:

1. Stocks – Ownership in a company, traded on exchanges.
2. Bonds – Loans to entities, paid back with interest.
3. Mutual Funds – Pooled investments in various assets.
4. ETFs – Similar to mutual funds, but trade like stocks.
5. Real Estate – Ownership or investment in physical property.

Why are AI Applications not yet widely adopted?

The long tail of AI applications will change due to low code and prompt-based development





Calls OpenAI with API

-
- sentiment
- recommendation
- AI services / prediction
- translation
- presentation layer
-

```

# Sentiment analysis:
statement1 = "This hotel is dirty"
statement2 = "You are very nice"
instruct = "You are a sentiment analyzer. \
Answer with the user sentiment with one lowercase word"

q = statement2
answer = myclient.chat.completions.create(
    model="gpt-3.5-turbo",
    messages=[
        {"role": "system", "content": instruct},
        {"role": "user", "content": q}
    ]
)
print(answer.choices[0].message.content)
positive

```

Tomorrow is Technical

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How to Prepare If you Are Tech Student:

1. Have a working development environment and jupyter notebook.. Install Anaconda.
<https://www.anaconda.com/download>
2. You can make a copy of these sample files at
<https://www.dropbox.com/scl/fo/sph77hgwvz0b1auds42vh/h?rlkey=xzh9qftrrvl8d4trymssiym3r&dl=0>
3. try to run the file called genai_getting_started.ipynb
To do that, you will have to:
pip install openai
from inside the notebook, try the following.
#!pip install openai --upgrade --force-reinstall
#!pip install openai
Note the '!' is a magic command to allow you to do it from the notebook. Don't use it from the shell

Next - Team Formation and Idea Generation

How to generate ideas

Your ideas - Make your 1 minute pitch.

- Who has the problem,
- What is the solution

Mixer - to form teams of 3-5 students each

Come back and make your 1 min pitch / per team

Developing Project Story

Gen AI Bootcamp

For Proposing New Projects and
Adapted Existing Projects

...

IKHLAQ SIDHU

Dean, Science & Technology, IE Madrid

Founding Faculty Director & Chief Scientist, SCET Berkeley



CONCEPT 1: AXB STORY GENERATION

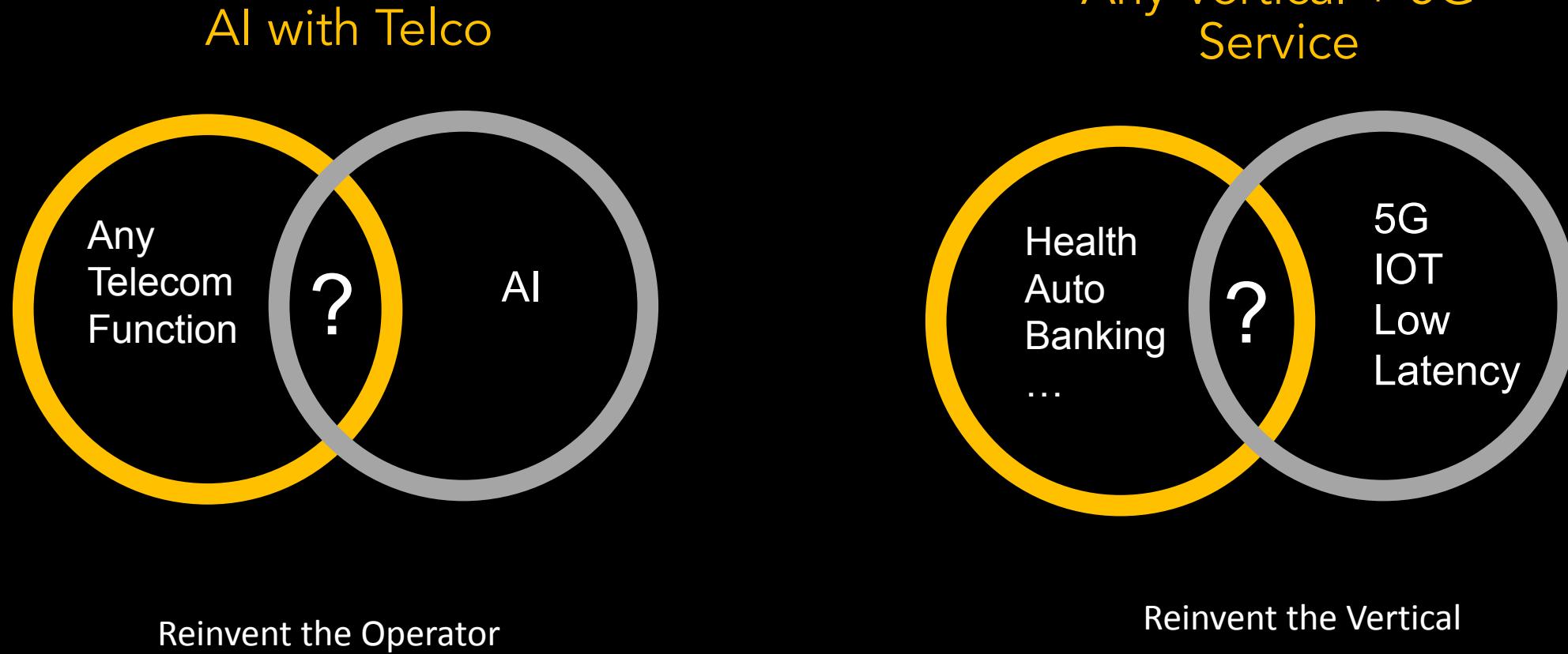


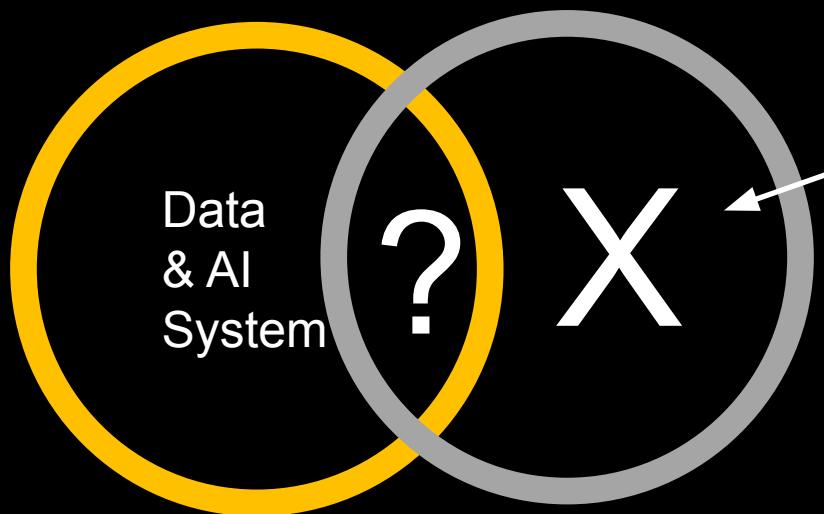
This is called a **high concept pitch**.
It works for company also.



- Trick: no one else is doing it already
- Gets a conversation started.

Story Generation – Telco Example





X =

- Any function within the firm
- Any existing project or new initiative
- Success examples from other firms

Reinvent or Adapt Something, but Use a Data or AI type of System

Summary of Concept Generation Approaches

AXB Story Generation

Ideal Customer Experience

Solving A Problem You Have Seen

Something that could be automated

Predicting something important

END OF SECTION

Ikhlaq Sidhu

Gen AI Bootcamp

Day 2

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Ikhlaq Sidhu

Dean & Professor
IE School of Science &
Technology

Welcome Back

We are now
starting day 2



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Now:

- One notebook. example.
Install of API, Calls to api,
image generation, and
more.
- Walk through example of AI
on Website
 - Show flask on computer
 - Via Pythonanywhere, show
from a server

Reference: For Tech Student:

1. Have a working development environment and jupyter notebook.. Install Anaconda.
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2. You can make a copy of these sample files at
<https://www.dropbox.com/scl/fo/sph77hgwvz0b1auds42vh/h?rlkey=xzh9qftrrvl8d4trymssiym3r&dl=0>
3. try to run the file called genai_getting_started.ipynb
Learn about Python OpenAI API. For reference, see
<https://platform.openai.com/docs/api-reference/introduction>

End of Section



How does this AI for Ikhlaq Sidhu application constructed?

Talk with my AI:

Question:
What is a photon?

AI:
A photon is a fundamental particle of light. It carries energy and has no mass.

<https://www.ikhlaqsidhu.net/>



Talk with my AI:

A screenshot of a web-based AI application. At the top, it says "Talk with my AI:". Below that is a large input field with a "Submit" button to its left. Under the input field, there is a section labeled "Question:" with the text "What is a photon?". At the bottom, there is a section labeled "AI:" with the text "A photon is a fundamental particle of light. It carries energy and has no mass."

How does this AI for Ikhlaq Sidhu application constructed?

Answer:

- Front page is a web page (WIX, Squarespace, ..) and has a webframe in it
- Server code is running Flask (to serve a web page which has an input and output box. The server is hosted at Pythonanywhere.
- The Server makes function calls to the OpenAI API



<https://www.ikhlaqsidhu.net/>

Dashboard of a Squarespace Account

Squarespace — Account Dashboard account.squarespace.com

Translate Keep Projects log Notion ChatGPT My Virtual Circle Studio 10 Tips to Leverage... To.Do

Dashboard Domains Help Account settings IS

Dashboard

CREATE WEBSITE

Ikhlaq Sidhu
www.ikhlaqsidhu.net
Website renews on Jul 16, 2024

WEBSITE DOMAINS

Innovation Engineering
www.innovationengineering.space
Website renews on Sep 14, 2024

WEBSITE DOMAINS

The screenshot shows the Squarespace Account Dashboard. At the top, there's a navigation bar with links like Translate, Keep, Projects, log, Notion, ChatGPT, My Virtual Circle, Studio, 10 Tips to Leverage..., To.Do, and a Help/Account settings button. Below the navigation is a header with 'Dashboard' and 'Domains'. On the right, there's a 'CREATE WEBSITE' button. The main area displays two website preview cards. The first card is for 'Ikhlaq Sidhu' with the URL 'www.ikhlaqsidhu.net'. It shows a bio about him as a Dean & Professor at IE University and a photo of him. The second card is for 'Innovation Engineering' with the URL 'www.innovationengineering.space'. It features a graphic with 'Technology' and 'Design' overlapping circles and a bar chart. Both cards have 'WEBSITE' and 'DOMAINS' buttons below them. The bottom of the dashboard has a footer with links for Services, About, Contact, and Applied Innovation Institute.

Squarespace Account

Edit Page

Ikhlaq Sidhu

yellow-mouse-sa9n.squarespace.com/config/

Home Page · Published

SAVE EXIT

+ ADD BLOCK

Dean and Professor, School of Science & Technology, IE, Madrid

- Academic, Author & Tech Entrepreneur
- Internationally Renowned Scientist and Inventor with over 60 patents
- Multiple Board & Advisor Roles

Ikhlaq Sidhu is Dean and Professor at the School of Science and Technology at IE University in Madrid, Spain, since 2022, and has been the founding faculty director of UC Berkeley's Sutardja Center for Entrepreneurship & Technology since 2005. He is the author of the book "Innovation Engineering." He co-developed the Berkeley Method of Entrepreneurship and created the ground-breaking Data-X Course at UC Berkeley. He has been a prolific researcher with seminal work in Internet communications, data, AI, and networks, with many awards and advisory roles.

EDIT SECTION

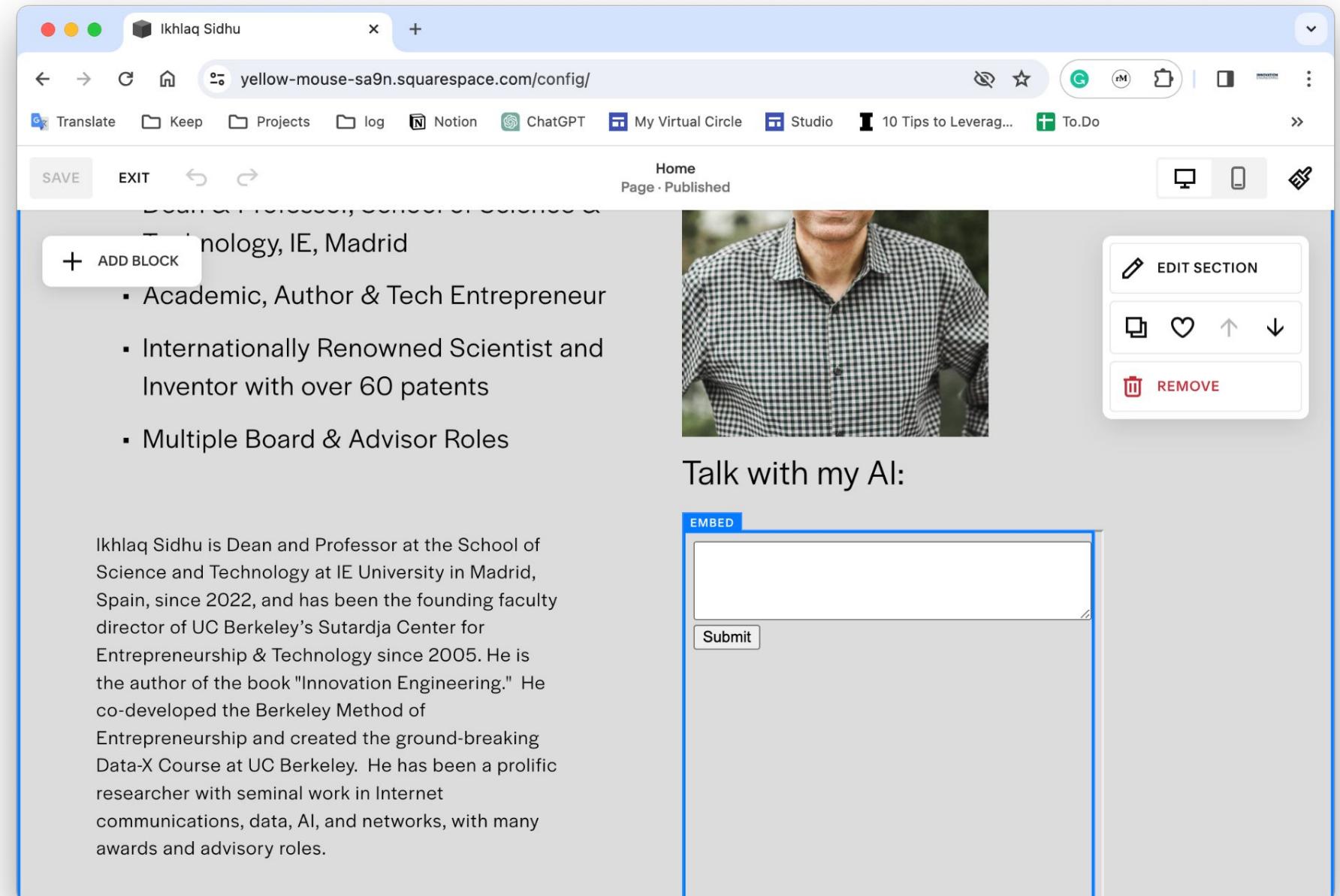
EDIT IMAGE

REMOVE

EMBED

Talk with my AI:

Submit



Squarespace Account

Edit Page

Ikhaq Sidhu

[yellow-mouse-sa9n.squarespace.com/config/](https://yellow-mouse-sa9n.squarespace.com/config)

Home Page · Published

Home

Ikhaq Sidhu

Ikhaq Sidhu

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Talk with my AI:

```
<iframe src="https://kp.in.eu.pythonanywhere.com/myai/ikhaq" width="360" height="360"></iframe>
```

BACK Embed data

Submit

Dropbox/code/AI_W... | AI Bootcamp - Goog... | 1.1b_min.GenAI_Wo... | Ikhlaq Sidhu | Dashboard : kpin : P... | +

eu.pythonanywhere.com/user/kpin/

Log Coding Keep Als Dashboard : kpin ... Karla.ToDo IS.iX.ToDo Amazon.es Netflix Trello Amazon.es: online...

Send feedback Forums Help Blog Account Log out

 pythonanywhere
by ANACONDA.

Dashboard Consoles Files Web Tasks Databases

Dashboard

Welcome, kpin

CPU Usage: 0% used – 0.00s of 2,000s. Resets in 23 hours, 13 minutes [More Info](#)

File storage: 1% full – 10.7 MB of your 1.0 GB quota [More Info](#) [Upgrade Account](#)

Recent Consoles View all	Recent Files Browse all files	Recent Notebooks Add new (Python 3.10)	All Web apps Open Web tab
You have no recent consoles.	/home/kpin/mysite/ ikhlaq.log /home/kpin/mysite/ bob.log /home/kpin/mysite/ wife.log /home/kpin/mysite/ flask_app.py /home/kpin/mysite/templates/ index.html	You have no recent notebooks.	kpin.eu.pythonanywhere.com

New console:
[\\$ Bash](#) [>>> Python](#) [More...](#)

<https://eu.pythonanywhere.com/user/kpin/webapps/> [+ Open another file](#)

Dropbox/code/AI_Work | AI Bootcamp - Google | 1.1b_min.GenAI_Works | Ikhhlaq Sidhu | Web app setup : kpin | +

eu.pythonanywhere.com/user/kpin/webapps/#tab_id_kpin_eu_pythonanywhere_com

Log Coding Keep Als Dashboard : kpin ... Karla.ToDo IS.IX.ToDo Amazon.es Netflix Trello Amazon.es: online...

 pythonanywhere by ANACONDA.

Dashboard Consoles Files Web Tasks Databases

kpin.eu.pythonanywhere.com [+ Add a new web app](#)

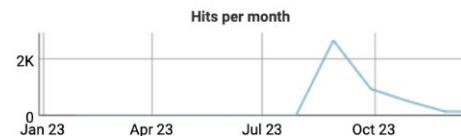
Configuration for kpin.eu.pythonanywhere.com

Reload: [↻ Reload kpin.eu.pythonanywhere.com](#)

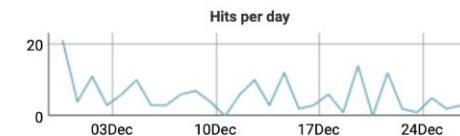
Traffic:

How busy is your site?

Hits per month



Hits per day



Hits per hour



Hits per minute



Code:

What your site is running.

Source code: </home/kpin/mysite> 

Working directory: </home/kpin/> 

WSGI configuration file: /var/www/kpin_eu_pythonanywhere_com_wsgi.py

Python version: 3.10 

<https://eu.pythonanywhere.com/user/kpin/files/home/kpin/mysite>



/home/kpin/mysite/flask_app.py

```
1 from flask import Flask, render_template, request
2 import os
3
4 import openai
5 openai.api_key = 'sk-GOZJDi35cF6880m7NbdAT3BlbkFJfKGWa0PDvDNKnZv4ADM'
6 openai.organization = "org-ijhusiXtGusr0tzMST7C4wGq"
7
8 app = Flask(__name__)
9
10
11 @app.route('/myai/<name>', methods=['GET', 'POST'])
12 def myai(name):
13     prompt = None
14     answer = None
15     ques = None
16     formalname = name
17     if ((name=='ikhlaq') or (name == 'Ikhlaq')): formalname = 'Ikhlaq Sidhu'
18
19     if request.method == 'POST':
20         ques = request.form['prompt']
21         #print (ques)
22
23         if ((name=='ikhlaq') or (name == 'Ikhlaq')):
24             # no memory
25
26             # r is for role
27             #rfile=open(name+".txt", "r")
28             #r = rfile.read()
29             #rfile.close()
30
31             r = """ Ikhlaq Sidhu is a scholar and dean of science and technology. His mindset is
32 positive for the following: technology, science, entrepreneurship, innovation,
33 self-reliance, good behaviors, data science, and AI.
34 Locations: he works in Madrid, and previously at UC Berkeley. His book is Innovation Engineering. He
35 His Bio: Ikhlaq Sidhu is Dean and Professor at the School of Science and Technology at IE
36 University in Madrid, Spain since 2022, and has been the founding faculty director of
37 UC Berkeley's Sutardja Center for Entrepreneurship & Technology since 2005.
38 Colleagues of Ikhlaq include Vice Dean Geoffroy Gerard, Executive Vice Dean Rafif Srour,
39 Vice Dean Guillermo De Haro.
40 Education: BSEE: University of Illinois, MS, Ph.D: Northwestern, Honorary Ph.D: Lund in Sweden
41 Hobbies: making AIs, travel, learning, coffee shops, and life in Madrid;
42 Fun fact: amazing sense of humor """
43
44     r = r + 'How will Ikhlaq Sidhu respond to this in less than 30 words: '
45
46     print (r+ques)
47
```

```
46     print (r+ques)
47
48
49
50     ans = openai.ChatCompletion.create(
51         model="gpt-3.5-turbo",
52         #temperature = 0.5,
53         messages=[
54             {"role": "user", "content": r + ques}
55         ]
56     )
57     answer = ans['choices'][0]['message']['content']
58
59     lfile = open("/home/kpin/mysite/ikhlaq.log", "a")
60     n = lfile.write("user: "+ ques+ '\n')
61     n = lfile.write(name + ": " + answer + '\n')
62     lfile.close()
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94
95
96
97
98     return render_template('index.html', prompt = prompt, answer = answer,
99
100        ques = ques, ainame = formalname)
```



Talk with my AI:

A screenshot of a web application interface. At the top, it says "Talk with my AI:". Below that is a large input field with a "Submit" button. Underneath the input field, there is a section labeled "Question:" with the text "What is a photon?". At the bottom, there is a section labeled "AI:" with the text "A photon is a fundamental particle of light. It carries energy and has no mass."

Summary of my AI Application on Web page

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End of Section



Ikhlaq Sidhu in Discussion with
Sam Altman, CEO OpenAI

Selected Introductory Comments:

- "The goal [of using ChatGPT] is to make every knowledge worker 10x productive."
- To developers: "We are working on speed, accuracy, and references."
- To entrepreneurs: "I'm the CEO, and ChatGPT is my CTO"
- "With AGI, the speed of change is the biggest issue."
- "Education: will be getting more powerful. The future tool will be a personal tutor. Educational institutions should lean in."

Full comment list:

https://www.linkedin.com/posts/ikhlaq_ai-scitech-innovation-activity-7066517557314301952-Nfh3?utm_source=share&utm_medium=member_desktop