

Generative AI and Social Media



Tauhid Zaman

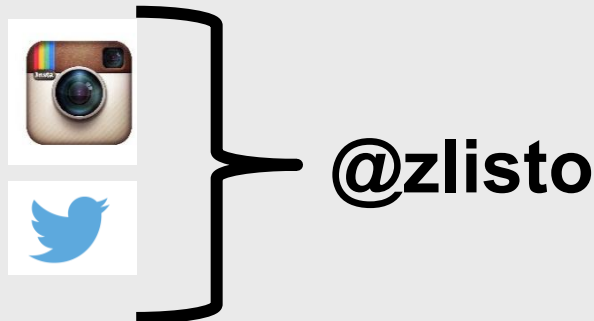
Generative AI and Social Media

- **Learn to use generative AI tools**
 - For analyzing and creating social media data
 - For building social media related web applications
- **No coding experience required**
 - AI does most of the work for us
- **Lectures**
 - 1.00-4:30
 - Room: 4420



Bio - Tauhid Zaman

- Associate Professor in the Operations Management Group (OMG) at Yale SOM
- BS, MEng, PhD in Electrical Engineering and Computer Science from MIT
- Research: Social media analytics, generative AI, cryptocurrency, sports analytics
- Email: tauhid.zaman@yale.edu

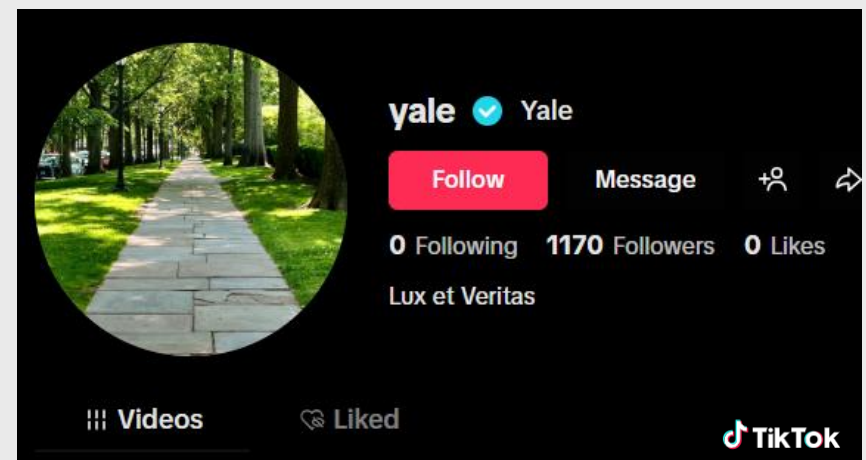
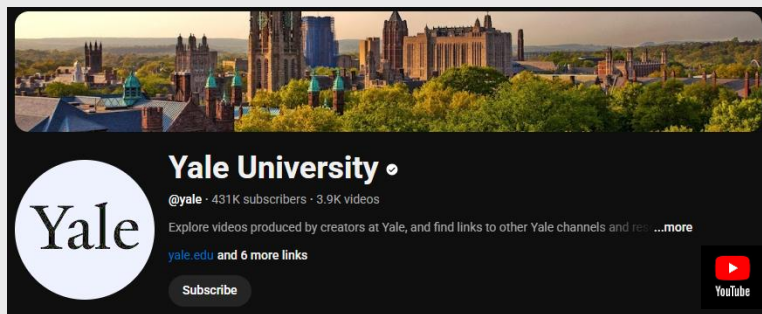


Course Info

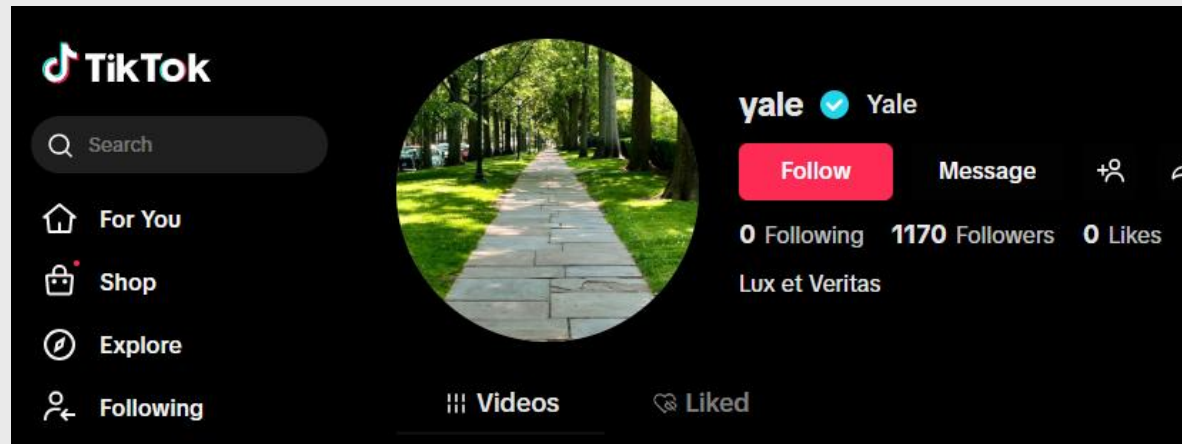
- **Course website:**
https://zlisto.github.io/genAI_social_media/
- **Instructor**
 - Tauhid Zaman, tauhid.zaman@yale.edu
- **Teaching Assistants**
 - Yen-Shao Chen, yen-shao.chen@yale.edu
 - Sadiq Shamji, sadiq.shamji@yale.edu



What Can We Do With Generative AI + Social Media?



TikTok Accounts



Learning About an Audience

Search engines



What you need



Social media



What you like



Learning About an Audience

AI Agents



What you feel



AI Ads


ChatGPT is now doing what Sam Altman called a 'last resort' only two years ago


After vowing not to, OpenAI's CEO is forced to backtrack

By [Jules Rimmer](#) [Follow](#)


Last Updated: Jan. 20, 2026 at 3:17 a.m. ET

First Published: Jan. 19, 2026 at 6:52 a.m. ET

 Share


 Resize


 9

 Listen (4 min)



Our approach to advertising and expanding access to ChatGPT

 Listen to article | 4:36

 Share

AI is reaching a point where everyone can have a personal super-assistant that helps them learn and do almost anything. Who gets access to that level of intelligence will shape whether AI expands opportunity or reinforces the same divides.

We've been working to make powerful AI accessible to everyone through our free product and low-cost subscription tier, ChatGPT Go, which has launched in 171 countries since August. Today we're bringing Go to the U.S. and everywhere ChatGPT is available, giving people expanded access to messaging, image creation, file uploads and memory for \$8 USD/month. In the coming weeks, we're also planning to start testing ads in the U.S. for the free and Go tiers, so more people can benefit from our tools with fewer usage limits or without having to pay. Plus, Pro, Business, and Enterprise subscriptions will not include ads.



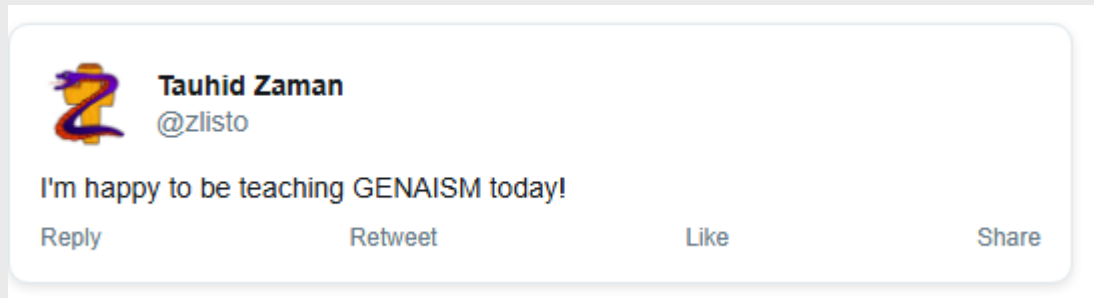
Analyzing Social Media Data with AI

- **Measure sentiment**
- **Community detection**
- **Image analysis**



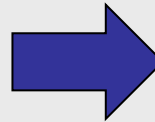
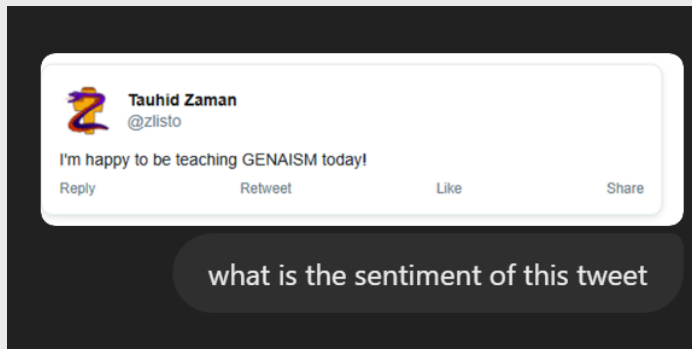
Measuring Sentiment

- Old way: train a model that looks for happy or sad words in text



Measuring Sentiment with AI

- New way: ask AI



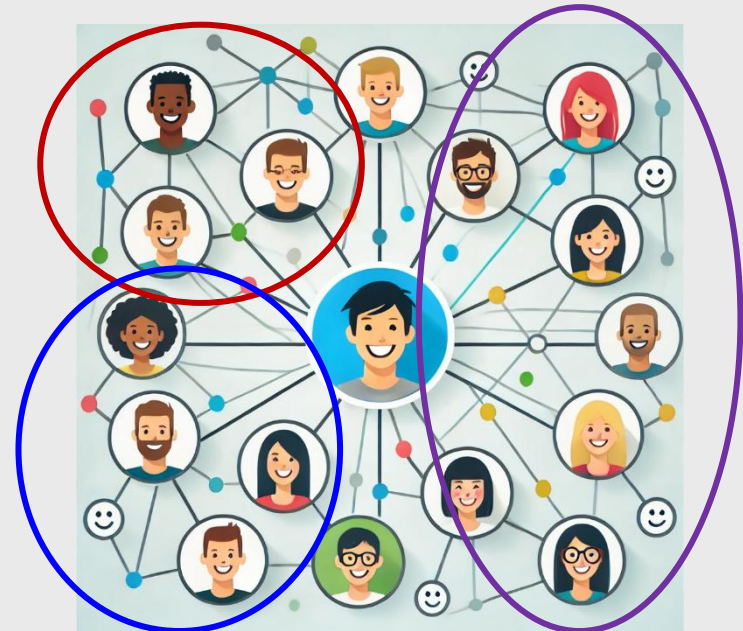
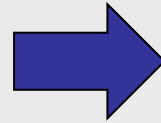
Sentiment Analysis:

- **Polarity:** 1.0 (Positive sentiment)
- **Subjectivity:** 1.0 (Completely subjective)

The sentiment is highly positive, reflecting happiness and enthusiasm. [:-]

Community Detection

- Old way: use network structure and machine learning algorithms



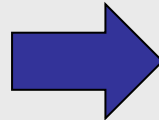
Community Detection with AI

- New way: ask AI

TwFollow Joe Biden Following

	name	username	userId
1	President Biden	POTUS	'1349149363'
2	The White House	WhiteHouse	'1323730784'

Put these people into communities based on their twitter bios

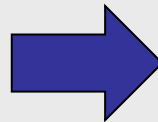
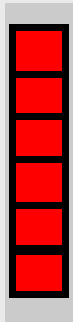
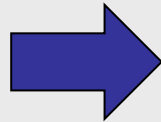


Social Network Communities

Name	Community
Alex	Friends from Work
Sophia	Friends from Work
James	College Friends
Emma	College Friends
Liam	Neighborhood
Olivia	Neighborhood
Noah	Family
Ava	Family
William	Online Friends
Isabella	Online Friends

Image Analysis

- Old way: train a classifier on labeled images



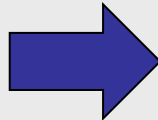
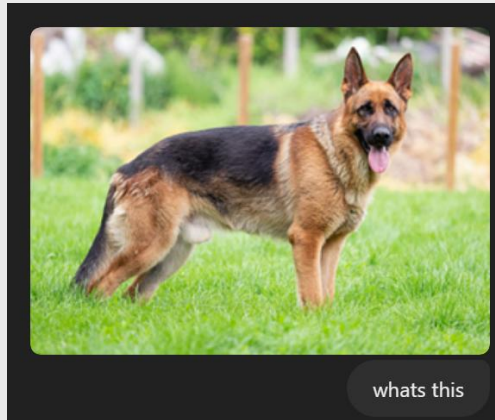
What is this a picture of?

- ☒ Dog
- ☐ Cat
- ☐ Plane



Image Analysis with AI

- New way: ask AI



This image appears to show a German Shepherd dog. Let me know if you need further details or analysis!



Creating Social Media Content with AI

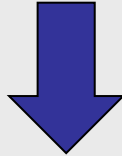
- **Text content**
- **Image content**
- **Audio content**
- **Video content**



Text Content

Tweet

write a tweet about how hyped i am to be teaching Generative AI and Social Media (GENAISM) and put in a funny joke about Elon Musk.



Tauhid Zaman
@zlisto

Super hyped to be teaching Generative AI and Social Media (GENAISM)! 🚀 If this goes well, I might just rebrand myself as 'Professor X.AI' and wait for Elon Musk to send me a cease-and-desist. 🤪 #GENAISM #AI

Reply

Retweet

Like

Share

Image Caption



write a funny tweet about this image and put in a funny joke about Elon Musk



Tauhid Zaman
@zlisto

Breaking: Elon Musk unveils the next-gen Tesla DogBot. It doesn't fetch, but it might tweet back at you. Beta testing begins in your backyard. 🐕🤖 #DogeCoin #Innovation

Reply

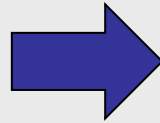
Retweet

Like

Share

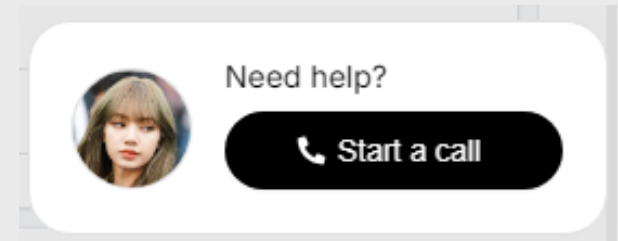
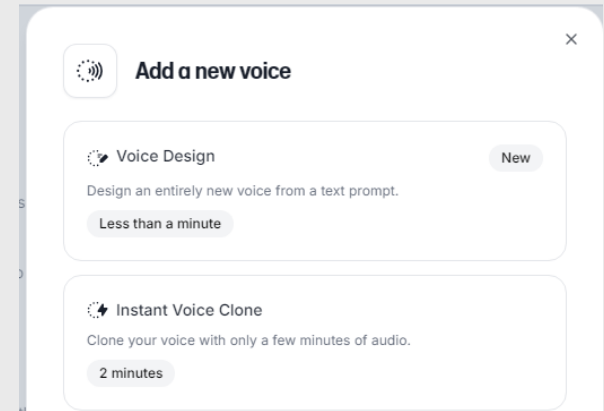
Image Content

draw a catchy Instagram image for this tweet:
Breaking: Elon Musk unveils the next-gen Tesla
DogBot. It doesn't fetch, but it might tweet
back at you. Beta testing begins in your
backyard. 🐕🤖 #DogeCoin #Innovation



Audio Content

- **AI can easily convert text to speech**
- **AI can also clone someone's voice**
 - **ElevenLabs**
- **Allows us to make narrations for videos**
- **Allows us to make human sounding, intelligent conversational agents**



Video Content

- **AI video generation from an idea: Gemini**

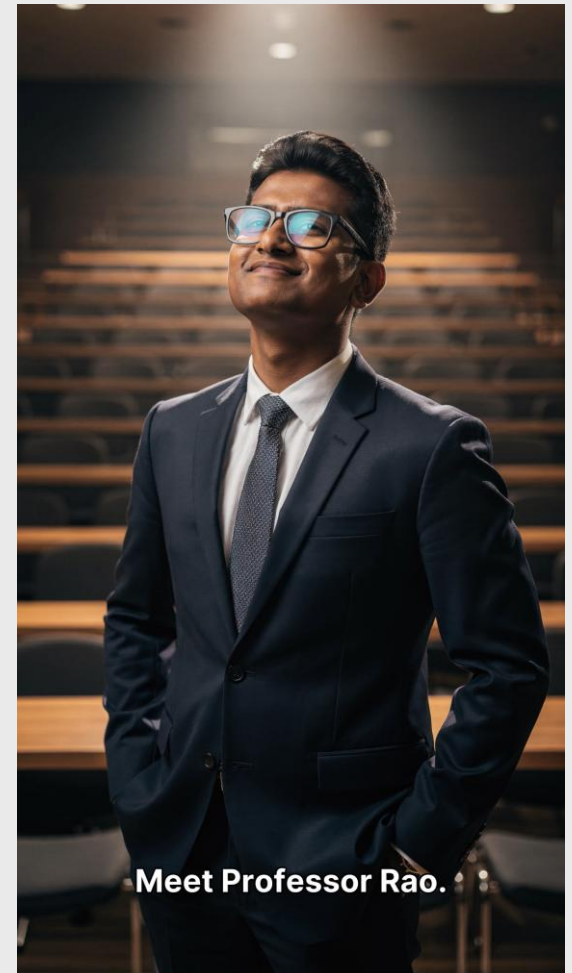
write me a video script (scene and narration) for a video telling people to study at Yale SOM because our mascot is a cool bulldog



Video Content

- **AI video generation from an idea: HeyGen**

create a short video about a professor who uses an AI assistant for his teaching, lecturing, and grading and he is so cocky about it, and then he gets fired because the AI assistant is better than him. the AI assistant is the Lisa avatar provided. this is meant to be a humorous video. in the scene where the professor is told he is fired, play sad trombones. the professor wears a suit and thick glasses and is very nerdy and south asian and has very short hair



Meet Professor Rao.



Building Apps with AI



Building Web Apps with AI

- **Course teaches you how to build web applications for social media**
- **To build a web app you need to know**
 - **HTML**
 - **JavaScript**
 - **Python**
 - **SQL**
- **In the old days you'd hire a team of software developers to build your app for you**
 - **And pay them a lot**

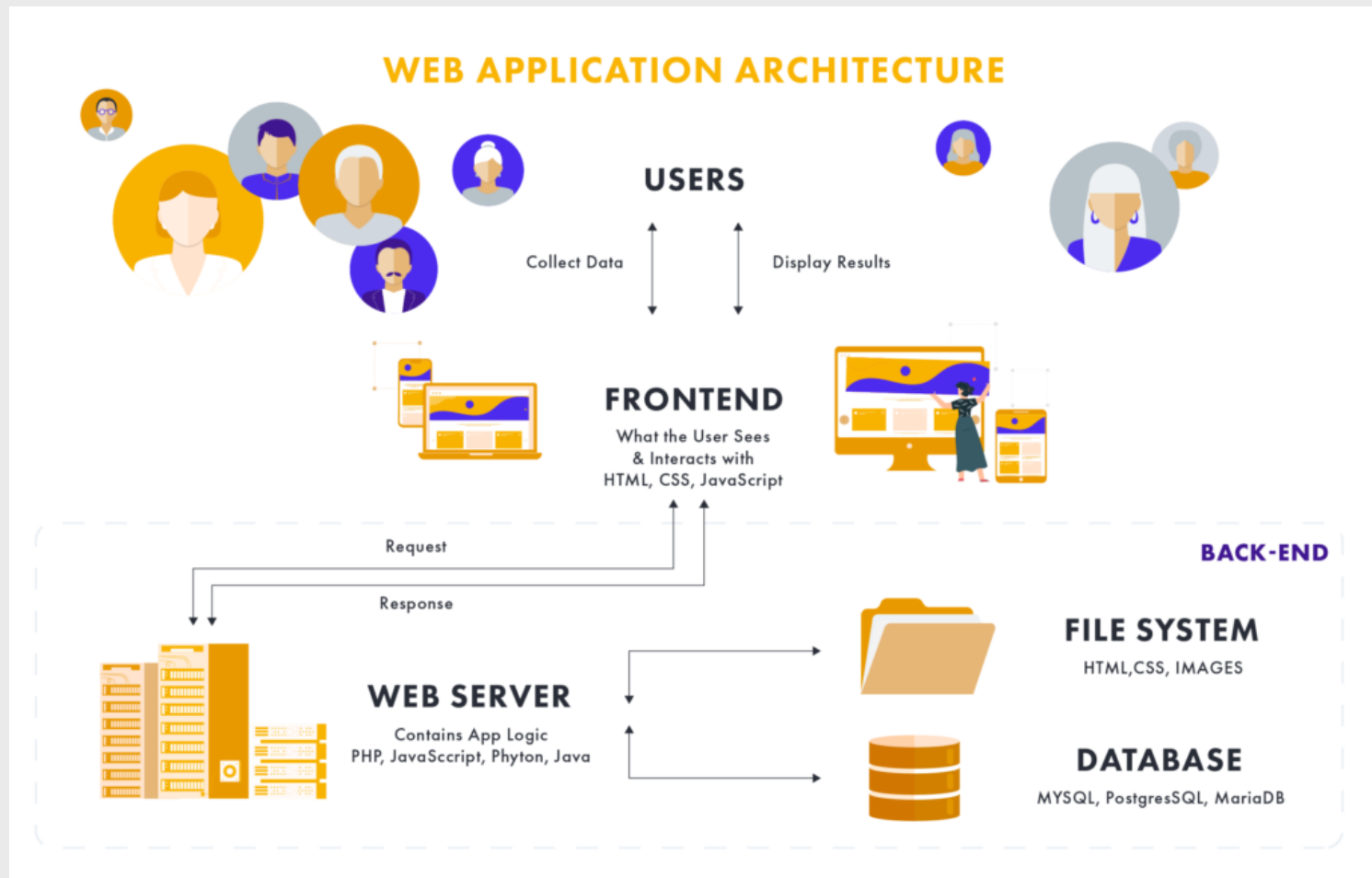


Building Web Apps with AI

- **With AI you build a web app by yourself with very little training**
 - Vibe coding – coding by telling the AI the vibe of what you want to make
- **Once you have the basics down, you can make some very creative and cool apps**
- **Some examples**
 - Twitter behavioral analyst
 - Photoblog writer
 - Video narration generator
 - Reel maker
 - And many more ...



App Structure



Types of Apps

- **Web apps**
 - Run in a web browser
 - Written in HTML, CSS, Javascript, Python
 - Built with frameworks like Streamlit or Flask
 - We will build web apps in this class because they are simple and easy to deploy
- **Mobile apps**
 - Run on a mobile phone
 - Written in Swift (iOS) or Kotlin (Android)
 - Frameworks like React Native or Flutter
 - Require more work to deploy, but not too hard with AI once you have a web version working



Web App Frameworks

- **Web app framework - a pre-built collection of tools, libraries, and structure that simplifies the development of web applications.**
- **Allow one to handle common tasks**
 - **Routing (e.g., URLs directing to different pages)**
 - **Handling user requests (e.g., submitting forms, clicking buttons)**
 - **Interacting with databases (e.g., storing user data)**
 - **Rendering front-end elements (e.g., displaying content on the webpage)**
- **Why use a framework?**
 - **Saves time – no need to build everything from scratch**
 - **Handles complex tasks – security, authentication, etc.**
 - **AI knows how to use it**



Python Based Web App Frameworks

- We will be using Python based frameworks to build web apps in class



Streamlit



- **Pros**
 - Easy to get started
 - No need to write frontend code (everything is Python)
 - Default front end looks good
- **Cons**
 - Not flexible
 - Front end appearance is a pain to edit
- **This week we will use Streamlit to get started**



Example Streamlit App

Twitter User Analysis Dashboard

Upload a CSV file with tweets



Drag and drop file here

Limit 200MB per file • CSV

Browse files



TwExportly_Cobratate_tweets_2024_04_19.csv 330.9KB



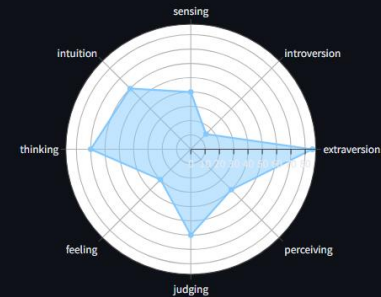
✓ Analyzing tweets... 🔄

✓ Analyzing personality... 🔄

Topics

topic	summary
Wealth and Personal Responsibility	The user emphasizes the importance of personal effort and responsibility in achieving wealth and success. They argue against complacency and stress that individuals should not rely on external circumstances or blame but take charge of their lives. Wealth is framed as not just a material possession but an avenue for freedom and influence in one's life.
Critique of Modern Society and Institutions	There are strong criticisms of various aspects of modern society, including government actions, media manipulations, and sociocultural norms that are seen as detrimental to true progress. The user believes that significant issues like inflation, societal collapse, and the erosion of traditional values stem from the failure of 'Western democracy' and the influence of 'The Matrix' (a metaphor for systemic societal control).
Charity and Community Support	The user frequently mentions charitable activities and the importance of helping those in need. They express a strong commitment to philanthropy and view it as a responsibility of successful individuals. This is framed as a way to not only aid the less fortunate but also to reflect one's character and values in the community.

Personality Traits Radar Plot



Persona Chat



11:15:38: hey whats up



Hey, it's Andrew. Just living the life, focusing on turning ambitions into reality. What about you?



11:15:58: tell me about the Matrix



✓ AI is thinking... 🤖💬



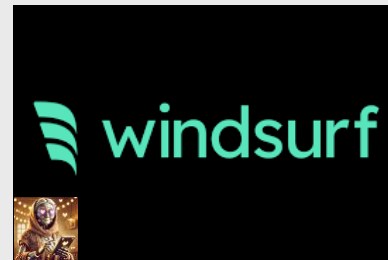
11:16:03: The Matrix is all about the system that keeps most people blind to the truth. It's the societal constructs, the lies we're fed that keep us in a state of complacency. Most people are

Type your message...



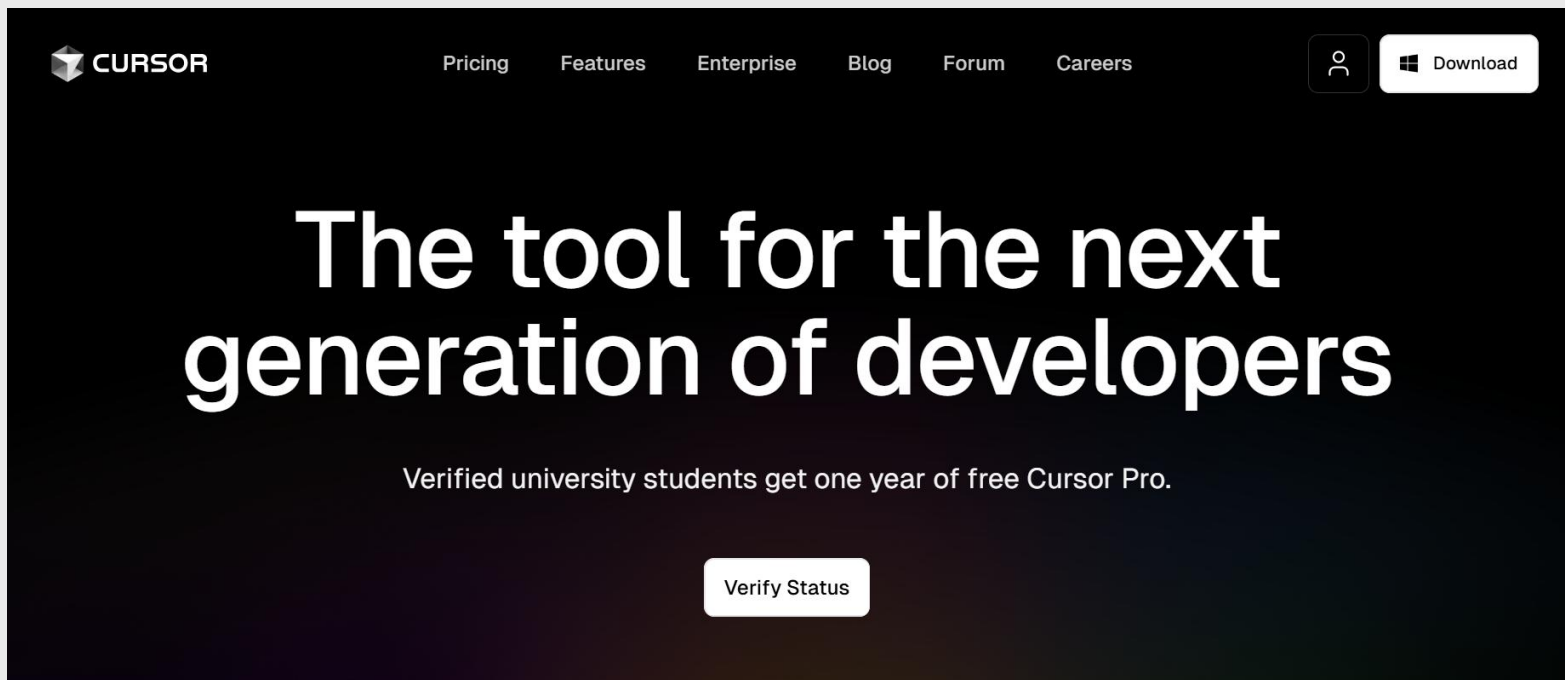
App Maker, App Maker, Make Me an App

- Today there are many AI-powered app makers
 - Require (almost) zero coding knowledge
 - Cost money \$\$\$ (minimum \$20 per month, but can go higher depending on use)
 - Provide an AI agent you tell what app to build, and it builds it, fixes errors, and lets you test it
- These app makers are basically an LLM inside a nice wrapper



Cursor

- **We will build apps in Cursor**
 - **Used to be free for students for one year (need a .edu email address)**



Cursor Growth

**Cursor Secures \$2.3B Series D at
\$29.3B Valuation**



Cursor Founder



Before He Founded Cursor



Cursor Interface

The image shows the Cursor IDE interface with the following components:

- File directory:** Located on the left, it shows a project structure with files like `corr_trade_simulator.py`, `corr_trading.ipynb`, and `DataDownload.ipynb`.
- Code editor:** The central area displays the `corr_trade_simulator.py` file. It contains a `CorrTraderSimulator` class with methods `compute_tstat` and `compute_df_tstat`. The `compute_tstat` method calculates rolling t-statistics for a given asset and window size.
- Terminal:** At the bottom, it shows the output of the program, including data loading and trading simulation details for the period 2025-04-10 to 2025-06-28.
- AI Chat:** On the right, the AI Chat window is open, showing a conversation with the AI agent. It includes a prompt to "Plan, search, build anything" and a response from the AI agent.

Code editor

```
class CorrTraderSimulator:
    def compute_tstat(self, r: pd.Series, window: int) -> pd.Series:
        Returns:
            pd.Series: Rolling t-statistics for the asset

        Note:
            The t-statistic is computed as: t = (mean / sigma) * sqrt(window)
            where sigma is estimated using the interquartile range method
        """
        p = 0.25
        z = 1.349
        mu = r.rolling(window).mean()
        qlow = r.rolling(window).quantile(p)
        qhigh = r.rolling(window).quantile(1-p)
        sigma = (qhigh - qlow) / z
        epsilon = 1e-6
        tstat = mu / (sigma + epsilon) * np.sqrt(window)
        return tstat.fillna(0)

    def compute_df_tstat(self, window: int) -> pd.DataFrame:
```

Terminal

```
Data loaded from 2025-04-10 to 2025-06-28
Data contains 1898 hours and 428 pairs
Trading from 2025-04-10 to 2025-06-28
Trading from 2025-04-10 05:00:00 to 2025-06-28 00:00:00
Data loaded from 2025-04-10 to 2025-06-28
Data contains 1898 hours and 428 pairs
Trading from 2025-04-10 to 2025-06-28
Trading from 2025-04-10 05:00:00 to 2025-06-28 00:00:00
```

AI Chat

```
> 1 file +174 -61
corr_trade_simulator.py +174 -61 ✓

@ corr_trade_simulator.py
Plan, search, build anything

Agent Ctrl+I ^ Auto ^
```

Cursor Installation

- **Steps for setting up Cursor for making Python based apps**
 1. **Sign up for Cursor with your .edu email address**
 2. **Download and install Cursor**
 3. **Download and install Python**
 4. **Connect Cursor to Python- Cursor needs to know where your Python is on your computer**
- **Detailed instructions on course website on [Instructions](#) page and on this [YouTube video](#)**



Vibe Coding

- **App prompt - basic idea and flow of app**
 - Text
 - Image
- **App code – written by an AI**
 - Right now I like Gemini
 - Claude is also good
 - Or do it right inside Cursor
- **Run app**
 - Run it yourself from the terminal
 - Tell Cursor to run it for you



COURSE LOGISTICS



Grading

- **Grading:**
 - **Homework Assignments: 40%**
 - **Final Project Report: 60%**



Homework Assignments

- Weekly homework assignments (usually)
- Homework submissions are generally Python code files (.py)
- Should be completed **individually** (AI-maxing is encouraged)
- Late homework will not be accepted (unless AASL approves it) so don't bother asking



Final Project

- **Topic – Something that involves the novel analysis or creation of social media data**
- **Examples**
 - Build a web app that creates virtual podcasts between celebrities on a topic of your choice
- **Teams must be formed by February 14th**
- **Topics chosen by March 24th (after break)**
- **Final presentation during last days of class**
- **Final report due on last day of class**



Final Project Teams

1 person



2 people



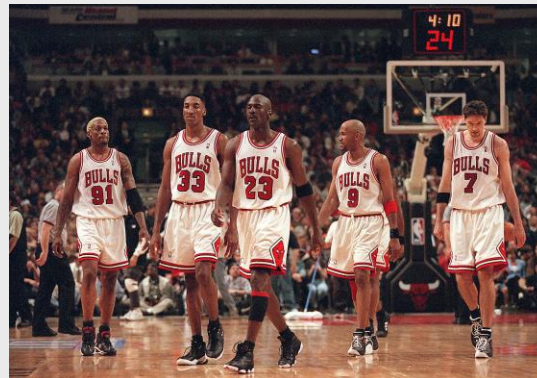
3 people



4 people



5 people



6 people



Next Class: Coding Session

- We will build an app to measure complex tweet sentiment with AI

You will be given a sentence and must grade its Ekman's Six Basic Emotions from 0 to 100: Return a table of the scores and explanation why: I hate my job

Here is an analysis of the sentence "I hate my job," graded on Ekman's Six Basic Emotions (Anger, Fear, Joy, Sadness, Disgust, and Surprise), along with explanations for each score:

Emotion	Score (0-100)	Explanation
Anger	85	The word "hate" conveys strong negative feelings and frustration, indicating anger.
Fear	40	The sentiment may imply fear of being stuck in an undesirable situation or uncertainty about the future.
Joy	0	The sentence expresses no happiness or positivity, as "hate" and "job" in this context are negative.
Sadness	75	The phrase suggests unhappiness, disappointment, or distress about the situation.
Disgust	90	The word "hate" evokes a sense of aversion or repulsion, strongly tied to disgust.
Surprise	10	There is little indication of surprise in the sentence, as it reflects ongoing dissatisfaction.



Before Next Class

- Install Cursor and Python (instructions in YouTube video or course website)
- Get ready to vibe code

