

# Generative AI and Social Media



Tauhid Zaman

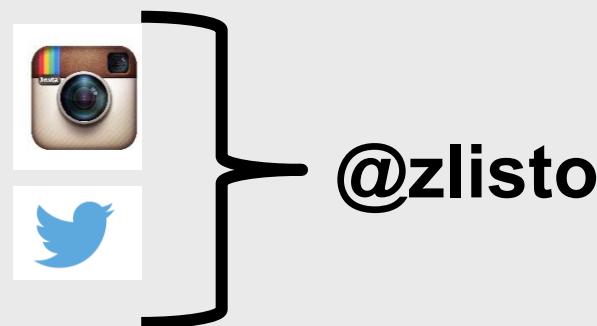
# **Generative AI and Social Media**

- **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](mailto:tauhid.zaman@yale.edu)

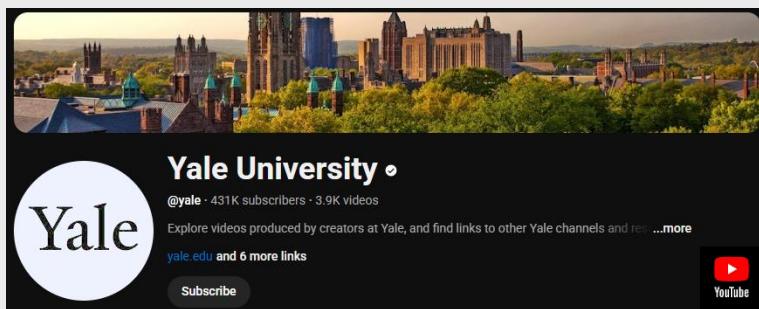


# Course Info

- Course website:  
[https://zlisto.github.io/genAI\\_social\\_media/](https://zlisto.github.io/genAI_social_media/)
- Instructor
  - Tauhid Zaman, [tauhid.zaman@yale.edu](mailto:tauhid.zaman@yale.edu)
- Teaching Assistants
  - Yen-Shao Chen, [yen-shao.chen@yale.edu](mailto:yen-shao.chen@yale.edu)
  - Sadiq Shamji, [sadiq.shamji@yale.edu](mailto:sadiq.shamji@yale.edu)



# What Can We Do With Generative AI + Social Media?



# TikTok Accounts



A screenshot of a TikTok profile for Yale University. The profile picture shows a paved path lined with trees. The account name is "yale" with a blue checkmark, followed by "Yale". Below the name, it says "0 Following", "1170 Followers", and "0 Likes". The bio reads "Lux et Veritas". The TikTok interface includes a search bar, navigation links for "For You", "Shop", "Explore", and "Following", as well as tabs for "Videos" and "Liked".



A screenshot of a TikTok profile for Harvard University. The profile picture is the Harvard crest. The account name is "harvard" with a blue checkmark, followed by "Harvard". Below the name, it says "48 Following", "805.8K Followers", and "4.4M Likes". The bio reads "Official account of Harvard University. Devoted to teaching, learning & research" and includes a link "[www.harvard.edu/comment-p...](http://www.harvard.edu/comment-p...)". The TikTok interface includes a search bar, navigation links for "For You", "Shop", "Explore", as well as tabs for "Videos" and "Liked".



# Learning About an Audience

Search engines



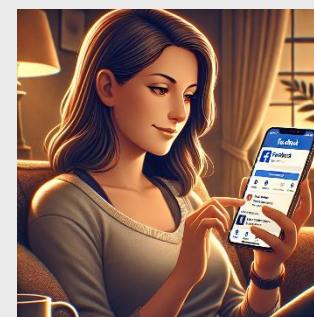
What you need



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)

⋮

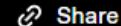


# Our approach to advertising and expanding access to ChatGPT



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.



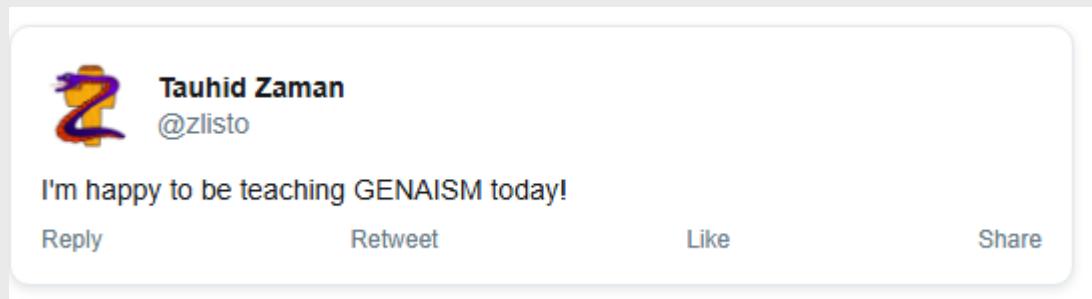
# Analyzing Social Media Data with AI

- 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

Tauhid Zaman  
@zlisto

I'm happy to be teaching GENAIM today!

Reply      Retweet      Like      Share

what is the sentiment of this tweet

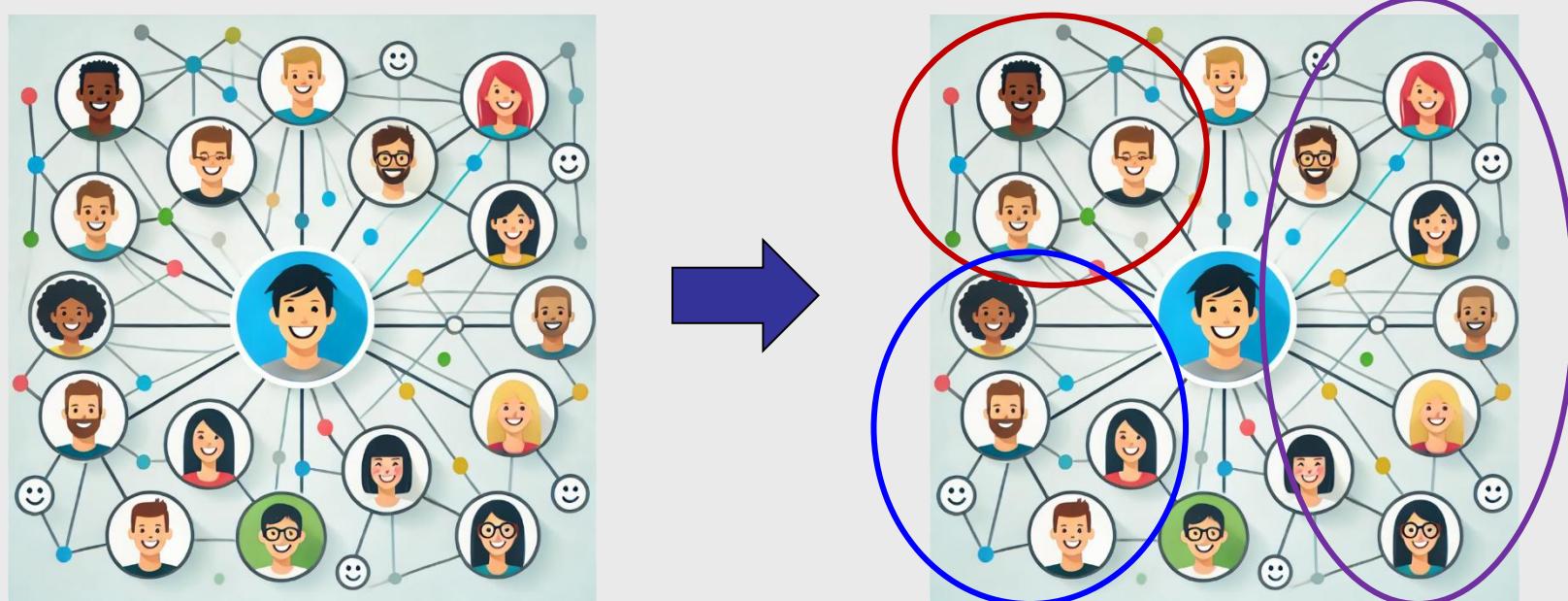
## Sentiment Analysis:

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

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

# Community Detection

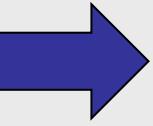
- Old way: use network structure and machine learning algorithms



# 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'

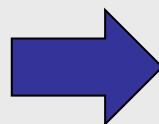
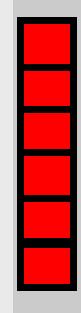
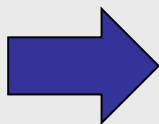
 ⚡ Put these people into communities based on their twitter bios

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

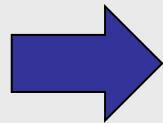


What is this a picture of?

- 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**

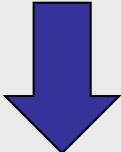
- **Text content**
- **Image content**
- **Audio content**
- **Video content**



# 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

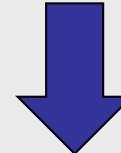
Super hyped to be teaching Generative AI and Social Media (GENAISM)! 🚀 If this goes well, I might just rebrand myself as 'Professor X.AI' and wait for Elon Musk to send me a cease-and-desist. 😅 #GENAISM #AI

[Reply](#)   [Retweet](#)   [Like](#)   [Share](#)

## Image Caption



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





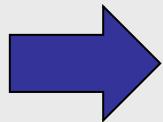
Tauhid Zaman  
@zlisto

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](#)

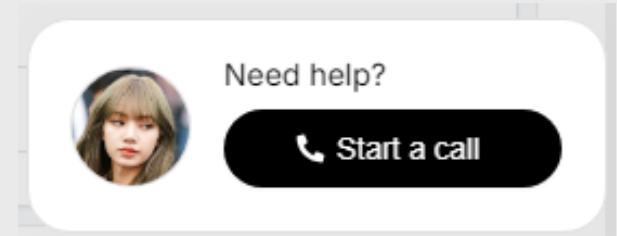
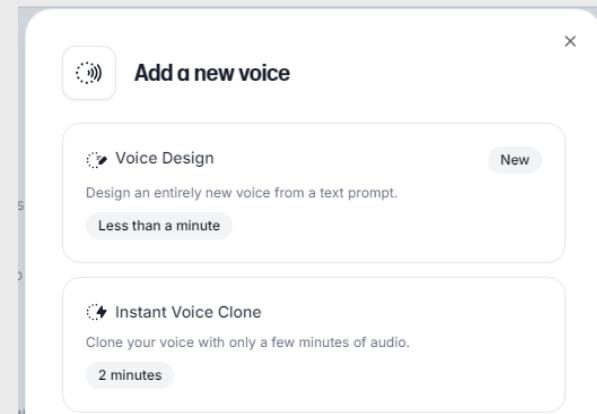
# Image Content

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

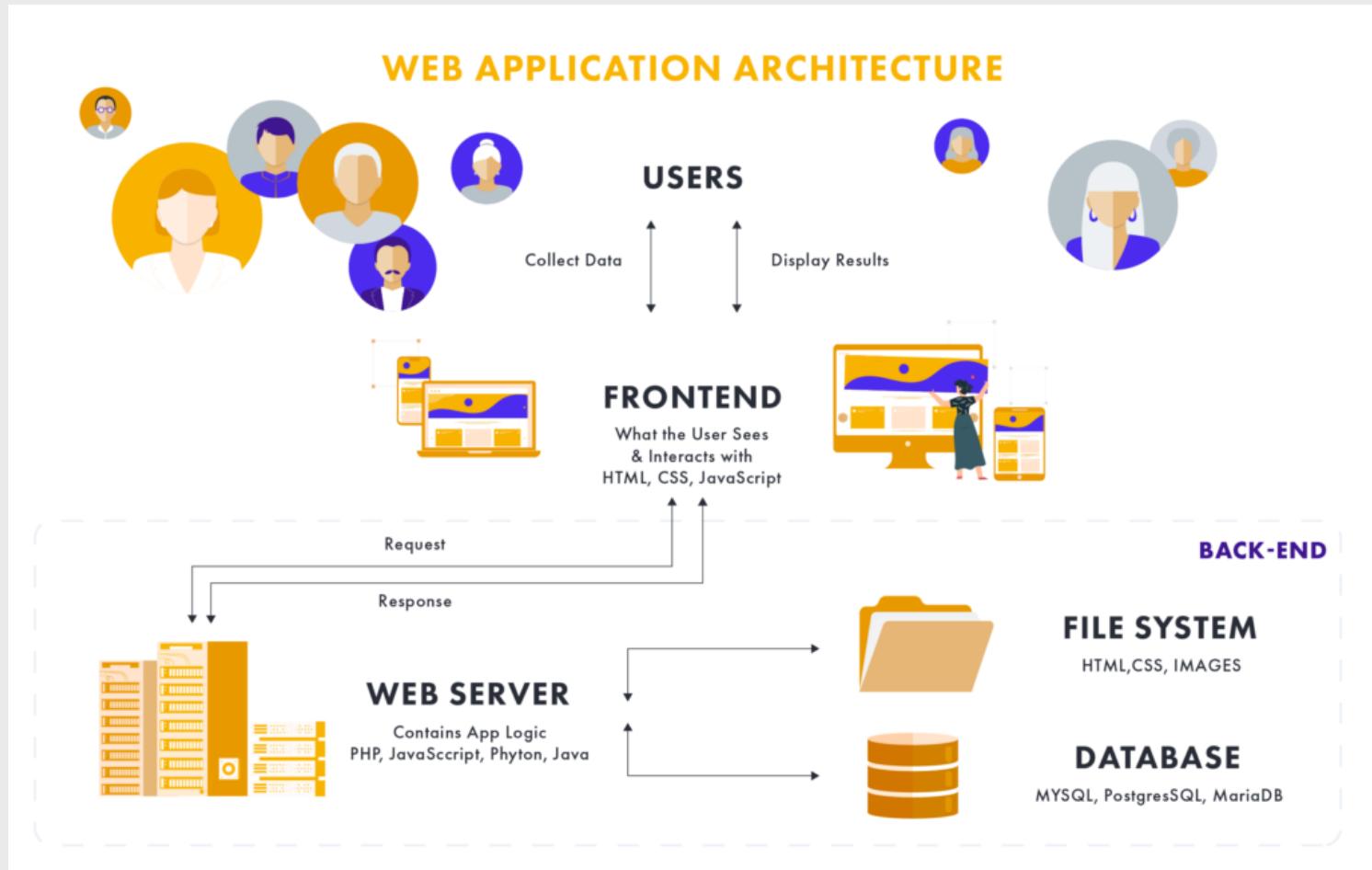


# **Building Web Apps with AI**

- **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**

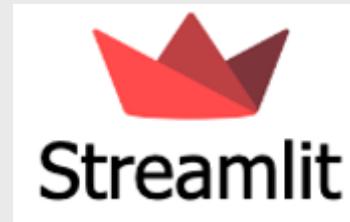


# Python Based Web App Frameworks

- 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

X

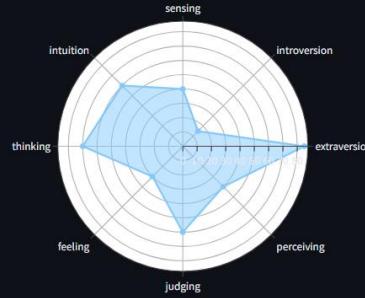
✓ Analyzing tweets... 🐦

✓ 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)

The screenshot shows the Cursor website homepage with a dark background. At the top, there is a navigation bar with links for Pricing, Features, Enterprise, Blog, Forum, and Careers. To the right of the navigation bar are two buttons: a user icon and a "Download" button for Windows. The main headline reads "The tool for the next generation of developers" in large white font. Below the headline, a subtext states "Verified university students get one year of free Cursor Pro." At the bottom center is a "Verify Status" button.

CURSOR

Pricing   Features   Enterprise   Blog   Forum   Careers

Download

The tool for the next generation of developers

Verified university students get one year of free Cursor Pro.

Verify Status



# **Cursor Growth**

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



# Cursor Founder

**Michael Truell**  

@mntruell

@cursor\_ai CEO

 [mntruell.com](http://mntruell.com)  Joined August 2014

**719** Following   **25.7K** Followers   **1** Subscription

 Followed by Todd Mostak, clem 😊, and 4 others you follow



# Before He Founded Cursor

Undergrad Interested in Your Research

Inbox ✎

◆ Summarize this email

 Michael Truell <truellm@mit.edu> Wed, Oct 17, 2018, 5:03 AM      
to zlisto ▾

Hello Dr. Zaman,

I am an undergrad studying 6-2 and 18. I'd be interested in talking with you about your research in Daily Fantasy Sports and potential UROP opportunities.

Would you be free to meet sometime this Friday or next week? My afternoons (after 3pm) are often free.

Best,  
Michael Truell



# Cursor Interface

`File`  
`update_sells.py`  
`directory`

# Code editor

# Terminal

## AI Chat

```
corr_trade_simulator.py > CorrTraderSimulator > __init__  
11     class CorrTraderSimulator:  
12         def compute_tstat(self, r: pd.Series, window: int) -> pd.Series:  
13             """  
14                 Returns:  
15                     pd.Series: Rolling t-statistics for the asset  
16  
17                 Note:  
18                     The t-statistic is computed as:  $t = (\text{mean} / \sigma) * \sqrt{\text{window}}$   
19                     where  $\sigma$  is estimated using the interquartile range method  
20             """  
21             p= 0.25  
22             z = 1.349  
23             mu = r.rolling(window).mean()  
24             qlow = r.rolling(window).quantile(p)  
25             qhigh = r.rolling(window).quantile(1-p)  
26             sigma = (qhigh - qlow) / z  
27             epsilon=1e-6  
28             tstat = mu / (sigma + epsilon) * np.sqrt(window)  
29             return tstat.fillna(0)  
30  
31     def compute_df_tstat(self, window: int) -> pd.DataFrame:  
32         """  
33             Returns:  
34                 pd.DataFrame: Rolling t-statistics for all assets in the portfolio  
35         """  
36         pass
```

```
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
[]
```

**Add docstrings to my code** + ⌂ ⓘ ⋮ x

Run

```
> ...wershell
```

```
# List running Python processes
Get-Process python*
```

```
# Kill specific Python process by ID
Stop-Process -Id <process_id>
```

```
# Kill all Python processes
Get-Process python* | Stop-Process -Force
```

## For your specific case:

Since you're running a trading simulator that might be processing data, **Ctrl + C** should work to stop it cleanly. If it's stuck in a loop or hanging, you might need to use Task Manager to force-kill the Python process.

**Most common solution:** Just press **Ctrl + C** in your terminal window where the code is running.

✓ 1 file +174 -61

corr\_trade\_simulator.py +174 -61 ✓

@ corr\_trade\_simulator.py

Plan, search, build anything

Agent ctrl+ 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 14<sup>th</sup>**
- Topics chosen by **March 24<sup>th</sup> (after break)**
- Final presentation during **last days of class**
- Final report due on **last day of class**



# Final Project Teams

1 person



2 people



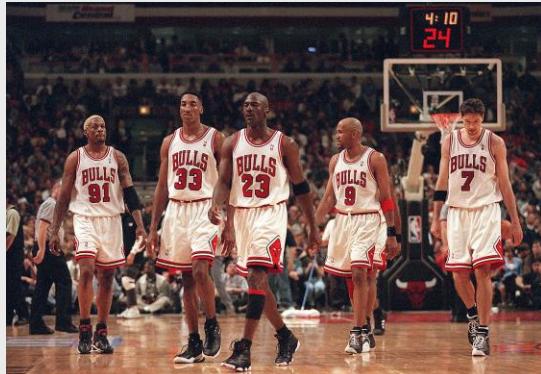
3 people



4 people



5 people



6 people



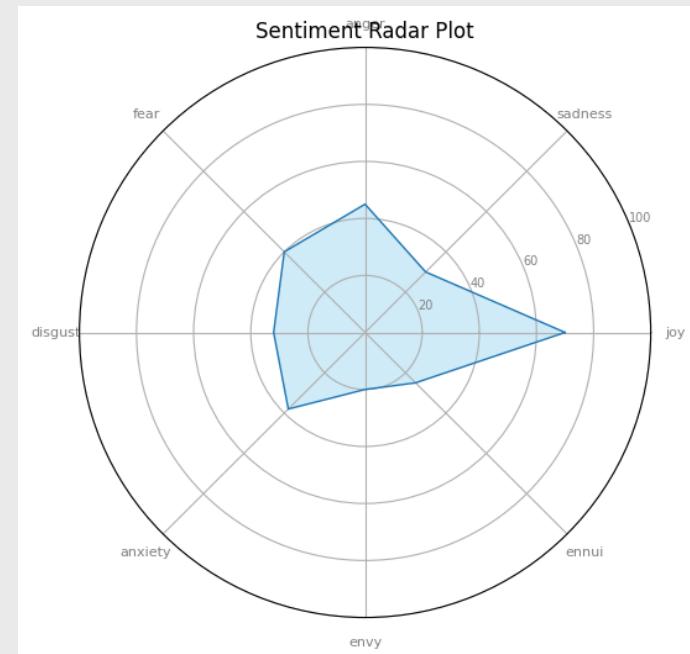
# Next Class: Coding Session

- 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

