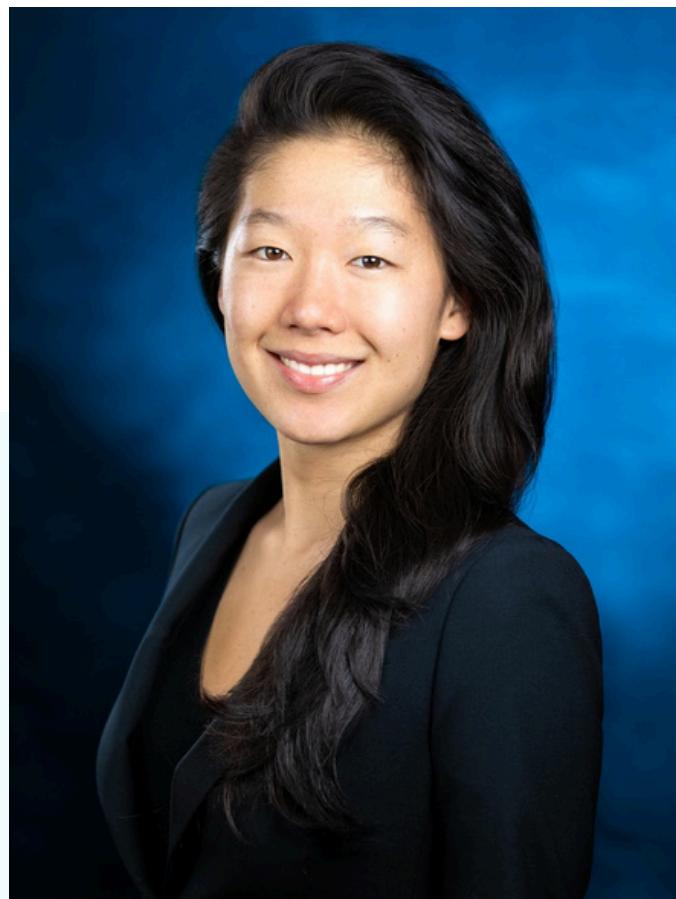


**Enique**

# AUTONOMOUS INVESTMENT ADVISOR

Anna Han, Mu Mio, Esther Xu  
University of Chicago. MScA 2024

# OUR TEAM



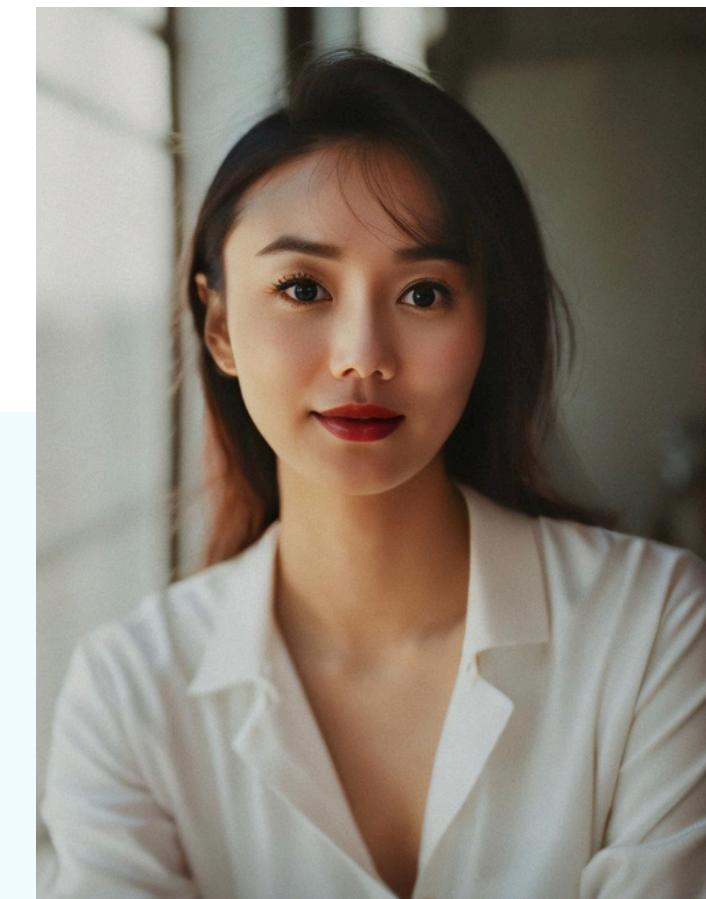
**ANNA HAN**

[ahan92@uchicago.edu](mailto:ahan92@uchicago.edu)



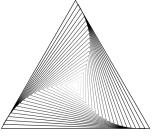
**MU MIO**

[airc@uchicago.edu](mailto:airc@uchicago.edu)



**ESTHER XU**

[estherxu@uchicago.edu](mailto:estherxu@uchicago.edu)



## EXECUTIVE SUMMARY

Enique is a conversational AI investment advisor integrated with a proprietary price prediction model.

Enique runs autonomously in real-time.

# TABLE OF CONTENTS

- 01 Purpose
- 02 Data
- 03 Methodology
- 04 Findings
- 05 Conclusion
- 06 Appendix





# Purpose

# PROBLEM STATEMENT



An expensive economy has intensified the struggle to afford simple pleasures.

Investing in financial assets can alleviate this burden, but the path is fraught with challenges.



**INVEST ALONE**

Daunting, elusive,  
time consuming.



**OUTSOURCE**

Costly, inaccessible.



**PLAY IT SAFE**

Misaligned with  
immediate needs.

# BUSINESS VALUE

Financial Literacy

Investment Strategy

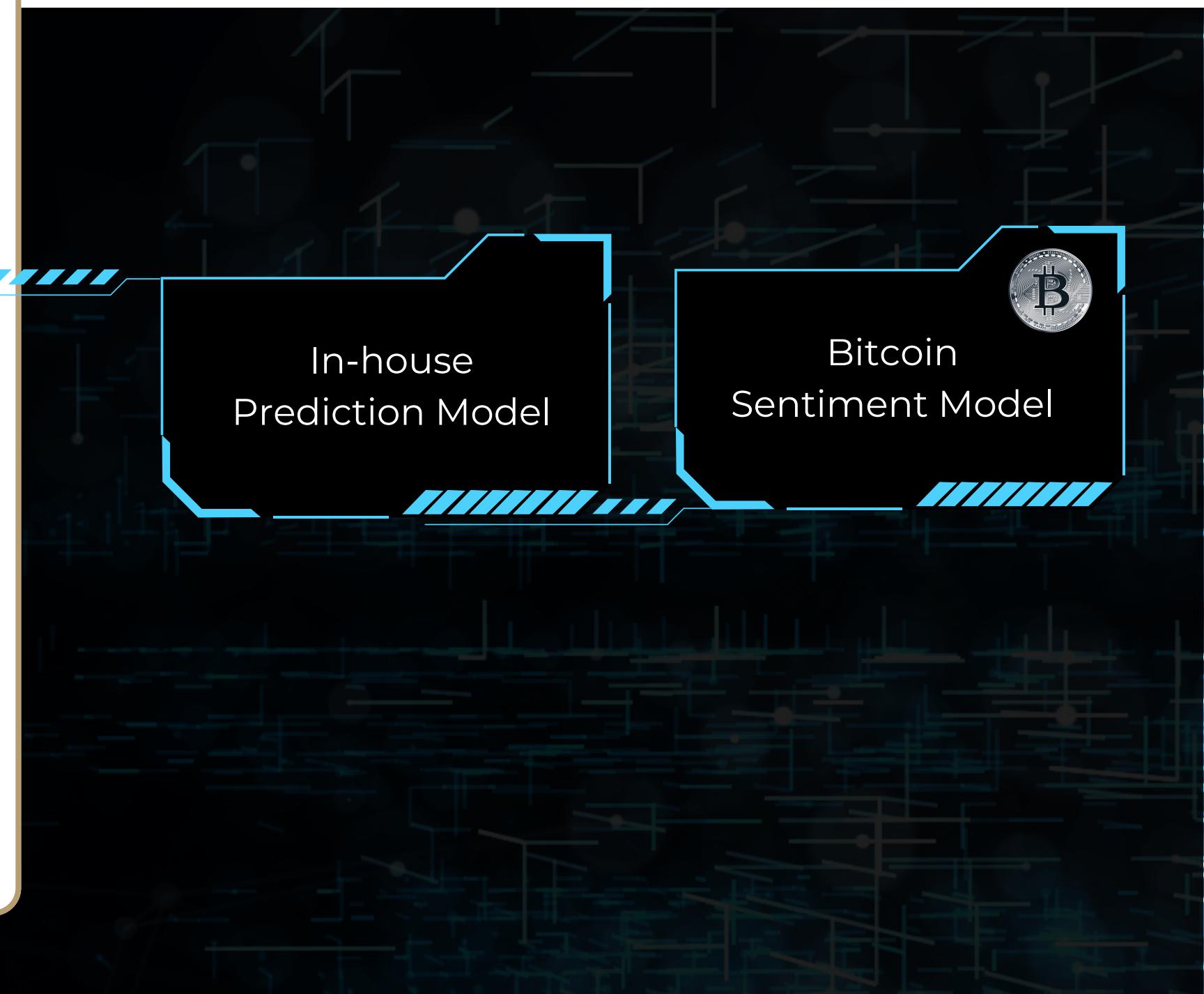
Bespoke Analyses

Real-time Adaptability

Available 24/7

Deposit Agnostic

	Human	Enique
generic	✓	✓
specific		✓
In-house Prediction Model		
Bitcoin Sentiment Model		



# BUSINESS VALUE

Financial Literacy

Investment Strategy

Bespoke Analyses

Real-time Adaptability

Available 24/7

Deposit Agnostic

	Human	Enique
generic	✓	✓
specific	✗	✓
	✗	✓
	✗	✓
	✗	✓
	✗	✓

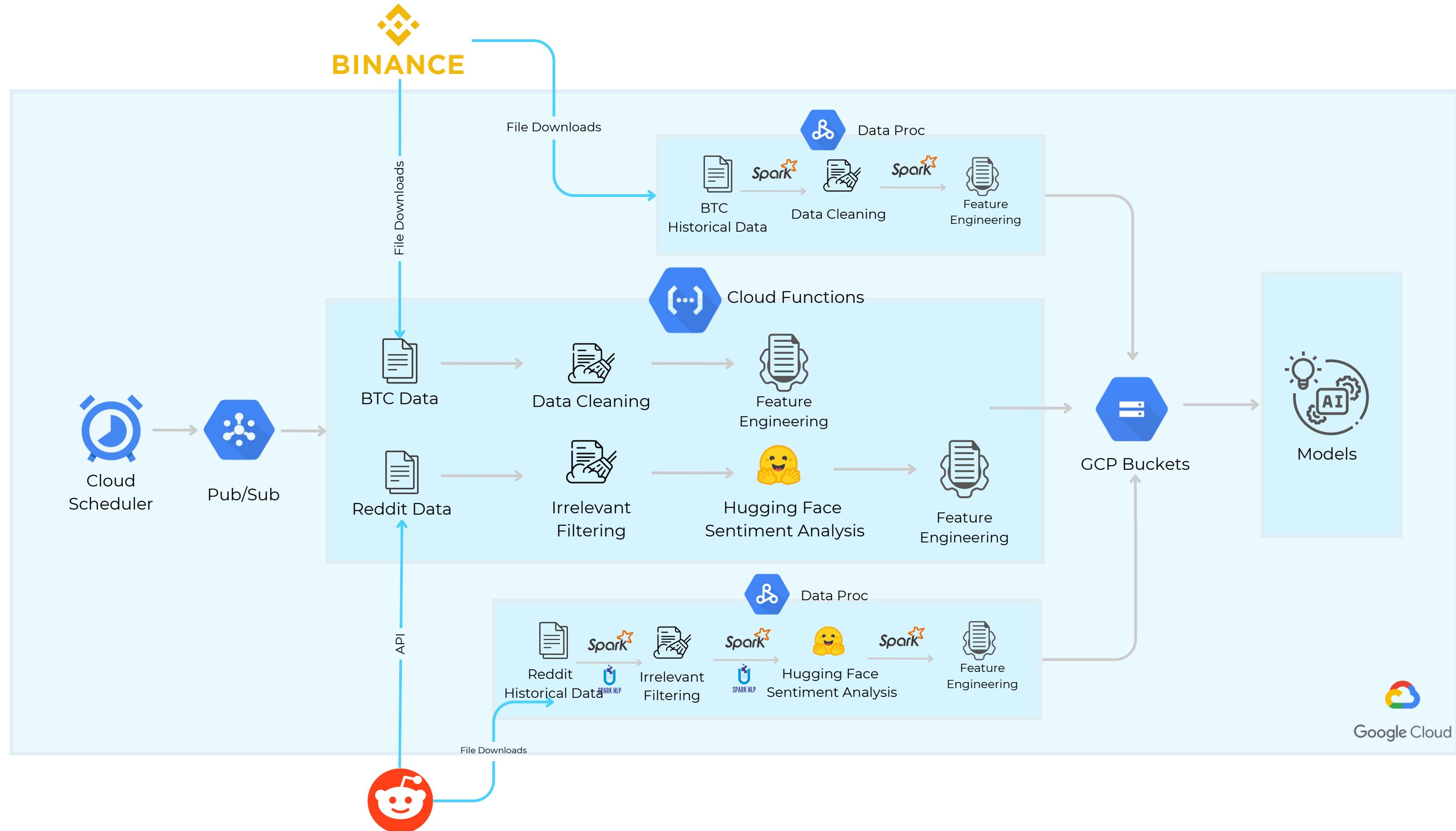
More earning and learning;  
less spending and tending.



**Data**

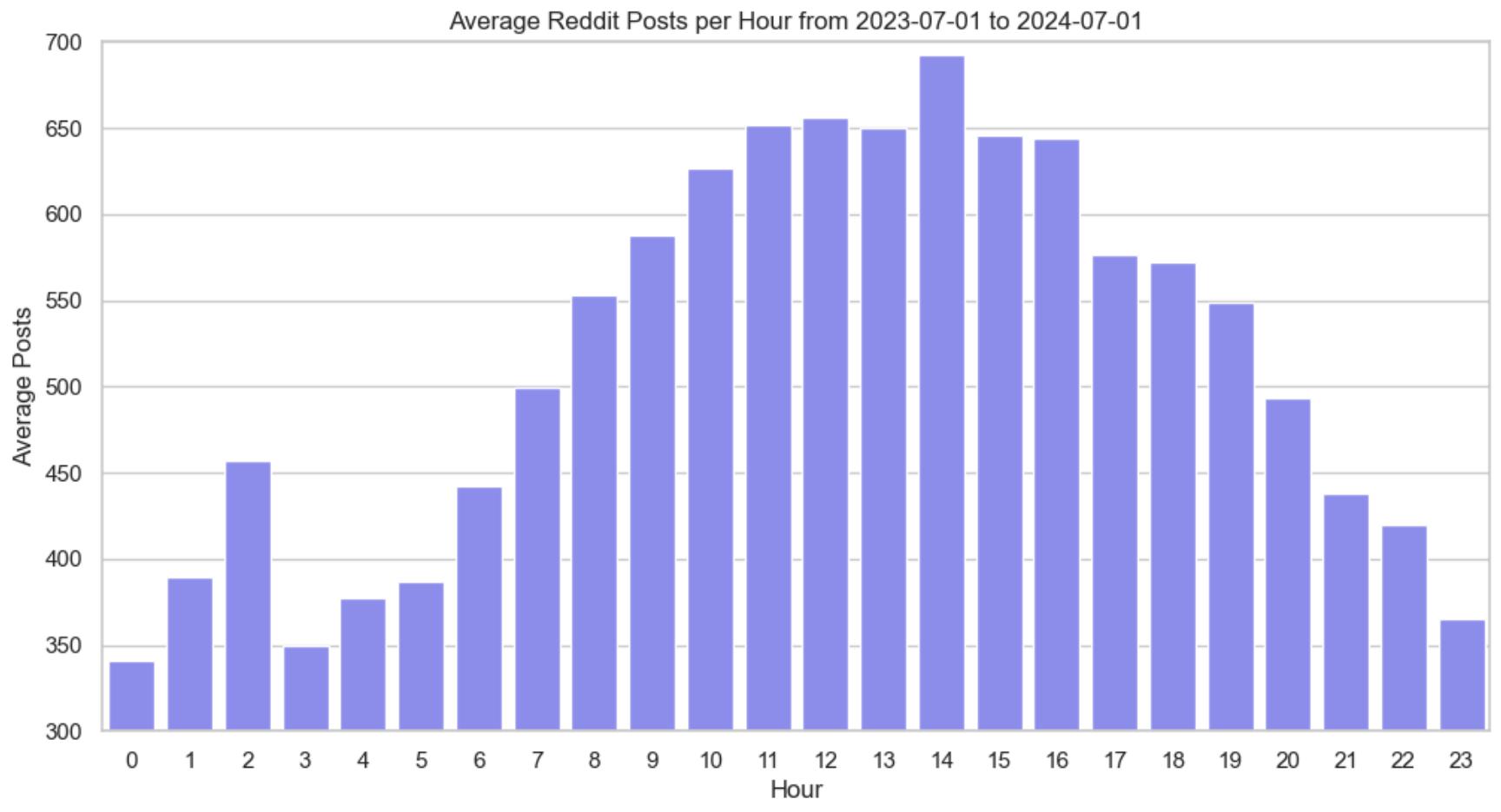
B

# DATA FLOW DIAGRAM (DFD)



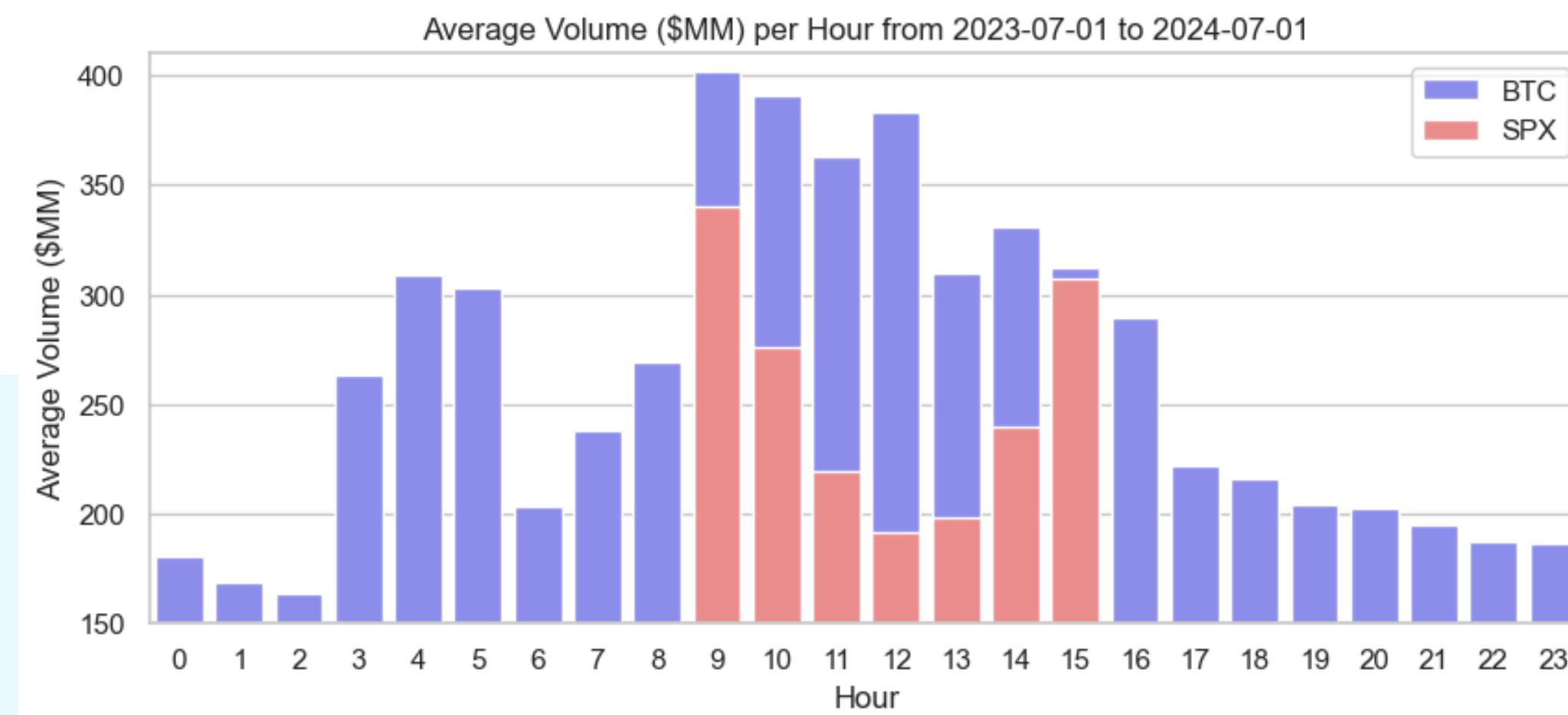
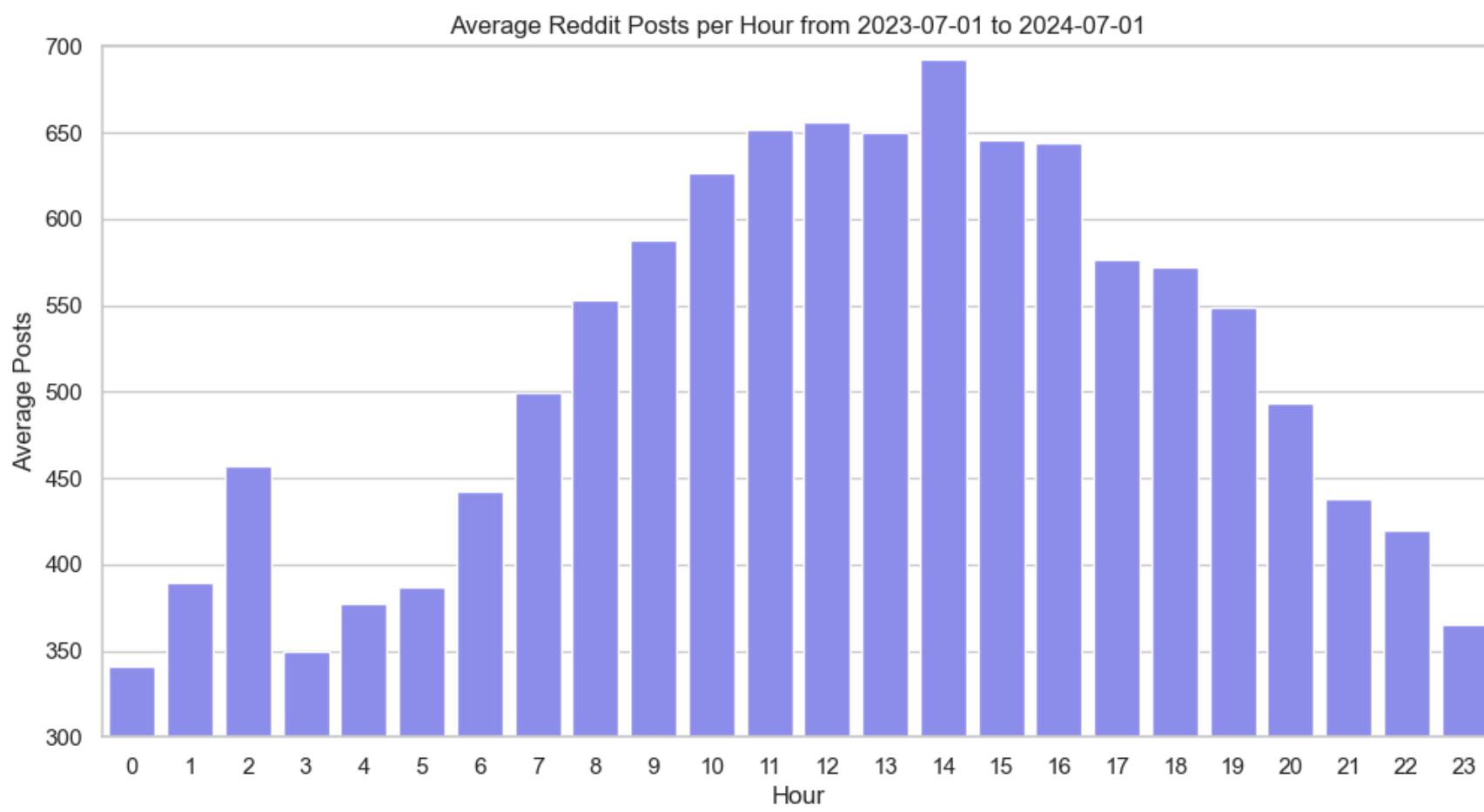
# DATA TREND

*Reddit posts tend to occur during US daytime hours.*

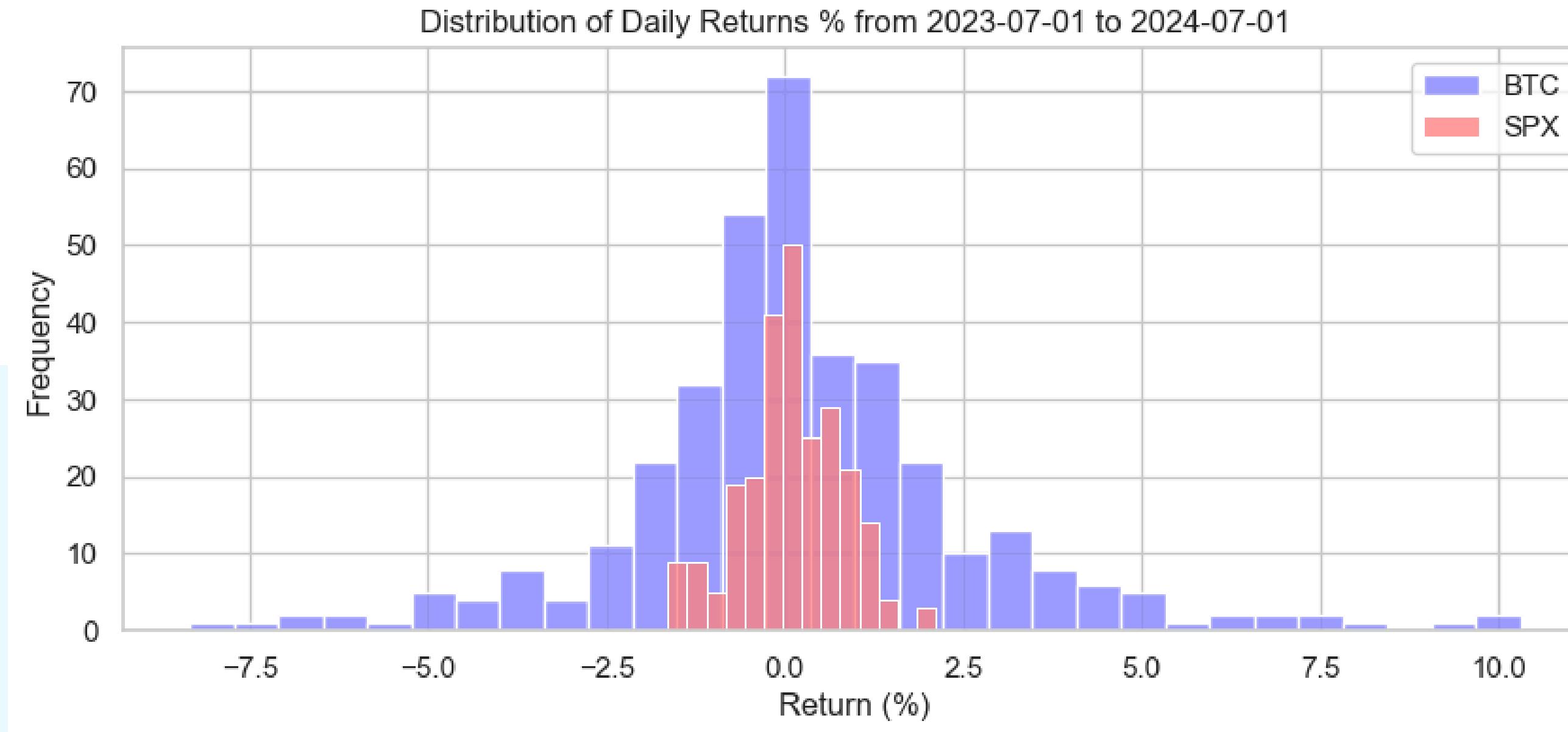


# DATA TREND

*Reddit Volumes overlap with busy times in Bitcoin markets.*



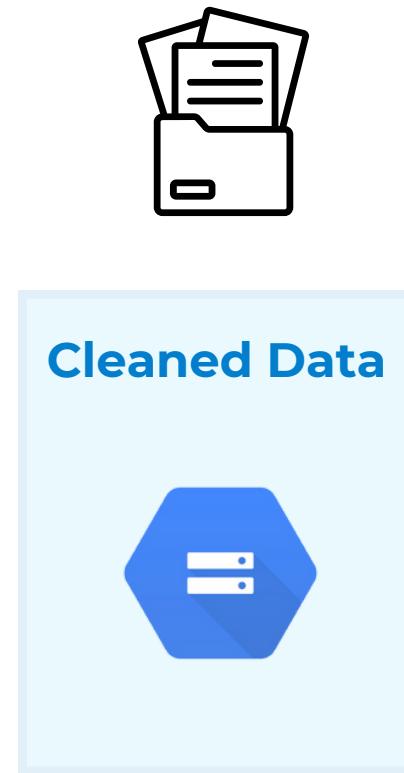
# DATA TREND



# Methodology

# MODEL FRAMEWORK

Historical BTC Price



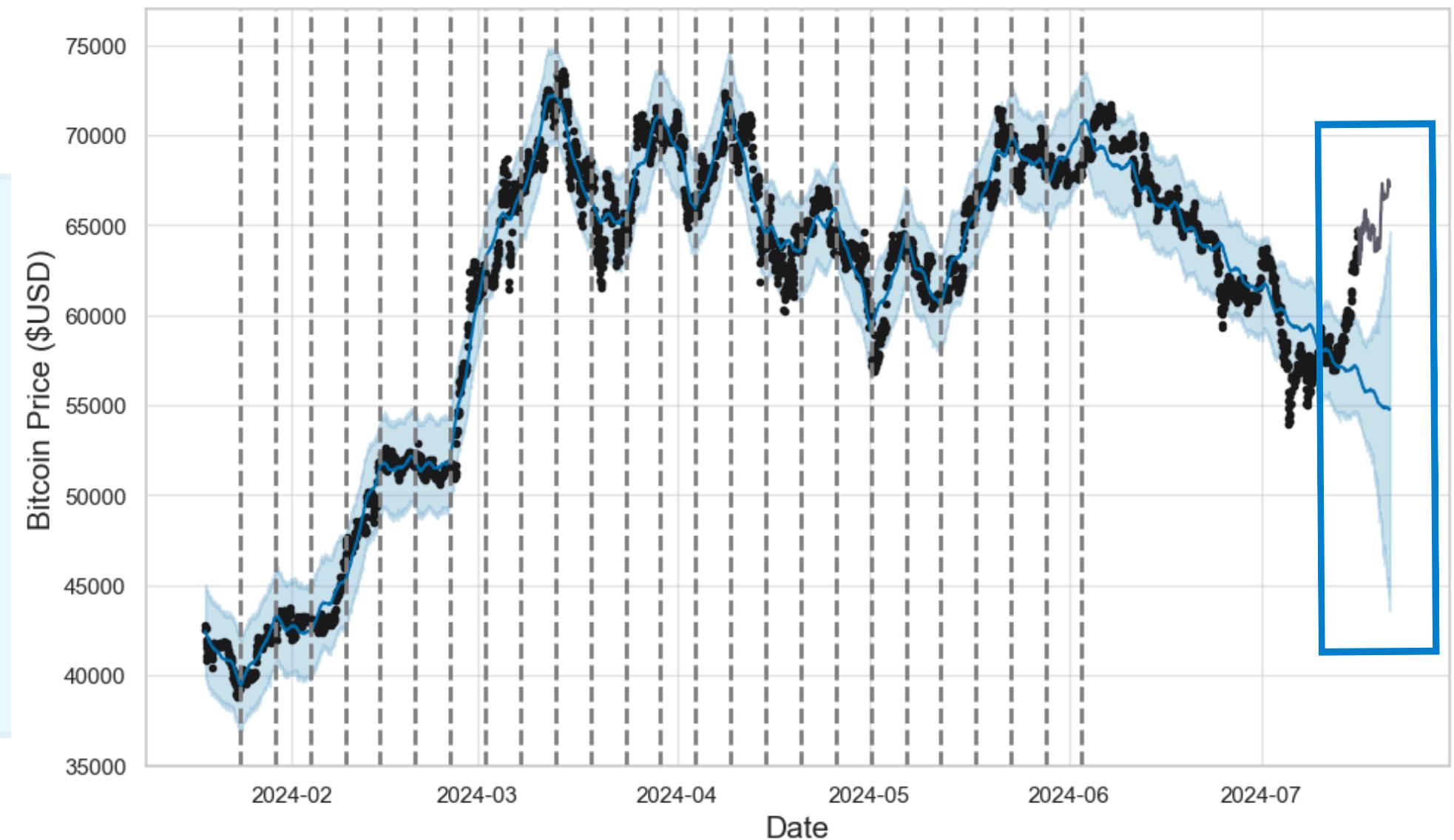
Predictive Model

Baseline  
Prophet



Capture systematic  
seasonalities

Baseline Bitcoin Price Prediction (\$USD)



Model Framework



Baseline Model



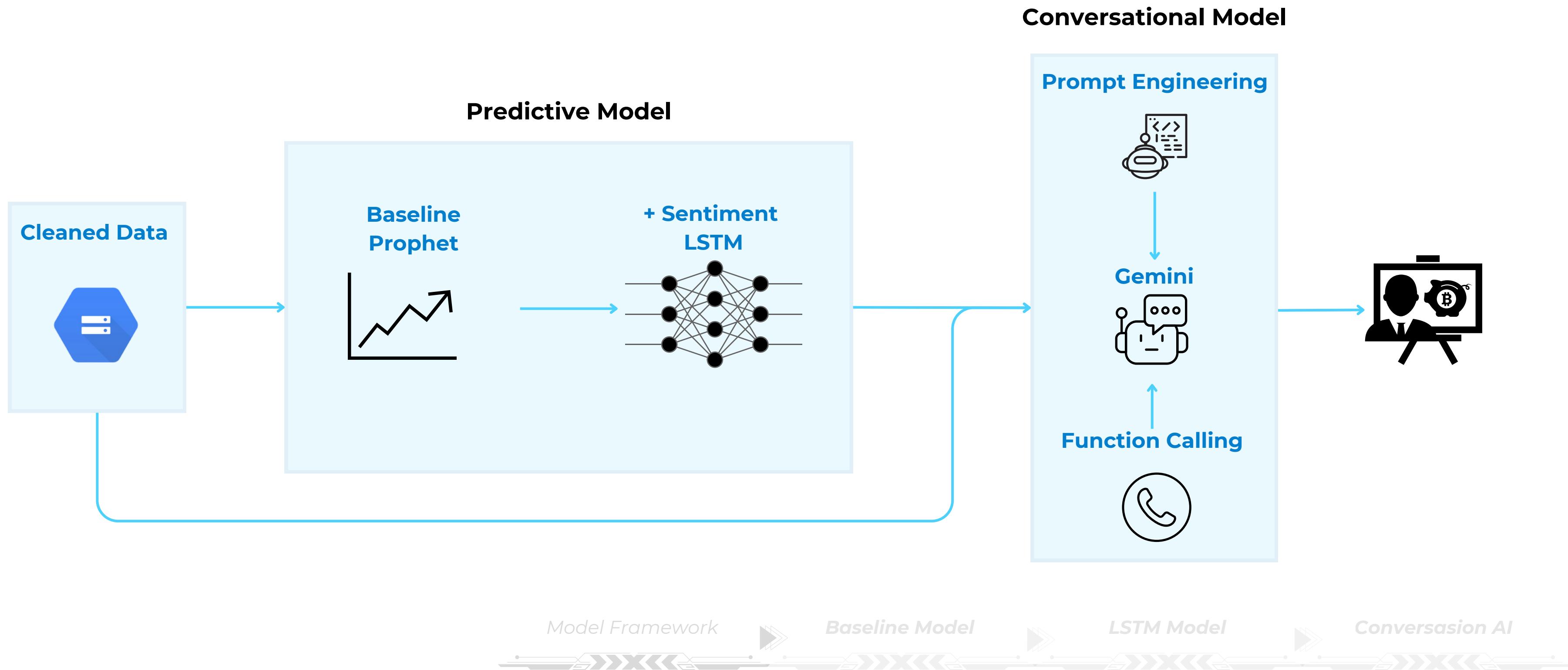
LSTM Model



Conversation AI

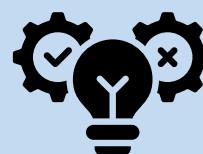


# MODEL FRAMEWORK



# Findings

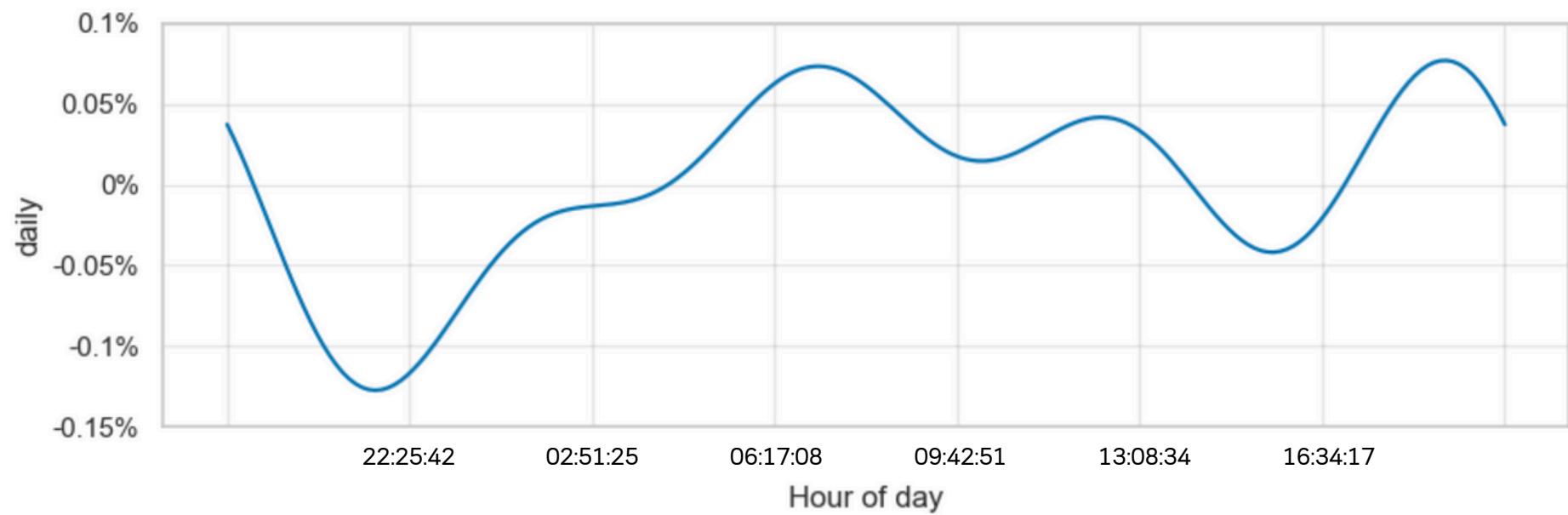
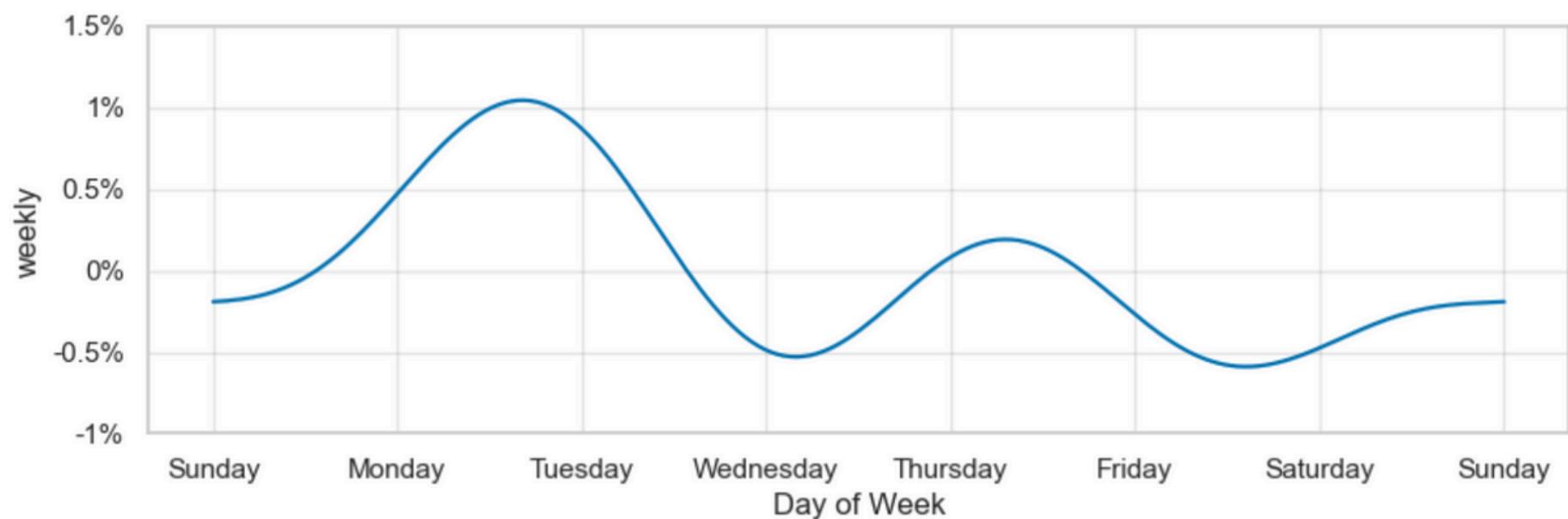
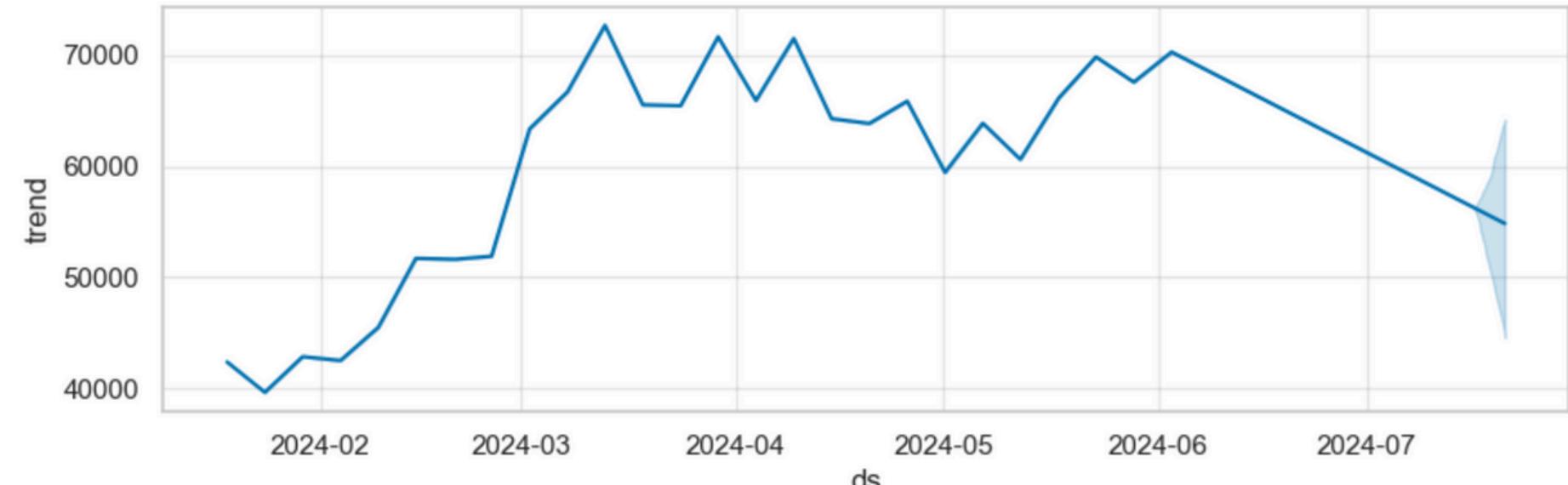
# BITCOIN SEASONALITY



## HYPOTHESES

Systematic trends persist.

Prophet Decomposition Chart



# BITCOIN SEASONALITY



## HYPOTHESES

Systematic trends persist.



## VALIDATED

Upward linear growth trend.

Seasonality - daily, weekly,  
monthly.



## DEBUNKED

Multiplicative effect is  
~~realistic~~ **negligible**.

# SENTIMENT SIGNAL



## HYPOTHESES

Relevancy vs. reaction may be exclusive.



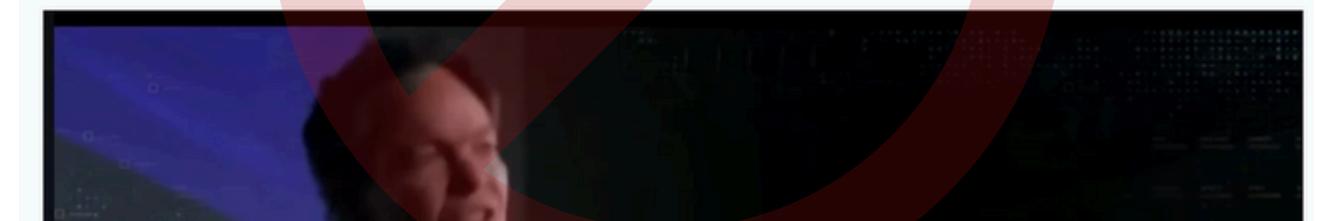
## VALIDATED

Discarding {non-relevant  $\cap$  high-reaction} content improves signal quality.

**Does anyone know who the person in this screenshot is?**

Does anyone know who the person in this screenshot is? I'd like to see this full presentation

<https://youtu.be/MeRmVRFaTIY?feature=shared>



[https://www.reddit.com/r/Bitcoin/comments/1egvwsn/does\\_anyone\\_know\\_who\\_the\\_person\\_in\\_this/](https://www.reddit.com/r/Bitcoin/comments/1egvwsn/does_anyone_know_who_the_person_in_this/)

# SENTIMENT SIGNAL



## HYPOTHESES

Relevancy vs. reaction may be exclusive.

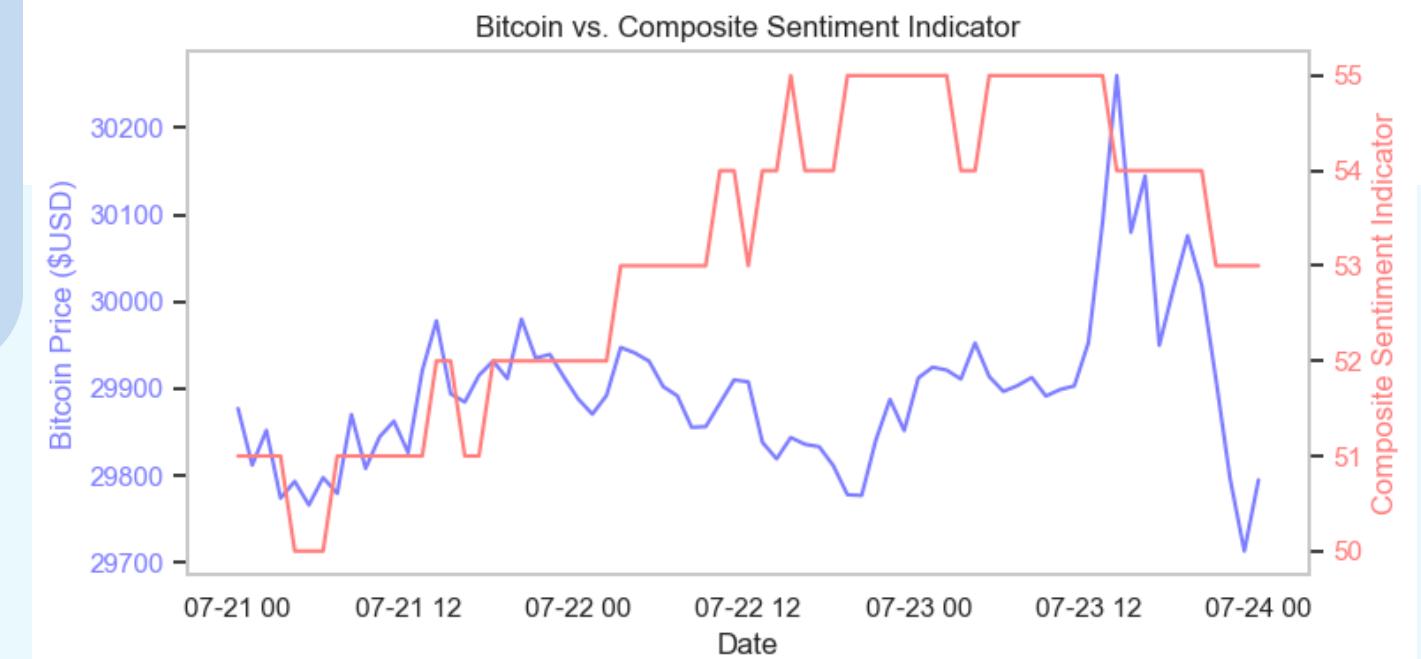
+Consensus promotes directional price action.



## VALIDATED

Discarding  $\{\text{non-relevant} \cap \text{high-reaction}\}$  content improves signal quality

$\{\text{High-consensus} \cap \text{high-activity}\}$  reduces prediction error.



# SENTIMENT SIGNAL



## HYPOTHESES

Relevancy vs. reaction may be exclusive.

+Consensus promotes directional price action.



## VALIDATED

Discarding  $\{\text{non-relevant} \cap \text{high-reaction}\}$  content improves signal quality

$\{\text{High-consensus} \cap \text{high-activity}\}$  reduces prediction error.



## DEBUNKED

Sentiment is ~~only~~ reactive  
**and proactive.**

Sentiment to price-direction is ~~generalizable~~  
**circumstantial.**

# CONVERSATIONAL AI



## HYPOTHESES

Inherent knowledge suffices.



## VALIDATED

Speaks finance at most ranges of technicality.



Tell me about past prices, what does it tell?



The current Bitcoin price is \$60,372.92. Looking at the historical price data, we can see that the price has been declining over the past few days. This is likely due to a combination of factors, including the recent market volatility and the overall bearish sentiment in the market.



Simplify it



Bitcoin has been declining recently, and my model predicts a further drop in the next five days. I suggest holding off on investing for now.

# CONVERSATIONAL AI



## HYPOTHESES

Inherent knowledge suffices.

Interpret user needs into data call. Translate quantitative results.



explain past momentum



Bitcoin has been on a general uptrend over the past 48 hours, with a notable increase in price over the past 24 hours. However, there's been a slight dip in the past 6 hours, which could be a temporary correction or a sign of a potential change in trend. It's important to monitor the price closely over the next few hours to see if the trend continues.

The recent dip could be caused by a number of factors, such as:

- **Profit-taking:** Some investors may be taking profits after the recent price

# CONVERSATIONAL AI



## HYPOTHESES

Inherent knowledge suffices.

Interpret user needs into data call. Translate quantitative results.



## VALIDATED

Speaks finance at most ranges of technicality.

Direct data integration prevents hallucination.



## DEBUNKED

Integrated data ~~must~~ **need not** be text based.

**Judicious** ~~Avoid~~ restrictive function calling.

# Conclusion

# BUSINESS SUMMARY

**Enique proves highly effective as an autonomous investment advisor.**



**More earning and learning...**

Prediction results apply to user's needs.

Educes any audience.



**...less spending and tending.**

Time efficient and fee-free.

Plug n' play any data or prediction model.

# FUTURE WORK



**Brokerage Connection**



**Prediction Bias**



**Data Enrichment**



**Enique**



**SEE YOU  
SATURDAY!**

Anna Han, Mu Mio, Esther Xu  
University of Chicago MScA 2024