

FinSentim

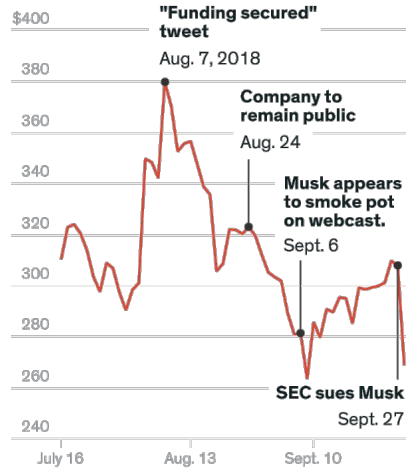
Measuring financial world's thoughts

FinSentim.com | info@finsentim.com

NLP

Off Course

Tesla has taken a battering since CEO Elon Musk tweeted about taking the company private.



Source: SIX



NLP

The Walt Disney Company today reported earnings for its first fiscal quarter ended January 2, 2021. Diluted earnings per share (EPS) from continuing operations for the quarter decreased 98% to \$0.02 from \$1.17 in the prior-year quarter.

```
"type" : "positive"  
"score" : 0.15520547175  
"ratio" : 1  
  "keywords" : [ 3 items  
    0 : {...} 2 items  
    1 : {...} 2 items  
    2 : {...} 2 items  
  ]
```

NLP

The Walt Disney Company today reported earnings for its first fiscal quarter ended January 2, 2021. Diluted earnings per share (EPS) from continuing operations for the quarter decreased 98% to \$0.02 from \$1.17 in the prior-year quarter.

"type" : "positive"

"score" : 0.15520547175

"ratio" : 1

"keywords"

▶ 0 : {...}

▶ 1 : {...}

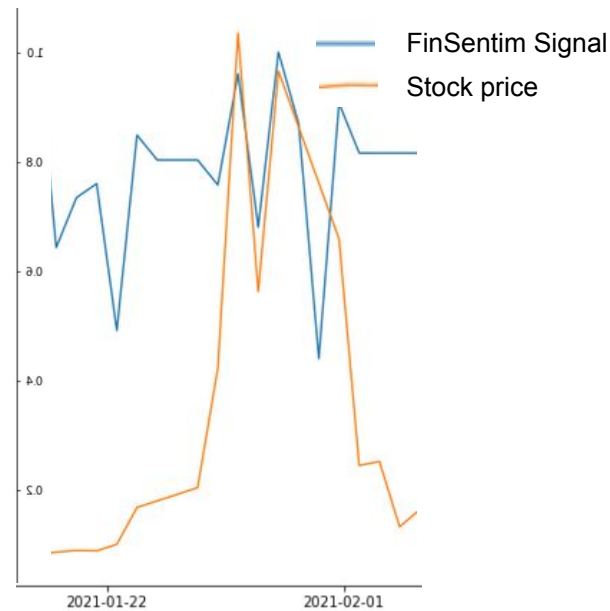
▶ 2 : {...}

]

FinSentim
Financial Sentiment Analysis
Try out Live or
[Request a Demo](#)
Overall Sentiment Score:
-62

The Walt Disney Company today reported earnings for its first fiscal quarter ended January 2, 2021. Diluted earnings per share (EPS) from continuing operations for the quarter decreased 98% to \$0.02 from \$1.17 in the prior-year quarter.

| Sentence | Prediction | Score |
|--|------------|-----------|
| The Walt Disney Company today reported earnings for its first fiscal quarter ended January 2, 2021. Diluted earnings per share (EPS) from continuing operations for the quarter decreased 98% to \$0.02 from \$1.17 in the prior-year quarter. | negative | -0.621642 |



Gamestop stock price and sentiment

Problem

Social Media and news articles have shown to accurately represent and influence the market, but this information is hard to exploit



“Sentiment analysis of online opinion posts can facilitate both investors' investment decision making and stock companies' risk perception”

- David L. Olson

Manual Approach

- Impossible to read all news and social media posts
- Limited by reader's speaking languages
- Skewed by personal bias
- Time-consuming and expensive



Missed Opportunities

- Late in reacting to market events
- Missing clues and red flags
- Caught off guard by events in emerging markets





Davit Soselia

Machine Learning MSc student
5 years ML research and industry
experience

FinSentim

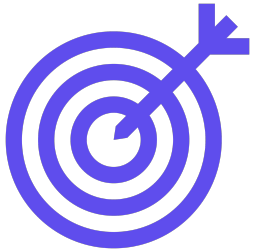


Shota Amashukeli

Computer Science MSc student
4 years ML research and industry
experience

- Founded to address the technology gap in the industry
- Reinventing financial sentiment analysis
- Over 2 years of research and development

Why FinSentim



High Accuracy

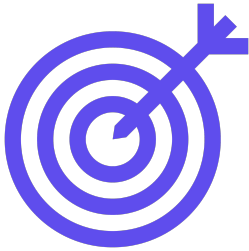


**Broad Source
Coverage**



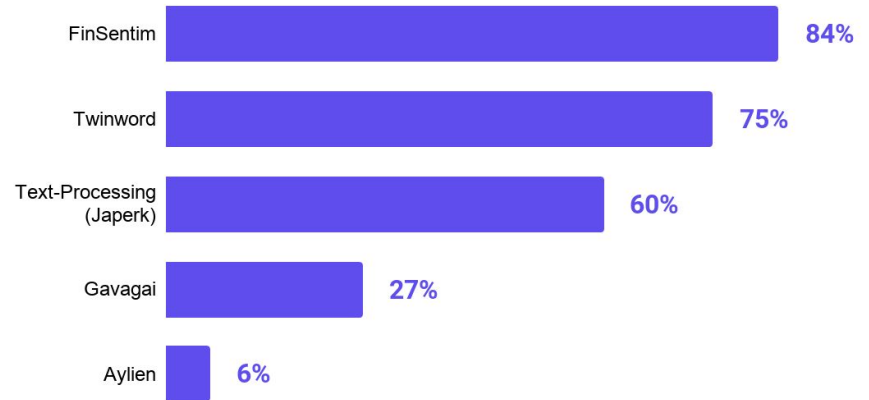
**Multilingual
support**

High-Accuracy



- Latest BERT-based Deep Learning architecture
- Customized 100K labeled sentences dataset
- Context-aware analysis

API Accuracy Comparison



Accuracy compared to human-labeled third party FiQA 2018 financial sentiment dataset in English

High-Accuracy

FOR IMMEDIATE RELEASE
February 11, 2021

THE WALT DISNEY COMPANY REPORTS FIRST QUARTER EARNINGS FOR FISCAL 2021

BURBANK, Calif. – The Walt Disney Company today reported earnings for its first fiscal quarter ended January 2, 2021. Diluted earnings per share (EPS) from continuing operations for the quarter decreased 98% to \$0.02 from \$1.17 in the prior-year quarter. Excluding certain items,⁽¹⁾ diluted EPS for the quarter decreased 79% to \$0.32 from \$1.53 in the prior-year quarter. Results in the quarter ended January 2, 2021 were adversely impacted by the novel coronavirus (COVID-19). The most significant impact was at the Disney Parks, Experiences and Products segment where since late in the second quarter of fiscal 2020, our parks and resorts have been closed or operating at significantly reduced capacity and our cruise ship sailings have been suspended.

“We believe the strategic actions we’re taking to transform our Company will fuel our growth and enhance shareholder value, as demonstrated by the incredible strides we’ve made in our DTC business, reaching more than 146 million total paid subscriptions across our streaming services at the end of the quarter,” said Bob Chapek, Chief Executive Officer, The Walt Disney Company. “We’re confident that, with our robust pipeline of exceptional, high-quality content and the upcoming launch of our new Star-branded international general entertainment offering, we are well-positioned to achieve even greater success going forward.”

The following table summarizes the first quarter results for fiscal 2021 and 2020 (in millions, except per share amounts):

| | Quarter Ended | | |
|---|-----------------|-------------------|--------|
| | January 2, 2021 | December 28, 2019 | Change |
| Revenues | \$ 16,249 | \$ 20,877 | (22) % |
| Income from continuing operations before income taxes | \$ 46 | \$ 2,626 | (98) % |
| Total segment operating income ⁽¹⁾ | \$ 1,332 | \$ 3,996 | (67) % |
| Net income from continuing operations ⁽²⁾ | \$ 29 | \$ 2,128 | (99) % |
| Diluted EPS from continuing operations ⁽²⁾ | \$ 0.02 | \$ 1.17 | (98) % |
| Diluted EPS excluding certain items ⁽¹⁾ | \$ 0.32 | \$ 1.53 | (79) % |
| Cash provided by continuing operations | \$ 75 | \$ 1,630 | (95) % |
| Free cash flow ⁽¹⁾ | \$ (685) | \$ 292 | nm |

⁽¹⁾ Diluted EPS excluding certain items, total segment operating income and free cash flow are non-GAAP financial measures. The comparable GAAP measures are diluted EPS from continuing operations, income from continuing operations before income taxes, and cash provided by continuing operations, respectively. See the discussion on page 2 and on pages 9 through 11.

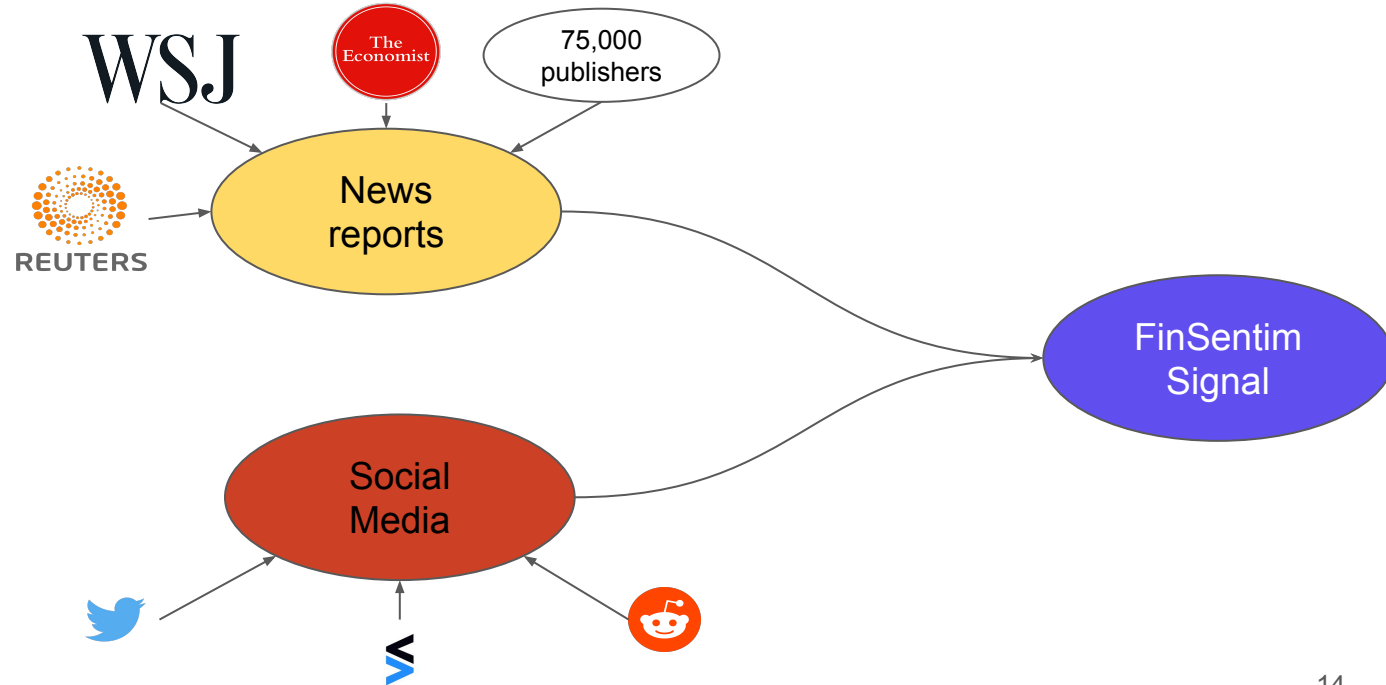
⁽²⁾ Reflects amounts attributable to shareholders of The Walt Disney Company, i.e. after deduction of income attributable to noncontrolling interests.

-10

| Sentence | Prediction | Score |
|--|------------|-----------|
| BURBANK, Calif. – The Walt Disney Company today reported earnings for its first fiscal quarter ended January 2, 2021. | positive | 0.803465 |
| Diluted earnings per share (EPS) from continuing operations for the quarter decreased 98% to \$0.02 from \$1.17 in the prior-year quarter. | negative | -0.797164 |
| Excluding certain items, ⁽¹⁾ diluted EPS for the quarter decreased 79% to \$0.32 from \$1.53 in the prior-year quarter. | negative | -0.730346 |
| Results in the quarter ended January 2, 2021 were adversely impacted by the novel coronavirus (COVID-19). | negative | -0.801952 |
| The most significant impact was at the Disney Parks, Experiences and Products segment where since late in the second quarter of fiscal 2020, our parks and resorts have been closed or operating at significantly reduced capacity and our cruise ship sailings have been suspended. | negative | -0.815075 |
| “We believe the strategic actions we’re taking to transform our Company will fuel our growth and enhance shareholder value, as demonstrated by the incredible strides we’ve made in our DTC business, reaching more than 146 million total paid subscriptions across our streaming services at the end of the quarter,” said Bob Chapek, Chief Executive Officer, The Walt Disney Company. | positive | 0.824426 |
| “We’re confident that, with our robust pipeline of exceptional, high-quality content and the upcoming launch of our new Star-branded international general entertainment offering, we are well-positioned to achieve even greater success going forward.” | positive | 0.785971 |

Sentence-by-sentence analysis

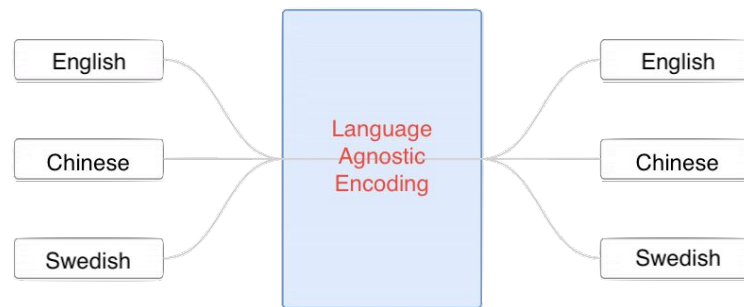
Broad Source Coverage



Multi-Lingual Support

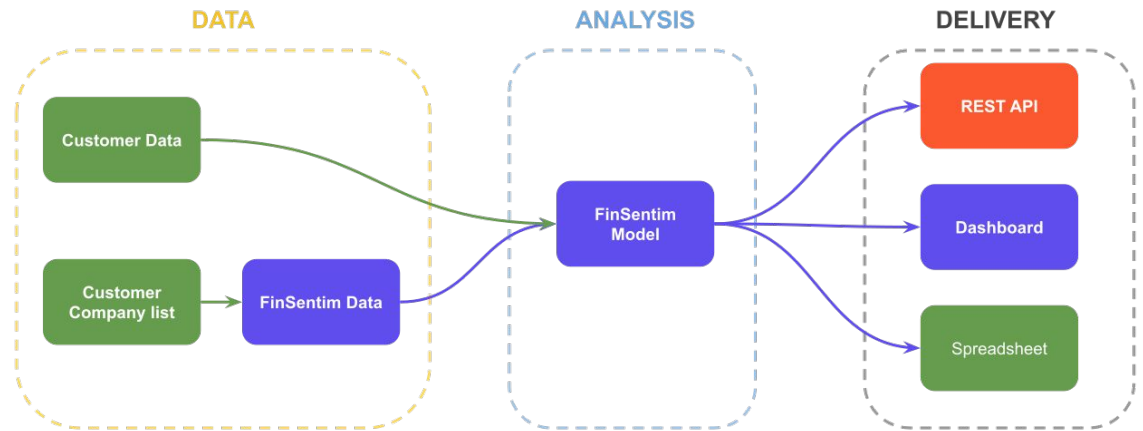
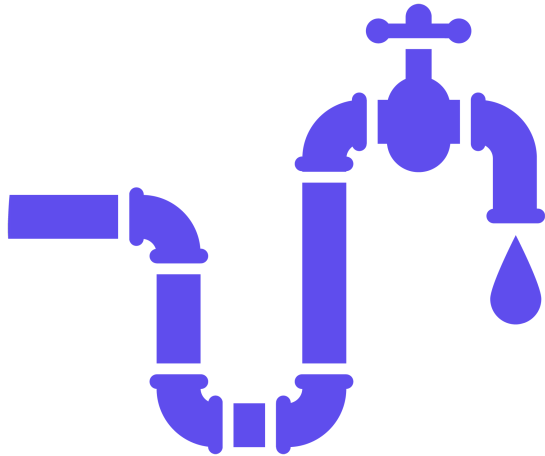


- Native Multi-Lingual support
- Trained on 46+ Languages
- Reuters China benchmark accuracy - 80%

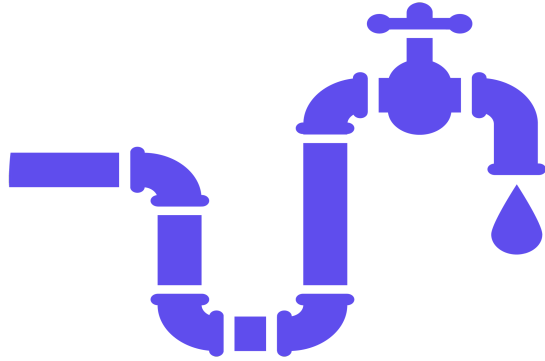


Utilizing language agnostic encodings for classification, leading to native multi-lingual support

Integration



Integration



- REST API
- Web Dashboard
- Excel Integration

| Symbol | Name | Last Sale | Net Change | % Change | Market Cap | Country | Volume | id |
|--------|--|-----------|------------|----------|---------------|----------------|----------|----|
| A | Agilent Technologies Inc. Common Stock | \$121.18 | -0.80 | -0.7% | 179772643 | United States | 259794 | 0 |
| AGCQ | ATA Creativity Global American Depositary Shares | \$6.33 | 7.97 | 55.2% | 18644871 | China | 1822448 | 1 |
| ACQ | Artius Acquisition Inc. Class A Common Stock | \$11.30 | 0.18 | 1.6% | 103156250 | United States | 185498 | 2 |
| ACQV | Artius Acquisition Inc. Unit | \$12.12 | 0.17 | 1.4% | 0 | United States | 2641 | 3 |
| AKQW | Artius Acquisition Inc. Warrant | \$2.59 | 0.04 | 1.5% | 0 | United States | 23618 | 4 |
| AAL | Arlington Asset Investment Corp Class A (new) | \$3.69 | -0.04 | -0.2% | 12334816 | United States | 18541 | 5 |
| AAL | American Airlines Group Inc. Common Stock | \$19.19 | -0.24 | -1.2% | 1864323943 | United States | 3088423 | 6 |
| ANNC | AlliSource Asset Management Corp Com | \$22.14 | 0.15 | 0.6% | 36519604 | United States | 7487 | 7 |
| ANW | Alliantic American Corporation Common Stock | \$5.28 | 2.81 | 117.5% | 186154251 | United States | 11167855 | 8 |
| AUN | Aurora Holdings Company Inc. Common Stock | \$10.63 | 0.67 | 3.5% | 61672212 | United States | 362573 | 9 |
| AOTI | Applied Optoelectronics Inc. Common Stock | \$11.73 | 0.34 | 2.9% | 20951136 | United States | 509714 | 10 |
| ANON | ANON Inc. Common Stock | \$7.64 | 0.77 | 1% | 485649256 | United States | 97579 | 11 |
| APD | Advance Auto Parts Inc. Advance Auto Parts Inc. WI | \$157.28 | 1.2 | 0.7% | 1867218394 | United States | 87852 | 12 |
| APPL | Apple Inc. Common Stock | \$136.76 | -0.435 | -0.3% | 2371954618400 | United States | 75516953 | 13 |
| AAT | American Assets Trust Inc. Common Stock | \$28.81 | 0.29 | 1.0% | 174231030 | United States | 110027 | 14 |
| AAM | Alexander Minerals Ltd. Common Shares | \$6.7451 | 0.8054 | 3.6% | 8982079 | Canada | 1915618 | 15 |
| ALU | Atlas Air Worldwide Holdings WM Common Stock | \$53.75 | 0.65 | 1.2% | 147884458 | United States | 47340 | 16 |
| AB | AllianceBernstein Holding L.P. Units | \$38.47 | 0.61 | 1.6% | 369893531 | United States | 40833 | 17 |
| ABB | ABB Ltd Common Stock | \$28.82 | -0.2 | -0.6% | 1931488497 | Switzerland | 1713181 | 18 |
| ABVV | ABBvie Inc. Common Stock | \$108.73 | 0.2 | 0.1% | 19359979648 | United States | 7249727 | 19 |
| ABC | Abercrombie & Fitch Corporation Common Stock | \$109.09 | -2.21 | -1.9% | 2244424576 | United States | 1812461 | 20 |
| ABCR | Abercrombie Bancorp Common Stock | \$44.00 | 0.13 | 0.3% | 369882154 | United States | 324526 | 21 |
| ABCL | AbCellera Biologics Inc. Common Shares | \$46.55 | -0.01 | -0.0% | 1371060660 | Canada | 45650 | 22 |
| ABCO | Abcam plc American Depositary Shares | \$22.65 | 0.43 | 1.9% | 5134684310 | United Kingdom | 4181 | 23 |
| ABEV | Abnova Therapeutics Inc. Common Stock | \$2.58 | 0.12 | 4.8% | 154201521 | United States | 193426 | 24 |
| ABG | Abury Automotive Group Inc. Common Stock | \$155.12 | 1.88 | 1.2% | 299157426 | United States | 154553 | 25 |
| ABTO | ABCA Biopharma Inc. Common Stock | \$4.66 | 0 | 0% | 43518890 | United States | 1892075 | 26 |
| ABM | ABM Industries Incorporated Common Stock | \$39.43 | 0.13 | 0.3% | 2632294538 | United States | 28220 | 27 |
| ABMD | ABMD Inc. Common Stock | \$327.85 | 3.87 | 0.5% | 1482881799 | United States | 25422 | 28 |
| ABND | Airbnb Inc. Class A Common Stock | \$195.31 | -0.49 | -0.2% | 11642619857 | United States | 2864364 | 29 |
| ABR | Arbor Realty Trust Common Stock | \$15.45 | 0.07 | 0.4% | 106454125 | United States | 99534 | 30 |

Tesla Inc. Common Stock

Current Average Sentiment: 13.774442386168701%

Sentiment Change: -0.2483738987491681%

| Article | Score |
|---|--------------------|
| Mood's AME Innovation ETF continues slide, down nearly 25% from high - Reuters | 0.494818106118245 |
| Honda to sell limited batch of level 3 self-driving cars - Reuters | 0.794608128047178 |
| Honda to sell limited batch of level 3 self-driving cars - Reuters UK | 0.762448112827049 |
| US STOCKS Noddy ends sharply lower after Powell comments - Reuters | 0.737762110519886 |
| GM looking to build second battery plant in U.S.; MG - Yahoo Finance | 0.634884162717181 |
| SpaceX Starship rocket prototype mails landing... then blows up - Reuters | 0.3634181050625174 |
| Honda Legend becomes world's first certified level 3 autonomous car | 0.779239149911172 |
| Tesla Is Bleeding Battery EV Market Share To Ford's Mustang Mach-E Morgan Stanley | 0.2811271251411051 |
| Cathie Wood's ARKK ETF near losing all of its gains this year | -0.386699111371567 |
| BlueLine Holdings, Inc. to Post Earnings Call | -0.897702110519886 |

FinSentim Dashboard, sentiment over time for tracked entities

Business Model

Target market

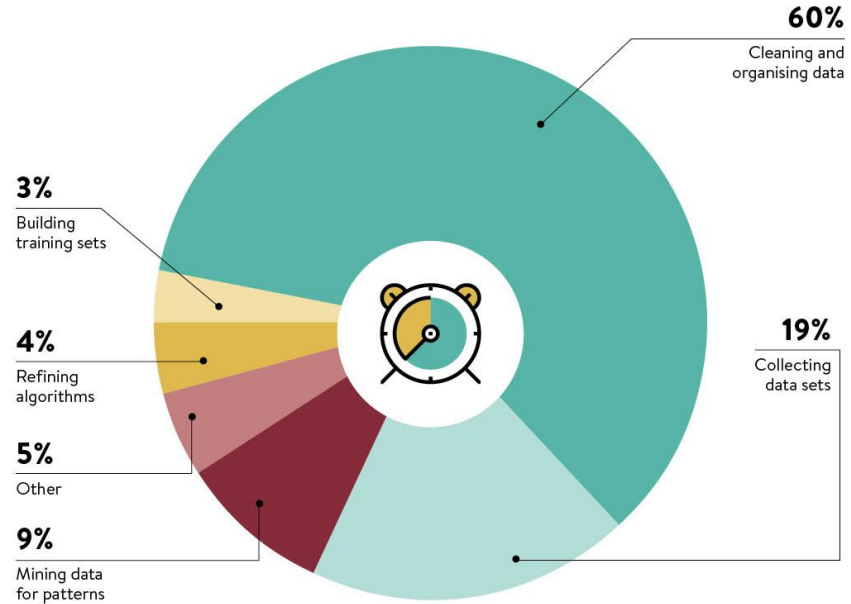
Small to medium sized financial
companies

Revenue model

- B2B - Subscription based
 - API
 - On-site

NLP

WHAT DATA SCIENTISTS SPEND THE MOST TIME DOING



Source: CrowdFlower 2016

Tokenization

Harry walked down four blocks to pick up ice cream.



Tokenization



| | | | | | | | | | | |
|-------|--------|------|------|--------|------|------|-----|------|-------|-------|
| Harry | walked | down | four | blocks | to | pick | up | ice | cream | . |
| PROPN | VERB | ADV | NUM | NOUN | PART | VERB | ADP | NOUN | NOUN | PUNCT |

Lemmatization & Stemming

Lucy said that the car's engine was running all night



Lemmatization



Lucy say that the car engine be run all night

Parts of Speech

Harry walked down four blocks to pick up ice cream.

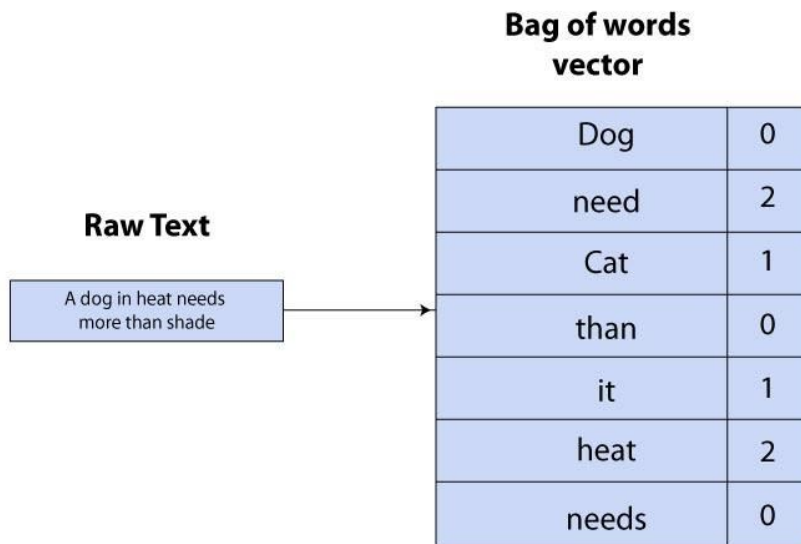


Parts of Speech



| | | | | | | | | | | |
|-------|--------|------|------|--------|------|------|-----|------|-------|-------|
| Harry | walked | down | four | blocks | to | pick | up | ice | cream | . |
| PROPN | VERB | ADV | NUM | NOUN | PART | VERB | ADP | NOUN | NOUN | PUNCT |

Bag of Words



N-Grams

This is Big Data AI Book

Uni-Gram

| | | | | | |
|------|----|-----|------|----|------|
| This | Is | Big | Data | AI | Book |
|------|----|-----|------|----|------|

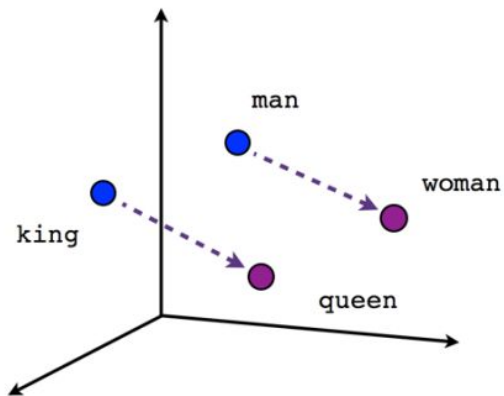
Bi-Gram

| | | | | |
|---------|--------|----------|---------|---------|
| This is | Is Big | Big Data | Data AI | AI Book |
|---------|--------|----------|---------|---------|

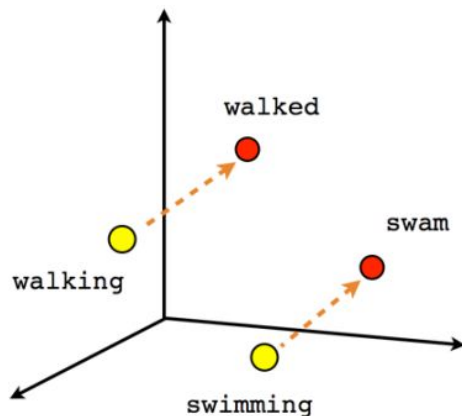
Tri-Gram

| | | | |
|-------------|-------------|-------------|--------------|
| This is Big | Is Big Data | Big Data AI | Data AI Book |
|-------------|-------------|-------------|--------------|

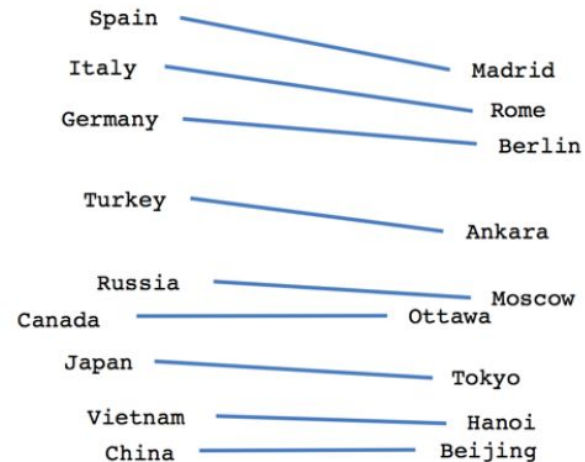
Word Embeddings



Male-Female

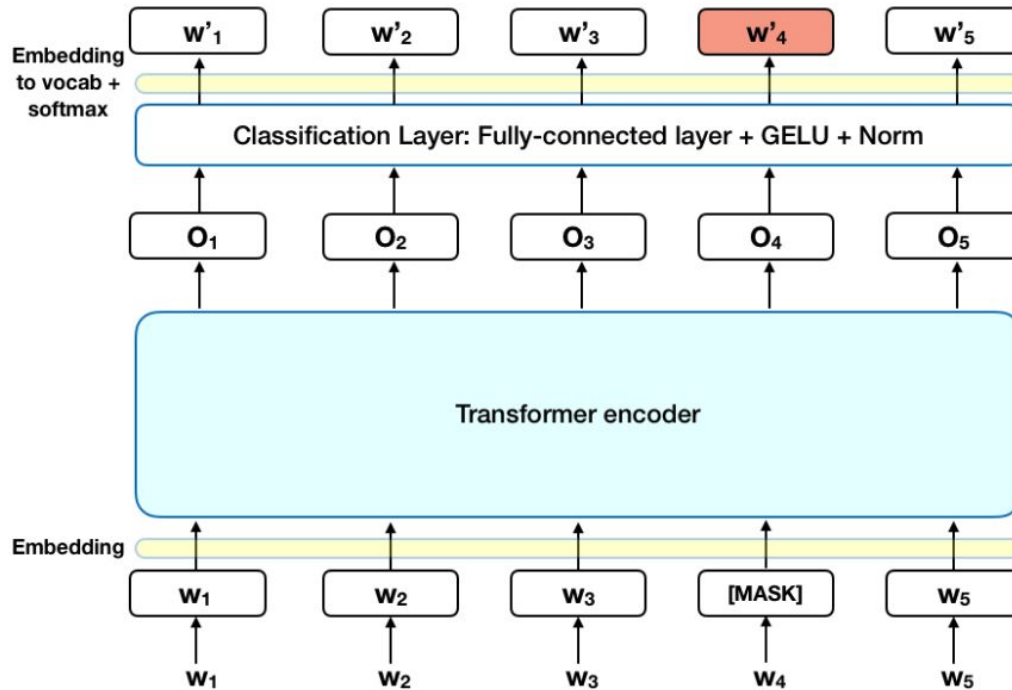


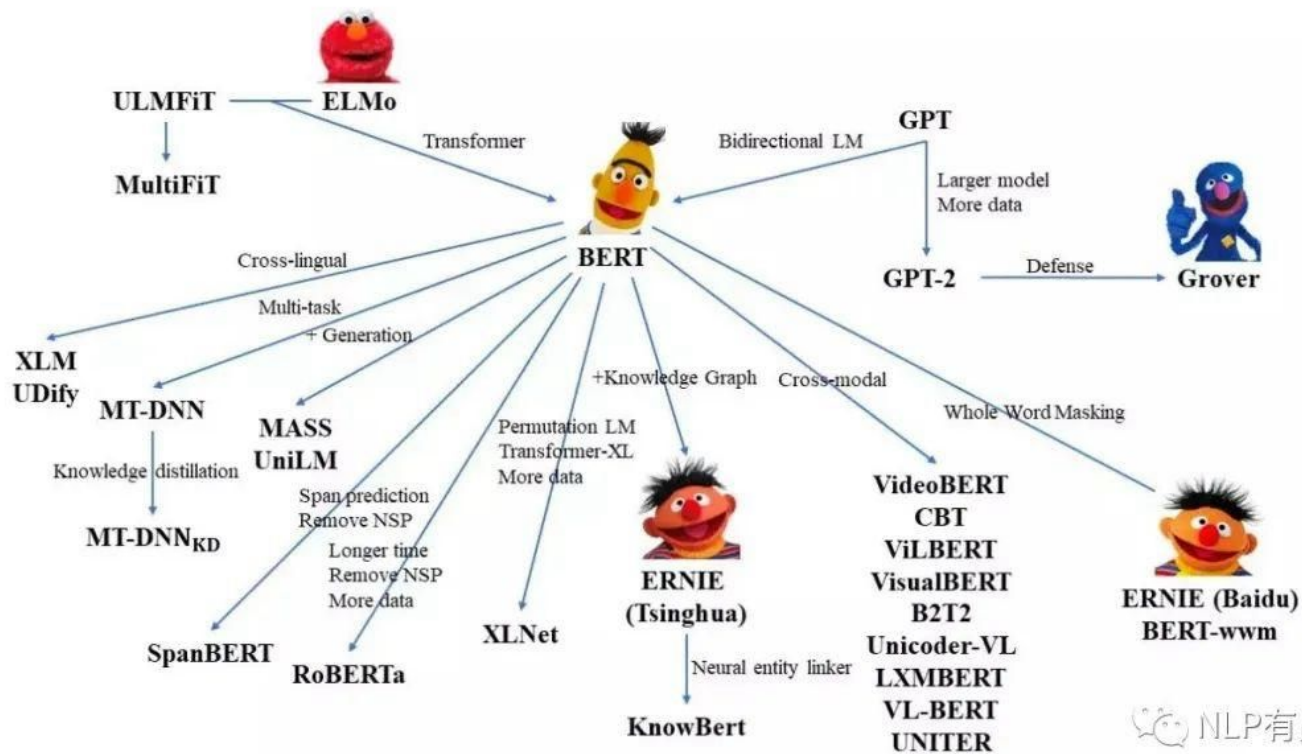
Verb tense



Country-Capital

Transformers





Bias

Prompt u : The nurse said that ___

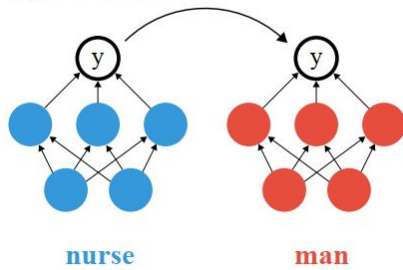
Stereotypical candidate: she

Anti-stereotypical candidate: he

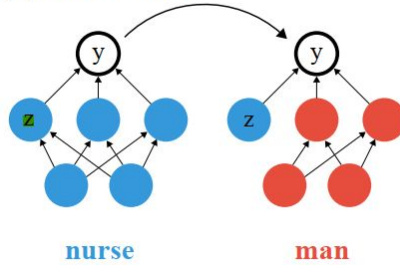
Bias

$$\frac{p_{\theta}(he \mid The\ man\ said\ that)}{p_{\theta}(she \mid The\ man\ said\ that)} \bigg/ \frac{p_{\theta}(he \mid The\ nurse\ said\ that)}{p_{\theta}(she \mid The\ nurse\ said\ that)} - 1.$$

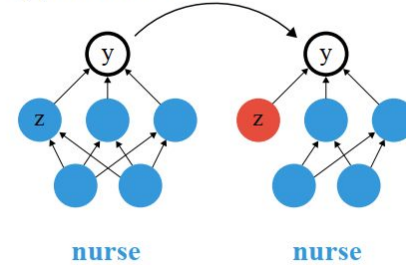
(a) Total Effect



(b) Direct Effect



(c) Indirect Effect



References

<https://www.analyticssteps.com/blogs/an-optimum-approach-towards-the-bag-of-words-with-code-illustration-in-python>

<https://developer.ibm.com/technologies/artificial-intelligence/articles/a-deeper-look-at-the-syntax-api-feature-within-watson-nlu/>

<https://devopedia.org/n-gram-model>

Thank You

Questions?

Contact: info@finsentim.com

Website: finsentim.com

Blog: blog.finsentim.com

