

Role of NLP in Finance

- NLP extracts structure from data by identifying:
 - Entities
 - Key Concepts
 - Topics
 - Sentiment
- Facilitates search, discovery, analytics:
 - Time Series
 - Newsworthiness
 - Semantic Search

Example

Apple Working to Bring More Financial Services In-House

Apple Inc. is developing its own payment processing technology and infrastructure for future financial products, part of an ambitious effort that would reduce its reliance on outside partners over time, according to people with knowledge of the matter.

A multiyear plan would bring a wide range of financial tasks in-house, said the people, who asked not to be identified because the plans aren't public. That includes payment processing, risk assessment for lending, fraud analysis, credit checks and additional customer-service functions such as the handling of disputes.

The effort is focused on future products, rather than Apple's current lineup of services. Still, the news sent shares of CoreCard Corp. and Green Dot Corp. -- two of Apple's existing partners -- down more than 10% apiece on Wednesday. Goldman Sachs Group Inc., another key partner, slipped as much as 1.2%.

The push would turn the company into a bigger force in financial services, building on a lineup that already includes an Apple-branded credit card, peer-to-peer payments, the Wallet app and a mechanism for merchants to accept credit cards from an iPhone. Apple is also working on its own subscription service for hardware and a "buy now, pay later" feature for Apple Pay transactions, Bloomberg has reported.

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Our recent work on Keyphrases

Keyphrase Extraction as Sequence Labeling using Contextualized Embeddings. (Sahrawat et al., ECIR 2020.)

Explore in-domain and generic contextual embeddings with BiLSTM + CRF & BiLSTM

State-of-the-art performance on Keyphrase Extraction

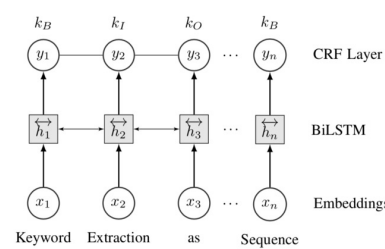
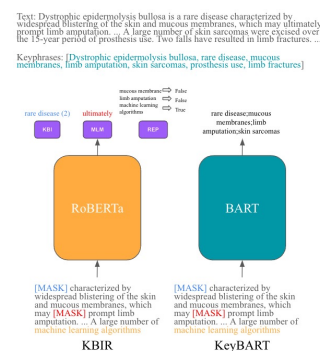


Figure 1: BiLSTM-CRF architecture

Learning Rich Representations of Keyphrases from Text. (Kulkarni et al., arXiv 2021. [Under Review]).

Pre-train RoBERTa-based and BART-based architectures with novel Keyphrase-based pre-training objectives

State-of-the-art performance on Keyphrase Extraction and Generation



Applications

Identifying Keyphrases in Story Clusters

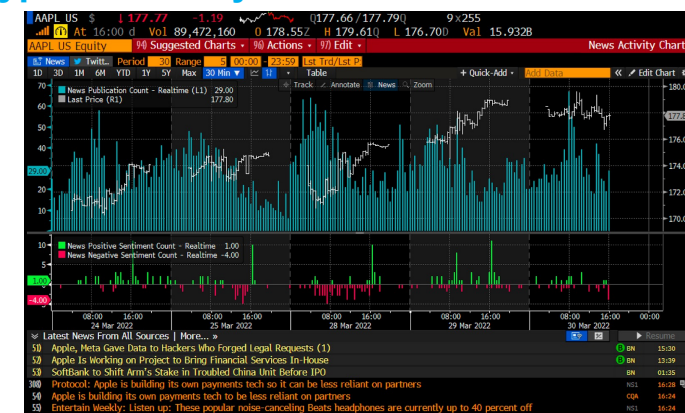
NSTM: Real-Time Query-Driven News Overview Composition at Bloomberg (Bambrick et al., ACL 2020.)

Related Entities: Apple ↑ CoreCard ↓

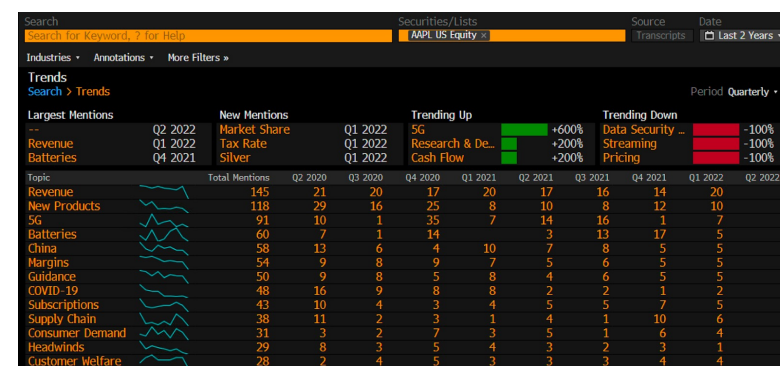
Related Keyphrases: Financial Products ↑



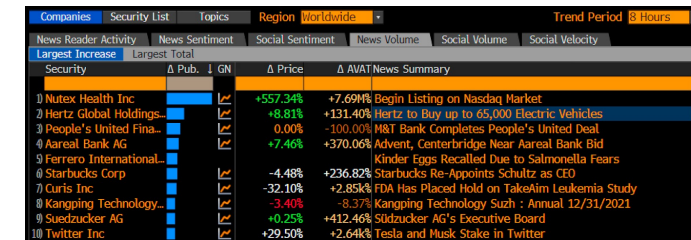
Keyphrase Analytics: Track Sentiment over time



Time Series Analysis: Search Trends over time



Contextualizing Trending Entities in News Stories (Ponza et al., WSDM 2021.)



Observe News Trends



Time Series Analysis: Compare Story Flow



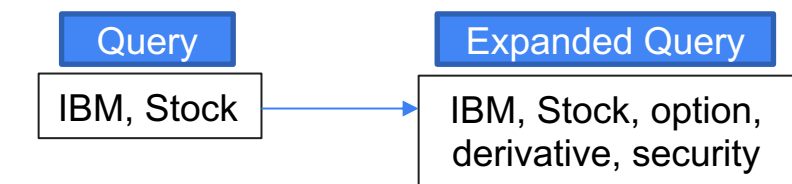
Emerging & Trending Keyphrases

Keyphrase:	Related Entities:	Related Stories:
Financial Products	↑ Apple, CoreCard, ...	Apple working to bring more Financial Services, ...
Super Tuesday	↓ Pete Buttigieg, Donald Trump	Pete Buttigieg wants to scrap state and local tax deductions ...
Tax Reform Package	↑ Pete Buttigieg, Donald Trump	Pete Buttigieg wants to scrap state and local tax deductions ...
Fraud Analysis	↑ BidFair, Apple	U.K. Makes First Ever NFT Seizure in Crackdown on Tax Fraud, Apple working to bring more Financial Services, ...

Improve Readability & Accessibility



Query Expansion



Check out our models on HuggingFace

bloomberg/KBIR
Updated Feb 16 · ↓ 238

- Compatible with RoBERTa architectures
- Classification Applications

bloomberg/KeyBART
Text2Text Generation · Updated Feb 16 · ↓ 365

- Compatible with BART architectures
- Generation and Zero-shot Applications

Hosted inference API

Text2Text Generation

IBM stock

Compute

Computation time on cpu: 1.2192 s

IBM stock;share price;indexation;indexing terms;indexes;index

JSON Output

Maximize