

PANACEA: PANdemic Ai Claim vEracity Assessment

An AI-enabled evidence-driven framework
for claim veracity assessment during pandemics

<https://panacea2020.github.io>

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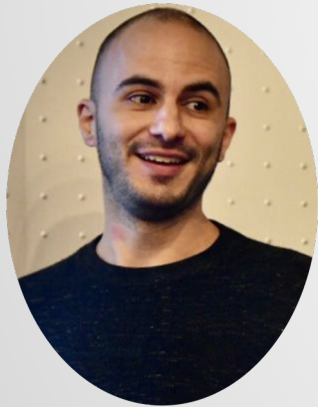
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Project Partners



**The
Alan Turing
Institute**



Motivation

- During the COVID-19 pandemic, national and international organisations are using online platforms to communicate information about the virus to the public.
- Misinformation can strongly influence human behaviour and negatively impact public health interventions. For instance,
 - unreliable treatments could put public safety in danger and increase pressure on the health system;
 - failure to comply with government advice may increase the chance of spreading the disease.
- Veracity assessment of online information is a complex problem.
- A sophisticated conceptual framework combines techniques from natural language processing, evidence retrieval, network analysis, deep learning and visual informatics.

Research Objectives

RO1	Collect COVID-19 related data from social media platforms and authoritative resources.
RO2	Develop automated methods to extract key information on COVID-19 from trustworthy sources.
RO3	Develop novel approaches for veracity assessment by incorporating evidence from external sources.
RO4	Validate the methods via a set of new visualisation interfaces.

Deliverables

D1. COVID-19 related data collected from heterogenous information sources where a subset is annotated with veracity labels ('True', 'False').

D2. An evidence gathering algorithm for extracting COVID-related key information/evidence.

D3. A claim veracity evaluation mode.


D4. An algorithm to study the propagation of misinformation.

D5. A visualisation interface for presentation of results.

PANACEA Demo

PANACEA

Cocaine is not a cure for COVID-19! - FactCrescendo | The leading fact-checking website in India

Full document in english.factcrescendo.com | Share to   

Article related to: cocaine cures coronavirus

Document Content:

Cocaine is not a cure for COVID-19! for: Cocaine is not a cure for COVID-19! Coronavirus False International Medical March 7, 2020 March 11, 2020 Aavya Ray The internet is flooded with misinformation and panic since December 2019 when the Novel Coronavirus Outbreak started. There is no cure for this rare and new virus that has taken more than 3000 lives till now worldwide. Internet is filled with cures and causes for this disease, while the most recent cure for this disease is said to be Cocaine. Facebook Artist Helper, Bizzle Ozikoya tweeted the same image on his official Twitter [account claiming that Cocaine kills Corona Virus](https://pic.twitter.com/stjYcjhGiz). pic.twitter.com/stjYcjhGiz — Bizzle Osikoya (@bizzleosikoya) February 3, 2020 Archive Link Fact Check- We started our investigation by searching about cocaine on WHO's website. According to World Health Organization (WHO) 's [website](#), they denied that cocaine can protect against the coronavirus. The website mentioned, "Cocaine is a stimulating and addictive drug. Its consumption causes serious side effects and is detrimental to people's health." Is there a vaccine, drug or treatment for COVID-19? World Health Organization (WHO) report says, "Not yet. To date, there is no vaccine and no specific antiviral medicine to prevent or treat COVID-2019

Document relation to searched sentence?

 Refute

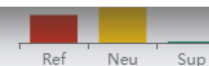


Stance Filter

- All
- Refute Stance
- Neutral Stance
- Support Stance

and epidemic. The post which is also a screengrab in a news format has a text highlighted that read: Cocaine kills coronavirus

<https://www.vishvasnews.com/english>



COCAINE DOES NOT CURE CORONAVIRUS! - DUBAWA

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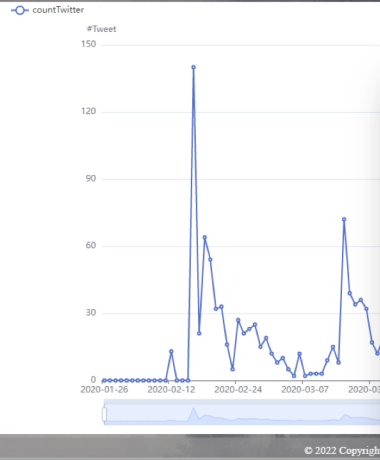
Cocaine Does NOT Cure Coronavirus! Paper? Mainstream Cocaine Does NOT Cure Coronavirus!

TYPE: Article

SOURCE: dubawa.org

PANACEA Demo

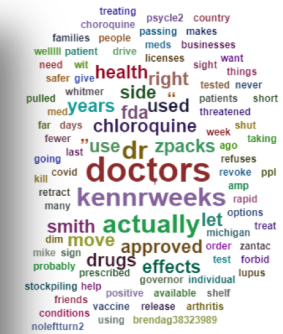
Tweet Count - show the total influence and discussion of the input claim.
The total number of tweets related to the input claim against the posting date are shown here.



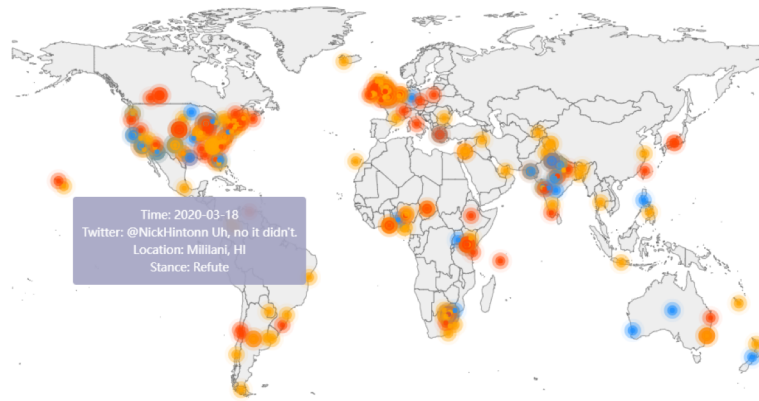
Word Cloud - show the popular topics of the input claim on both sides.
The top 50 words in tweets refute the input claim and the top 50 words in tweets support the input claim are shown in word cloud. Stopwords, punctuation, numbers are removed to reduce the noninformative words.

Negative

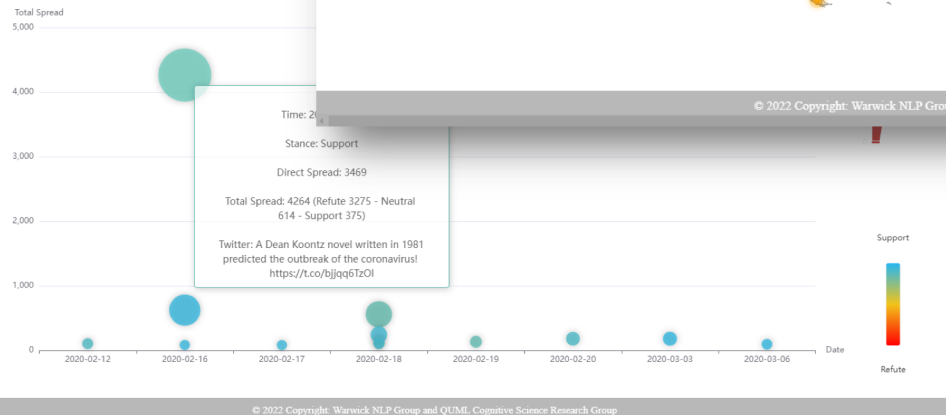
Positive



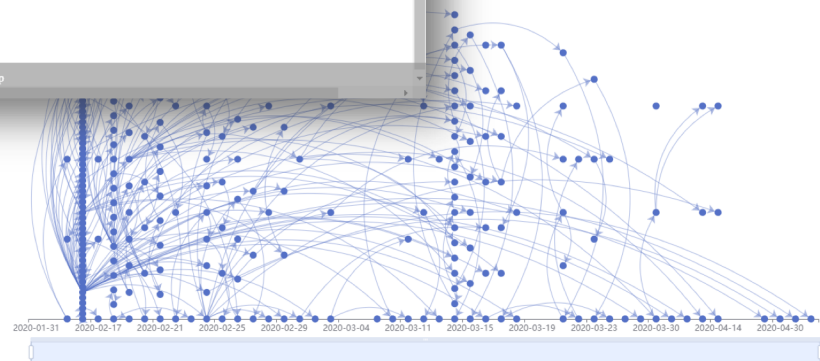
Tweet Map - show the stance and popularity of the input claim in the different regions.
Related tweets of input claim are plotted on the world map and colored by their stances, where red/yellow/blue represents refute/neutral/support. The difference of stance and popularity towards the input claim in the different regions can be easily seen, which shows the local concern and geo location bias.



Tweet Spread - show the impact of each original tweet.
The influence of each original tweet are shown in the scatter, whereas the radius includes the number of indirect comments/retweets of the original tweet, such as



Tweet Path - show the propagation path of the input claim.
The path of the input claim is shown in the network graph. 5 other claims are randomly chosen from popular claims for users to compare propagation



Workshop Program

- 10:10 - 10:55 **Invited talk:** Fact-checking as a conversation
Andreas Vlachos, University of Cambridge
- 10:55 - 11:15 Natural Language Inference with Self-Attention for
Veracity Assessment of Pandemic Claims
*Miguel Arana Catania, University of Warwick and
Cranfield University*
- 11:15 - 11:35 Coffee break**
- 11:35 - 11:55 Evaluating the Generalisability of Neural Rumour
Verification Model
Elena Kochkina, Queen-Mary University of London
- 11:55 - 12:15 Some Observations on Fact Checking Work
Rob Procter, University of Warwick
- 12:15 - 12:30 PANACEA demonstration
Runcong Zhao, University of Warwick
- 12:30 - 13:30 Lunch**

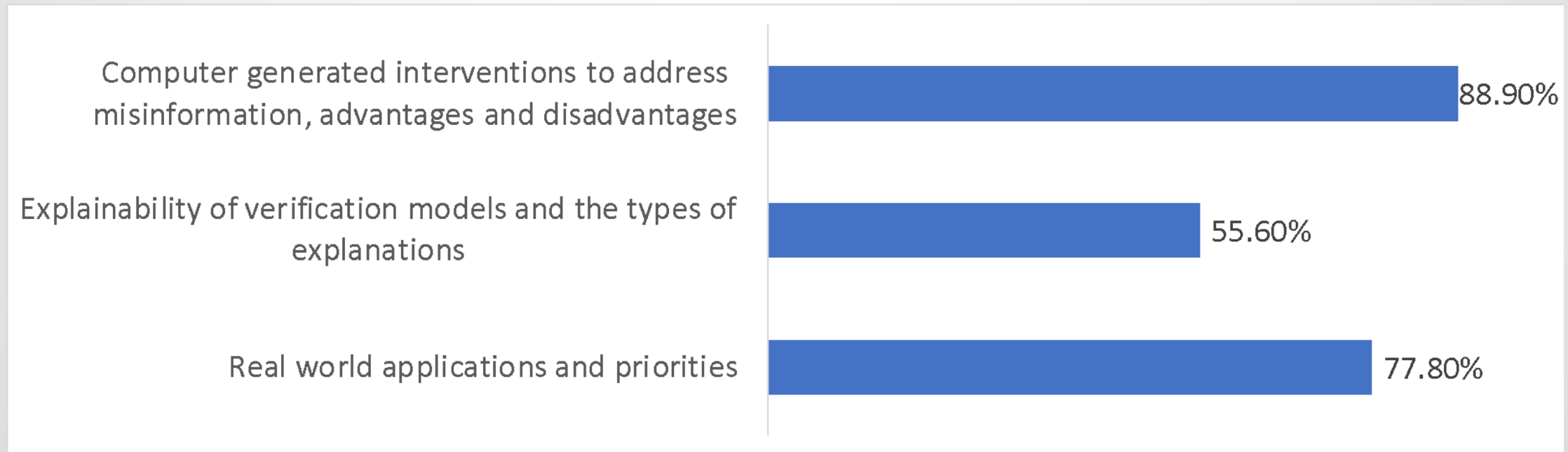
- 13:30 - 13:45 Learning Disentangled Latent Topics for Twitter
Rumour Veracity Classification
John Dougrez-Lewis, University of Warwick
- 13:45 - 14:00 Active PETs: Active Data Annotation Prioritisation for
Few-Shot Claim Verification with Pattern Exploiting
Training
Xia Zeng, Queen-Mary University of London
- 14:00 - 14:15 Disentangled Learning of Stance and Aspect Topics
for Vaccine Attitude Detection in Social Media
Lixing Zhu, University of Warwick
- 14:15 - 14:30 Coffee break**
- 14:30 - 15:15 Break-out discussion
- 15:15 - 15:55 Presentation and discussion
- 15:55 - 16:00 Wrap up**

Publications

- M. Arana Catania, E. Kochkina, A. Zubiaga, M. Liakata, R. Procter and Y. He. [Natural Language Inference with Self-Attention for Veracity Assessment of Pandemic Claims](#), *2022 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)*, Jul. 2022.
- L. Zhu, Z. Fang, G. Pergola, R. Procter and Y. He. [Disentangled Learning of Stance and Aspect Topics for Vaccine Attitude Detection in Social Media](#), *2022 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)*, Jul. 2022.
- J. Dougrez-Lewis, M. Arana Catania, E. Kochkina, M. Liakata and Y. He. [PHEMEPlus: Enriching Social Media Rumour Verification with External Evidence](#), *The 5th FEVER Workshop, co-located with ACL May 2022*.
- J. Dougrez-Lewis, E. Kochkina, M. Liakata and Y. He. [Learning Disentangled Latent Topics for Twitter Rumour Veracity Classification](#), *ACL Findings*, Aug. 2021.
- E. Kochkina, T. Hossain, R.L. Logan IV, M. Arana-Catania, R. Procter, A. Zubiaga, S. Singh, Y. He and M. Liakata. *Evaluating the Generalisability of Neural Rumour Verification Models. (Under journal submission, August 2022.)*
- W. Zhang, L. Gui and Y. He. [Supervised Contrastive Learning for Multi-modal Unreliable News Detection in COVID-19 Pandemic](#), *The 30th ACM International Conference on Information and Knowledge Management (CIKM)*, Nov. 2021.
- J. Si, D. Zhou, T. Li, X. Shi and Y. He. [Topic-aware Evidence Reasoning and Stance-aware Aggregating for Fact Verification](#), *The 59th Annual Meeting of the Association for Computational Linguistics (ACL)*, Aug. 2021.
- X. Zeng, A. S. Abumansour and A. Zubiaga. [Automated fact-checking: A survey](#), *Language and Linguistics Compass*, 2021.
- X. Zeng and A. Zubiaga. [QMUL-SDS at SCIVER: Step-by-Step Binary Classification for Scientific Claim Verification](#), *Proceedings of the Second Workshop on Scholarly Document Processing, co-located with ACL 2021*.
- A. S. Abumansour and A. Zubiaga. [QMUL-SDS at CheckThat! 2021: Enriching Pre-Trained Language Models for the Estimation of Check-Worthiness of Arabic Tweets](#), *CLEF Working Notes*, 2021.

Break-Out Discussion

Please vote for the topic(s) that you would like to discuss in our break-out session. You can select multiple topics





Invited Talk

Fact-checking as a conversation

Dr. Andreas Vlachos
University of Cambridge