



Research Project Progress Report

Week [5] – SIT723

Student Name:	Oscar Wu
Supervisors' Names:	Daniel Ma
Project Title:	Multi-lingual COVID19 misinformation detection and model explanation
SIT723 Target Grade:	HD
Overleaf Project Link:	https://www.overleaf.com/read/pbmngdmgghsnq
Project Folder Link:	https://github.com/wuyoscar/SIT723-Reserach-Project-A
Worklog:	20 See screenshot of worklog below
Project Plan	
Summary of the work planned with your supervisor:	<ol style="list-style-type: none">1. Cleaned datasets2. EDA of covid19 misinformation and data mining
Summary of the work done:	Collected and pre-processed datasets
Next steps:	Run benchmark model
Overall project progress:	Finished related work and data collection.

Reflection against Assessment Rubric

Add comments and evidence against your target grade for each criterion in the assessment rubric. You should also provide evidence (relevant to your target grade) on how you meet all the relevant criteria for that grade based on your progress so far.



In case you have not started work on a specific criterion, e.g., research evaluation, leave it blank.

Your reflection on work done so far against the assessment rubric criteria

HD

my project is aiming for mining useful information of covid19 misinformation. Firstly, I targets existing research papers related novel model and benchmark datasets. Furthermore, to better understand why covid19 news is fake or not. I used LIME and SHAP to explain model prediction. Evidence can be found in my Zotero and overleaf.

Literature Review

Title	Creator	Year	Publication
A probabilistic approach to semantic representation	Griffiths and Steyvers	2019	Proceedings of the Twenty-Fourth ...
A Survey of COVID-19 Misinformation: Datasets, Detection Techniques and Open Issues	Ullah et al.	2021	arXiv:2110.00737 [cs]
A systematic survey on deep learning and machine learning approaches of fake news detection	Varma et al.	2021	International Journal of Intelligent ...
A transformer-based architecture for fake news classification	Mehta et al.	2021	Social Network Analysis and Mining
A Unified Approach to Interpreting Model Predictions	Lundberg and Lee	2017	Advances in Neural Information Pr...
Advances in Network-Based Information Systems: The 23rd International Conference on Netw...	Barolli et al.	2021	
An Objective Search for Unrecognized Bias in Validated COVID-19 Prediction Models	Estiri et al.	2021	Information Processing & Manage...
Automated identification of bias inducing words in news articles using linguistic and context-or...	Spinde et al.	2021	2019 ACM/IEEE Joint Conference o...
Automated Identification of Media Bias by Word Choice and Labeling in News Articles	Hamborg et al.	2019	International Journal on Digital Lib...
Automated identification of media bias in news articles: an interdisciplinary literature review	Hamborg et al.	2019	ICST Transactions on Scalable Infor...
Classification of Fake News by Fine-tuning Deep Bidirectional Transformers based Language Mo...	Aggarwal et al.	2018	arXiv:2006.00885 [cs]
CoNLD: COVID-19 Healthcare Misinformation Dataset	Cui and Lee	2020	Neurocomputing
Combining paper cooperative network and topic model for expert topic analysis and extraction	Gao et al.	2017	
Coronavirus disease (COVID-19) update			
COVID-19 sentiment analysis via deep learning during the rise of novel cases	Chandra and Krishna	2021	PLOS ONE
CXP949 at WNUT-2020 Task 2: Extracting Informative COVID-19 Tweets - RoBERTa Ensembles	Perrin and Tayyar Madabushi	2020	Proceedings of the Sixth Workshop...
Deep Sentiment Classification and Topic Discovery on Novel Coronavirus or COVID-19 Online Di...	Hamed Jelodar et al.	2020	IEEE Journal of Biomedical and Heal...
Detecting Misleading Information on COVID-19	Elhadad et al.	2020	IEEE Access
Detection of Fake News Text Classification on COVID-19 Using Deep Learning Approaches	Bangyal et al.	2021	Computational and Mathematical ...
Distorting the News? The Mechanisms of Partisan Media Bias and its Effects on News Production	Shultziner and Stukalin	2021	Political Behavior
Exploring Text-transformers in AACL 2021 Shared Task: COVID-19 Fake News Detection in Engl...	Li et al.	2021	arXiv:2101.02359 [cs]
Exploring the Vulnerability of Natural Language Processing Models via Universal Adversarial Texts	Li et al.	2021	Expert Systems with Applications
Fake news detection based on explicit and implicit signals of a hybrid crowd: An approach inspir...	Souza Freire et al.	2021	
Fake news detection in social media	Stahl	2019	Proceedings of the 11th Internatio...
Fake News Detection via NLP is Vulnerable to Adversarial Attacks	Zhou et al.	2020	Physica A: Statistical Mechanics an...
Fake news detection within online social media using supervised artificial intelligence algorithms	Ozbay and Alatas	2020	arXiv:2109.12914 [cs]
Fake News Detection: Experiments and Approaches beyond Linguistic Features	Bhatt et al.	2022	Proceedings of the 23rd Internatio...
FakeWhatsApp.BR: NLP and Machine Learning Techniques for Misinformation Detection in Brazil...	Cabral et al.	2021	Combating Online Hostile Posts in ...
Fighting an Infodemic: COVID-19 Fake News Dataset	Patwa et al.	2021	arXiv:2012.11967 [cs]
Fighting the COVID-19 Infodemic in Social Media: A Holistic Perspective and a Call to Arms	Alam et al.	2020	Decision Support Systems
g2tmn at Constraint@AAAI2021: Exploiting CT-BERT and Ensembling Learning for COVID-19 Fa...	Glazkova et al.	2021	
Improving fake news detection with domain-adversarial and graph-attention neural network	Yuan et al.	2021	
Latent Dirichlet Allocation	Blei	2018	Proceedings of the Eleventh ACM I...
Leveraging the Crowd to Detect and Reduce the Spread of Fake News and Misinformation	Kim et al.	2017	arXiv:1705.00648 [cs]
"Liar, Liar Pants on Fire": A New Benchmark Dataset for Fake News Detection	Wang	2020	IEEE Access
Lies Kill, Facts Save: Detecting COVID-19 Misinformation in Twitter	Al-Rakhami and Al-Amri	2020	arXiv:2105.03313 [cs]
Looking for COVID-19 misinformation in multilingual social media texts	Pranesh et al.	2021	
Naming the coronavirus disease (COVID-19) and the virus that causes it	Organisation		Proceedings of the 16th Conferenc...
NewsMTSC: A Dataset for (Multi-)Target-dependent Sentiment Classification in Political News Ar...	Hamborg and Donnay	2021	arXiv:2010.06906 [cs]
No Rumours Please! A Multi-Indic-Lingual Approach for COVID Fake-Tweet Detection	Kar et al.	2020	Proceedings of the Conference on ...
On Human Predictions with Explanations and Predictions of Machine Learning Models: A Case St...	Lai and Tan	2019	Current Opinion in Behavioral Scie...
Polarization in the contemporary political and media landscape	Wilson et al.	2020	arXiv:2008.13160 [cs]
QMLU-SDS at CheckThat! 2020: Determining COVID-19 Tweet Check-Worthiness Using an Enha...	Alkhalifa et al.	2020	Proceedings of the 2019 IEEE/ACM...
SAME: sentiment-aware multi-modal embedding for detecting fake news	Cui et al.	2019	Journal of the American Medical Inf...
The application of artificial intelligence and data integration in COVID-19 studies: a scoping rev...	Guo et al.	2021	arXiv:2105.09660 [cs]
Towards Target-dependent Sentiment Classification in News Articles	Hamborg et al.	2021	arXiv:2101.05509 [cs]
Transformer-based Language Model Fine-tuning Methods for COVID-19 Fake News Detection	Chen et al.	2021	Communications of the ACM
Trust and distrust in online fact-checking services	Brandtzaeg and Felstad	2017	arXiv:1908.07125 [cs]
Universal Adversarial Triggers for Attacking and Analyzing NLP	Wallace et al.	2021	arXiv:2101.06898 [cs]
What Do Deep Nets Learn? Class-wise Patterns Revealed in the Input Space	Zhao et al.	2021	
A Unified Approach to Interpreting Model Predictions	Lundberg and Lee	2017	Advances in Neural Information Pr...
Combat COVID-19 Infodemic Using Explainable Natural Language Processing Models	Ayoub et al.	2021	arXiv:2103.00747 [cs]
Examples are not enough, learn to criticize: Criticism for interpretability	Kim et al.	2016	Advances in Neural Information Pr...
Exploratory Analysis of Fundamental Spiritual Support Factors to a Positive Attitude in Patients w...	Sánchez-Garcés et al.	2021	Applied Sciences
From local explanations to global understanding with explainable AI for trees	Lundberg et al.	2020	Nature Machine Intelligence
g2tmn at Constraint@AAAI2021: Exploiting CT-BERT and Ensembling Learning for COVID-19 Fa...	Glazkova et al.	2021	arXiv:2012.11967 [cs]
Municipal Solid Waste Forecasting in China Based on Machine Learning Models	Yang et al.	2021	Frontiers in Energy Research
On Human Predictions with Explanations and Predictions of Machine Learning Models: A Case St...	Lai and Tan	2019	Proceedings of the Conference on ...
"Why Should I Trust You?": Explaining the Predictions of Any Classifier	Ribeiro et al.	2016	Proceedings of the 22nd ACM SIGK...



Technical & Academic Writing	D I applied appropriate referencing standards, and appropriate illustrations as figures and tables. present mostly well-reasoned arguments, maintain a consistent storyline in writing for a specific audience and demonstrate a clear understanding of the domain.
Research Design	HD Prior study is limit only English text for covid19 and model performance. My Research try to solve multi-lingual covid19 detection and model explainable in order to make public to overcome covid19 pandemic.
Project Management	[Add your comments, grade and relevant evidence here]
Artefact Development	[Add your comments, grade and relevant evidence here]
Research Evaluation	[Add your comments, grade and relevant evidence here]
Research Dissemination	[Add your comments, grade and relevant evidence here]
OVERALL	HD

Additional Evidence

Add any evidence that supports your case for your target grade. For example, screenshot of git commits log, screenshot of your cloud storage folder, progress in your research report or artefact development, or a visual chart to illustrate project progress so far.

Worklog

Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	6/12/21	120 Up-skilling	studied BERT model and
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	7/12/21	120 Literature Review	studied related work
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	8/12/21	120 Research Design	implemented shapley value part I
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	9/12/21	120 Research Design	implemented shapley value part II
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	10/12/21	120 Research Design	implemented shapley value part III
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	11/12/21	120 Artefact Implementation	cleaned datasets part I
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	11/12/21	120 Artefact Implementation	cleaned datasets part II
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	12/12/21	120 Writing	academic writing of related work
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	12/12/21	120 Writing	academic writing of related work
Oscar WU	Daniel Ma	Multi-lingual COVID19 misinformati	12/12/21	120 OnTrack Task	week 5 project progress report

Dataset collection



Covid19 Fake Datasets

+ Add a view

Filter

Search



New



Name	Property	Dataset Shape	Online Link	
Coronavirus Posts in Reddit Platform	Paper Kaggle Reddits		https://www.kaggle.com/khalidalharthi/coronavirus-posts-in-reddit-platform?select=coronavirus_reddit_posts.csv	<input type="checkbox"/>
COVID Fake News Data	Kaggle Published	10326	https://www.researchgate.net/profile/Sumit-Banik-2	<input checked="" type="checkbox"/>
CONSTRAINT 2021 - AAIL-Shared Task		13000	https://arxiv.org/abs/2011.03327	<input checked="" type="checkbox"/>
CoAID	Bench Dataset Ground Truth	Infinity	https://arxiv.org/pdf/2006.00885.pdf	<input checked="" type="checkbox"/>
ReCOVery	Bench Dataset Ground Truth	2029		<input checked="" type="checkbox"/>
+ Development of a Public Coronavirus Twitter DataSet	Bench Dataset			<input checked="" type="checkbox"/>
+ COVID19 Rumor Datasets	Poynter Bench Dataset			<input checked="" type="checkbox"/>
+ FakeCovid	Bench Dataset			<input checked="" type="checkbox"/>
CMU-MisCov19	Bench Dataset			<input checked="" type="checkbox"/>
Rumor Dataset	Bench Dataset			<input checked="" type="checkbox"/>
USC Melady Lab	Bench Dataset			<input checked="" type="checkbox"/>

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