

Money Mouth: A Computational Analysis of Altruistic Crowdfunding Success on GlobalGiving.org

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Problem

Donation-Based



Individual or NGO requests \$ for cause

1. In charitable settings, the performance of persuasion faces unique challenges due to a potential lack of reciprocity —

There is no guarantee that what one chooses to fund provides a return on the investment.

2. Despite the emergence of crowdfunding platforms as a lucrative avenue for capital,

NGOs often face knowledge barriers regarding effective linguistic styles and persuasive techniques in online fundraising.

Background

- Explicitly, motivates use of mixed computational methods to:
 - Identify linguistic features with successful campaigns
 - Predict whether a campaign will be successful or not
- Implicitly, motivates exploration of **interpretability** v.s. **predictive power**

Extant research has analyzed other altruistic crowdfunding websites using classification (Zhang, 2021) or entrepreneurial campaigns using BERT (Chan, 2021), but **no current work one altruistic crowdfunding with BERT**



Data

- 27,000 campaign projects accessed via API
- 33,782 projects as of November 2020 (Subset "completed" projects)
- Each project contains pictures, years, and text
 - Subset "Title," "Summary," "Need," "Challenge," "Impact," "Solution"
 - Fundraising goal & amount fundraised

Methods

1. Pearson Correlation Coefficient:

- Measure of the strength and direction of the linear association between two variables

2. Logistic Regression:

- Traditional ML model (high interpretability, lower predictive power) using binary classification

3. Fine-tuned BERT Model:

- Deep learning model (lower interpretability, higher predictive power) with added shallow neural network

(LIWC for pre-processing, LIME for BERT interpretability)

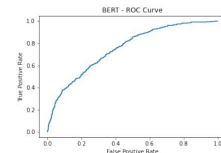
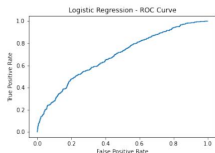
Experiments

Task:

- take as input text from crowdfunding campaign and predict whether it will be successful or not (80% success ratio)

Baselines:

- Cohen Conventions (1988) → Pearson correlation coefficient
- Pearson correlation coefficient → LR
- LR → BERT



BERT performs better at predicting campaign success!

Results

Most Positively Correlated Features	LIWC Feature	Example	Correlation Coefficient
	Third person singular	she, he	0.2602
	Present focus	today, is, now	0.2287
	Personal pronoun	I, them, her	0.2002
	Pronoun	I, them, itself	0.1852
	Second person	you, your, thou	0.1612

Most Negatively Correlated Features	LIWC Feature	Example words	Correlation Coefficient
	Words/ sentence	-	-0.1623
	Words > 6 letters	-	-0.1483
	Conjunctions	and, but, whereas	-0.1082
	Prepositions	to, with, above	-0.0994
	Analytic	-	-0.0972

Most Positively-Weighted Features	LIWC Feature	Example	Weight
	Present focus	today, is, now	3.8336
	Third person singular	she, he	3.0135
	Apoptrophe	-	1.9073
	Period	-	1.3779
	Second person	you, your, thou	0.94062

Most Negatively-Weighted Features	LIWC Feature	Example words	Weight
	Words/ sentence	-	-2.7254
	Conjunctions	and, but, whereas	-2.6002
	Dict. words	-	-0.7829
	Auxiliary verbs	am, will, have	-0.7896
	Words > 6 letters	-	-0.7298

Our logistic regression does somewhat confirm the correlation coefficients ... Correlation → Causation?



LIME for BERT — case by case basis, but sometimes does support PCC and LR

Conclusions

Pronouns / present focus	Analytic / wordy / conjunctions / prepositions
community-based thinking	complex thinking
narrative style	difficult readability

Takeaways: use storytelling to compel donors; mixed computational methods are important!

But... more work is needed. Future steps include:

- Subset data by thematic type
- Consider other elements beside texts (eg., number of pictures)