

Deep Learning Track by Tugba Eraslanoglu

Finding Protests in Berlin using Zero-Shot Classification

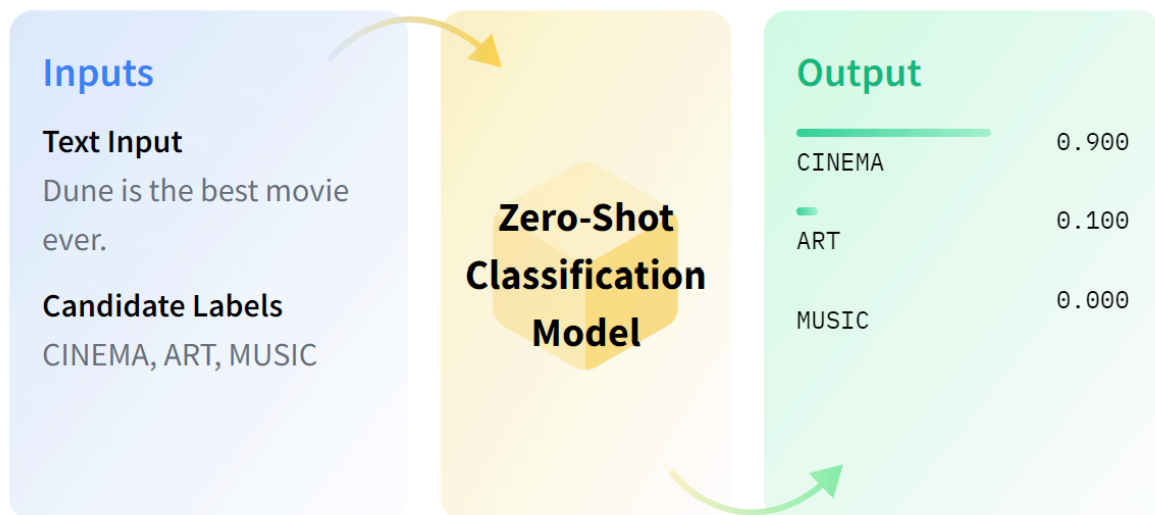
Introduction

It is essential for social consciousness and activism in Berlin, a dynamic city, to comprehend and monitor protests.

There may be limitations to conventional techniques for recognizing protests. There is a more thorough and effective method available when using Natural Language Processing (NLP).

Using the "facebook/bart-large-mnli" approach, this talk investigates how to analyze protest summaries and descriptions in Berlin.

Methodology



Utilized zero-shot classification algorithm with the "facebook/bart-large-mnli" model.

Zero-shot classification allows the model to classify protest descriptions without explicit training on protest-related data.

A CSV table containing protest descriptions and summaries from ACLED by provided newspaper sources was used as a dataset.

The model analyzed each description to determine the aim of the protest, providing valuable insights into the nature of protests in Berlin.

Example

Description: *People, including members of BUND, Campact, SPD, and The Greens, protested*

in the government district in Berlin - Mitte to call on authorities to ban harmful pesticides, protect bees, and give more support to farmers.

Target labels: Agriculture, Solidarity, Conflict, Against Environment, and so on.



Predicted category: Agriculture with 84%.

Results

Recognized a number of protest genres, such as activism related to the conflict, climate change, coronavirus and solidarity.

	note	description	predicted label	score
0	1	About 100 climate activists participated in a ...	Climate Change	0.959001
1	2	In the evening, about 1,000 people participate...	Conflict	0.881849
2	3	3 last generation activists protested in the f...	Transportation	0.986211
3	4	Actors and directors protested in berlin - mit...	Peace	0.692765
4	5	In the evening, about 230 pro-palestine demons...	Conflict	0.736558
...
216	217	Members of last generation slowed down traffic...	Climate Change	0.933674
217	218	At the call of the club scene, club commission...	Conflict	0.962178
218	219	At the call of the berlin anti-war coordinatio...	Against War	0.989103
219	220	Two dozen people, mostly students and school p...	Conflict	0.954810
220	221	People participated in a rally of the antimili...	Against War	0.959532

221 rows × 4 columns

note		description	predicted label	score
0	1	About 10,000 people participated in the protes...	Culture	0.384739
1	2	People, including members of mlpd, igm, and si...	Conflict	0.940707
2	3	People, including both ethnic korean germans a...	Conflict	0.957159
3	4	Fff activists and members of other environment...	Climate Change	0.961713
4	5	German and ukrainian activists, including refu...	Refugee	0.975234
...
216	217	5 alg activists blocked the a111 highway exit ...	Climate Change	0.986535
217	218	At the call of 'women, life, freedom', people ...	Women Rights	0.985059
218	219	Around 200, including members of kn - climate ...	Climate Change	0.972534
219	220	At the call of ver.di, around 6,500 (according...	International	0.944743
220	221	Around 1,000 people protested in berlin to sho...	Solidarity	0.983721

221 rows × 4 columns

note		description	predicted label	score
0	1	Around 4,000 people protested at the u-bahnhof...	Women Rights	0.949328
1	2	9 alg activists blocked the danziger strasse i...	Climate Change	0.956211
2	3	At the call of ver.di, striking employees of t...	Conflict	0.804460
3	4	4 alg activists rode a firetruck in front of t...	Climate Change	0.962191
4	5	Between 300 (according to the police) and 500 ...	Conflict	0.917838
...
216	217	People protested in berlin - spandau against c...	Coronavirus	0.984753
217	218	Around 800 people protested in tegel, berlin - ...	Coronavirus	0.993488
218	219	People protested in berlin - neukolln against ...	Coronavirus	0.983264
219	220	People protested in berlin - tempelhof-schoneb...	Coronavirus	0.986797
220	221	100 people protested in berlin - lichtenberg a...	Coronavirus	0.983471

221 rows × 4 columns

note		description	predicted label	score
0	1	People protested outside the bayer facilities ...	Conflict	0.892165
1	2	Meanwhile, around 80 people gathered at the ca...	Conflict	0.832326
2	3	Around 600 people demonstrated in berlin - pan...	Coronavirus	0.961182
3	4	Hundreds of people protested in berlin - trept...	Coronavirus	0.981071
4	5	About 450 people protested in berlin - mitte a...	Against War	0.929869
...
216	217	People protested in berlin at the call of the ...	Conflict	0.933867
217	218	Around 2,000 people protested in berlin - mitt...	Cannabis	0.995882
218	219	People protested at breitscheidplatz in berlin...	Against Rights	0.943291
219	220	Around 40 food delivery workers and supporters...	Conflict	0.939149
220	221	Activists protested in front of the brandenbur...	Conflict	0.970766

221 rows × 4 columns

note		description	predicted label	score
0	1	Around 150 people protested in berlin - mitte ...	International	0.977427
1	2	People demonstrated in berlin - tempelhof-scho...	Conflict	0.944802
2	3	Around 100 extinction rebellion activists bloc...	Climate Change	0.986795
3	4	Around 400 people protested at luftbrücke plat...	LGBTQ+	0.984764
4	5	More than 200 people protested in berlin - mit...	Conflict	0.891157
...
218	219	Around 610 people participated in a 'silent ma...	Coronavirus	0.971213
219	220	Hundreds of people gathered for a counterprotest.	Conflict	0.977645
220	221	Around 1,000 people protested in berlin, in a ...	Conflict	0.907266
221	222	Several hundred taxi drivers protested with a ...	Conflict	0.973187
222	223	More than 1,000 people gathered in berlin - ne...	Conflict	0.722058

223 rows × 4 columns

Findings

Berlin's protest scene represents a range of societal issues and concerns.

The analysis draws attention to how actively involved the city is in political and social activities.

It is imperative that policymakers, activists, and the general public comprehend these trends.

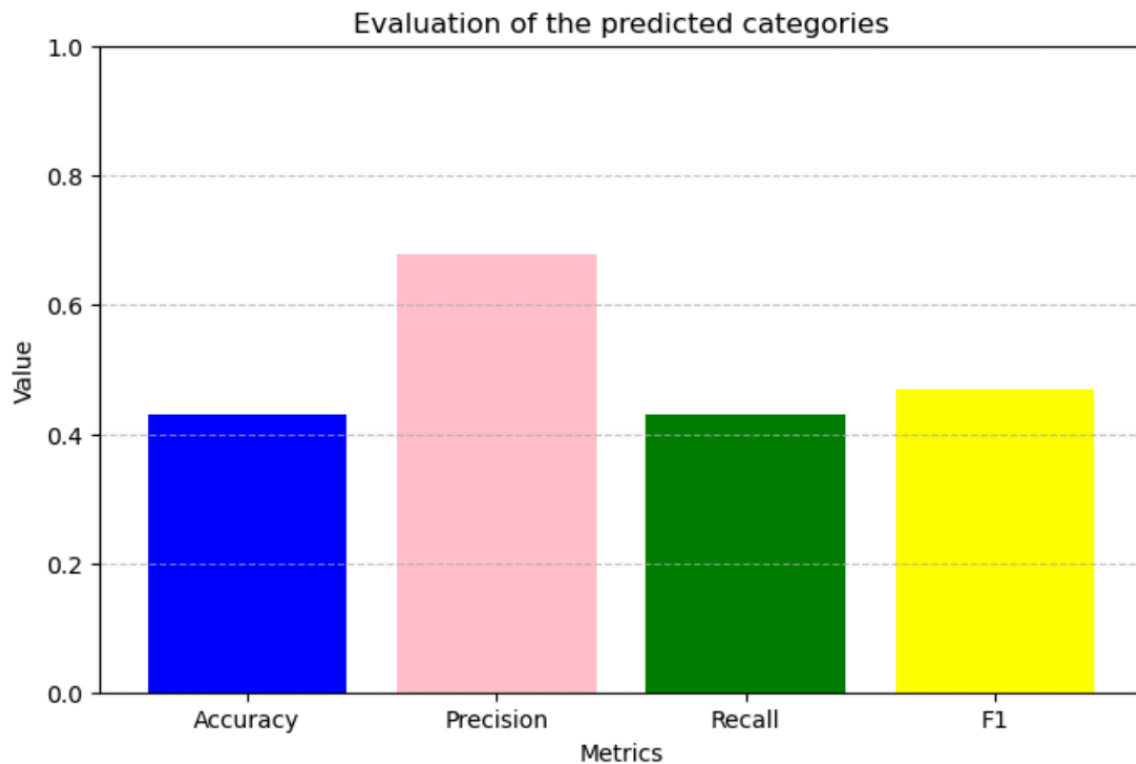
Number of each predicted category:

Conflict	332
Climate Change	309
Coronavirus	90
Solidarity	74
Against War	33
Transportation	24
International	21
Agriculture	20
Solidarity for Prisoners	19
Police Violence	17
Women Rights	17
Against Racism	15
Education	14
Housing	11
LGBTQ+	11
Against Environment	11
Rights	10
Labor Rights	10
Against Rights	9
Wages	8
Refugee	7
Employee	7
Peace	7
Culture	6
Drug Use	6
Cannabis	4
Antifacist	3
Traffic Accident	3
Disability	2
Animal Rights	2
Medical	2
BLM	2
Other	1

Our work produced important findings. There has been a noteworthy rise in the number of conflict and climate change protests from 2021 to now.

Accuracy

With each experiment, our metrics showed improvement, yet the model remained susceptible to change. To enhance accuracy further, we explored the possibility of utilizing even more granular sub-categories, and metric values are seen below.



Conclusion

"Facebook/bart-large-mnli" and other NLP models are useful resources for examining social phenomena such as protest category classification. The results highlight how crucial it is to continue observing and comprehending Berlin's protest dynamics.

0	1	About 100 climate activists participated in a ...	Climate Change	0.959001
1	2	In the evening, about 1,000 people participate...	Conflict	0.881849
2	3	3 last generation activists protested in the f...	Transportation	0.986211

Challenges

The main challenge is deciding the categories as target labels. Some of the categories can overlap for a protest. For example, many protest descriptions include multiple categories because of having multiple common. While a protest is about climate change, it can include some words about, agriculture and the economy.

Future Work

Model refinement to increase protest classification precision and granularity.