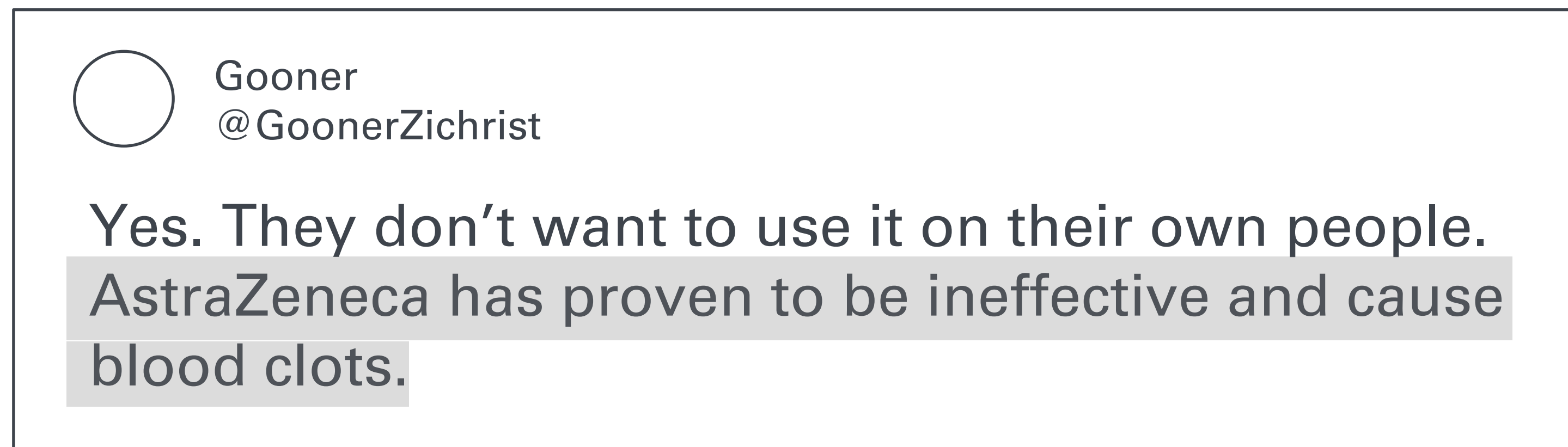


Motivation



<https://twitter.com/GoonerZichrist/status/1386929619773837312>

- Twitter contains **unique biomedical information & claims**
- Such claims can be **unreliable**
- **Claim detection** is vital (e.g., for **fact-checking**)

Dataset

- **BioClaim: 1200 tweets** annotated for **implicit & explicit biomedical claims** which relate to COVID-19, measles, depression & cystic fibrosis
- Claims are the **central, conclusive statements** of arguments (Daxenberger et al., 2017)
- **Example claim tweets**
 - **explicit:**
[...] idk where he pulled this information out of. Acid literally cured my depression/anxiety I had for 5 years in just 5 months [...]
 - **implicit:**
[...] Someone tell people with Cystic fibrosis and Huntington's that they can cure their genetics through Mormonism!
- **Explore the BioClaim corpus:**
www.ims.uni-stuttgart.de/data/bioclaim



Class distribution in BioClaim.

Methods

- **3 different claim detection settings**
 - Binary: n-claim vs. claim
 - Multi-class: n-claim vs. expl. vs. impl.
 - Pipeline: 1. claim vs. n-claim, 2. expl. vs. impl.
- **Cross-domain** experiment on our dataset & persuasive **essays** (Stab and Gurevych, 2017)
- Embedding-based classifiers (Naïve Bayes, Logistic Regression, BiLSTM) & BERT-based transfer-learning

Results

Binary & multi-class claim detection

| Eval | Task | Class | F ₁ -Score | | | |
|-------------|-------------|-------|-----------------------|------------|------|------------|
| | | | NB | LG | LSTM | BERT |
| binary | binary | claim | .66 | .70 | .57 | .69 |
| | multi-class | claim | .66 | .61 | .48 | .61 |
| multi-class | multi-class | expl | .50 | .48 | .37 | .52 |
| | | impl | .36 | .34 | .12 | .13 |
| | pipeline | expl | .50 | .53 | .43 | .59 |
| | | impl | .36 | .31 | .05 | .24 |

Cross-domain claim detection on our corpus (B) & essays (E)

| train | Test F ₁ | |
|-------|---------------------|-----|
| | B | E |
| B | .70 | .83 |
| E | .59 | .98 |
| B+E | .66 | .97 |

Take-away

- **First resource** for **claim detection in biomedical tweets**, enabling argument mining or fact-checking
- Claims can be detected with **70 % F₁**.
- **Impl. claims** are more **difficult to detect** than expl. claims.
- Compared to essays, biomedical tweets pose a more challenging claim detection environment
- Read the paper:
<https://aclanthology.org/2021.bionlp-1.15/>