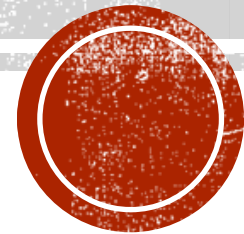


# Passau21 at the NTCIR-16 FinNum-3 Task: Prediction Of Numerical Claims in the Earnings Calls with Transfer Learning



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# PLAN



Motivation &  
introduction



Challenges &  
Related work



Research  
questions



First experiment  
result



Future work



References

# MOTIVATION

- Importance of Earnings Conference Calls on analysts' recommendations and stock volatility
- A better understanding of financial data
- Importance of argument mining

Chung-Chi Chen et al. [1] claimed that the analyses of the professionals are generally updated as reports after the earnings calls.

# MANAGERS CLAIM DETECTION

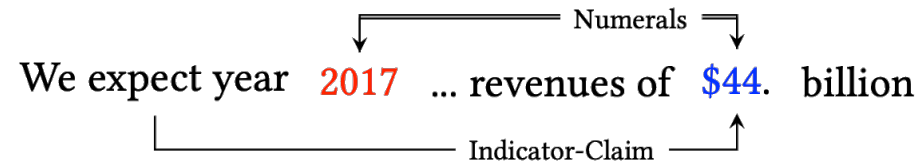
Investor's claim detection (Chinese)

Manager's claim detection (English)

# MANAGERS CLAIM DETECTION

```
{  
  "paragraph": "With this more  
widespread increase in sales we  
have raised our full year top line  
outlook. We now expect full year 2017  
sales and revenues of about $44 billion.  
And as a result of our team's strong  
performance we are raising our 2017  
adjusted profit per share outlook to  
about $6.25.",  
  "target_num": "44",  
  "category": "money",  
  "offset_start": 149,  
  "offset_end": 151,  
  "claim": 1  
}
```

# CHALLENGES



An example of the train dataset including **in-claim** and **out-of-claim** target numerals.

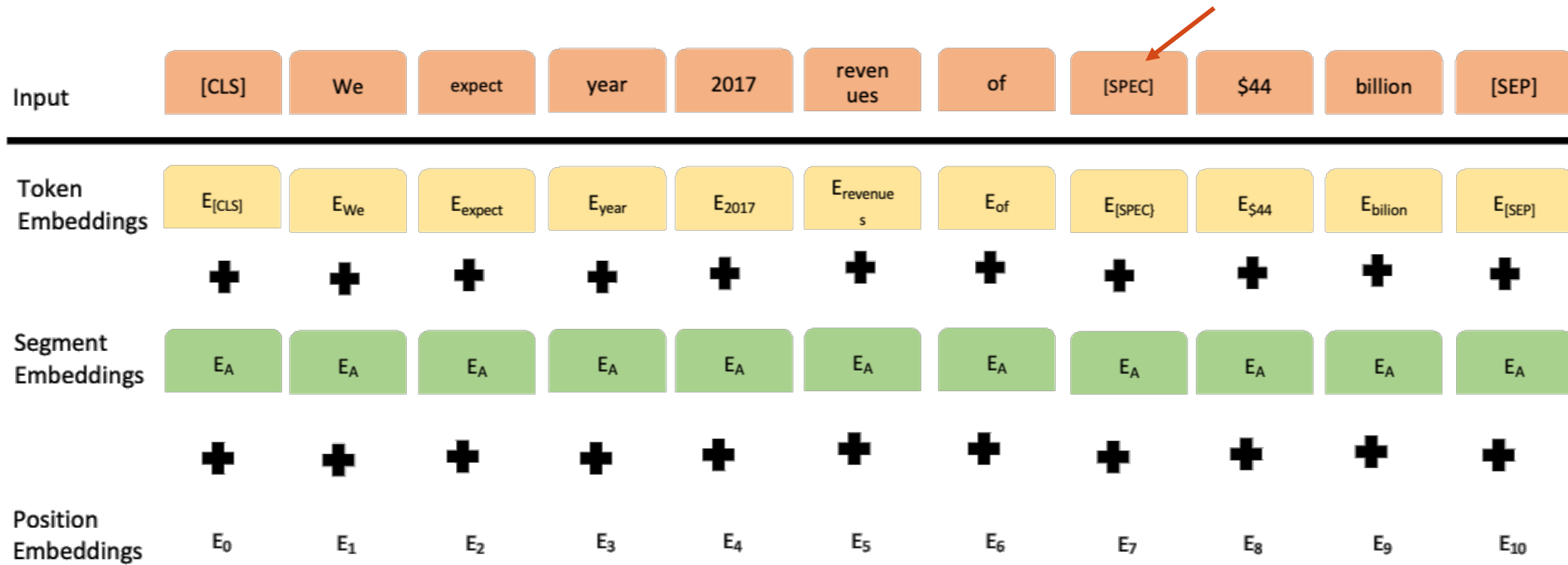
As an addition to the challenge of containing the different labels in the same sentences, the dataset is imbalanced with a ratio of **12.67%**, which makes the process challenger. Thus, the **inference of the words** makes a big difference.

# UNOFFICIAL EXPERIMENTS

Models	F1-macro	F1-micro
SVM	79.89	93.83
Naive Bayes	77.56	93.39
CNN	75.86	91.43
Decision Tree	78.91	93.68
BERT base	89.15	96.51

- To extract the information of which word is more important, we segmented them into different sentences and/or even more; however, it is **not applicable** for the actual task. At the end, there were only one type of claim in the same segment. After the preprocessing steps. We applied the models on the right. Surprisingly, all the 93.68% in the **Decision Tree** success rate comes from the word “*expect*”. That Show us the importance of **indicators**.

# Text Representation





# RESULT AND DISCUSSION

- The result of our BERT model on that parameters are **86.48%** of macro-F1 score in the *validation* split and **87.12%** of macro-F1 score in the *test* data.

Parameter	Value
Weight Initialisation	Bert-base (Uncased)
Optimizer	Adam
Batch Size	48
Warmup Proportion	0.1
Learning Rate	2e-5
Total Epoch	7
Loss	Cross Entropy

**THANK YOU FOR  
YOUR ATTENTION**



# References

- [1] [Chen, C.C., Huang, H.H. and Chen, H.H., 2021. *From Opinion Mining to Financial Argument Mining* (p. 95). Springer Nature.