### Novel Balanced Feature Representation for Wikipedia Vandalism Detection Task

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## **Our approach**

- Supervised learning
- Rich feature set
- Meta-learning scheme



# Vector space model (VSM)

- unigrams
- values:
  - N if does not occure in the edit
  - A if in added sequence
  - -D if in removed sequence
  - C if in changed sequence
- #features = 47 324
- best 100 by InfoGain



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## **Balanced VSM**

- sample is unbalanced
  - -93.9% regular
- BVSM:

for i in 1 to N do

D = vandalism AND random\_regular

```
IG += InfoGainScore(D)
```

done

```
VSM = best(IG, 100)
```

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### **Other features**

- CharacterStatistic
  - upercase and lowercase ratio
- RepeatedCharSequences
  - asdasdasdasd
- ValidWordRatio
  - English/pejorative words
- CommentStatistic
  - UserNameOrIP
    - nickname or country from IP



#### **10-fold-cross-validation**

	AUC (10-fold)
Balanced VSM	0.813
Balanced VSM + stopword	0.843
Other features	0.883
Other + unbalanced VSM	0.884
Other + balanced VSM	0.887

#### **Meta learning**

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J48=0.3; NaiveBayes=0.09; Logistic=0.61

# **Results (eval)**

	AUC (LogReg)	AUC (Voting)
Balanced VSM	0.744	0.761
Other features	0.865	0.876
Other + balanced	0.854	0.877
Other + unbalanced	0.864	0.880

### Summary

- VSM has no significant added value
- meta-learning (+2%)

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