Human Environment and Transport Inspectorate
Ministry of Infrastructure and Water Management

Universiteit Leiden
Leiden Institute of Advanced Computer Science

Data-driven Risk Assessment in Infrastructure Networks

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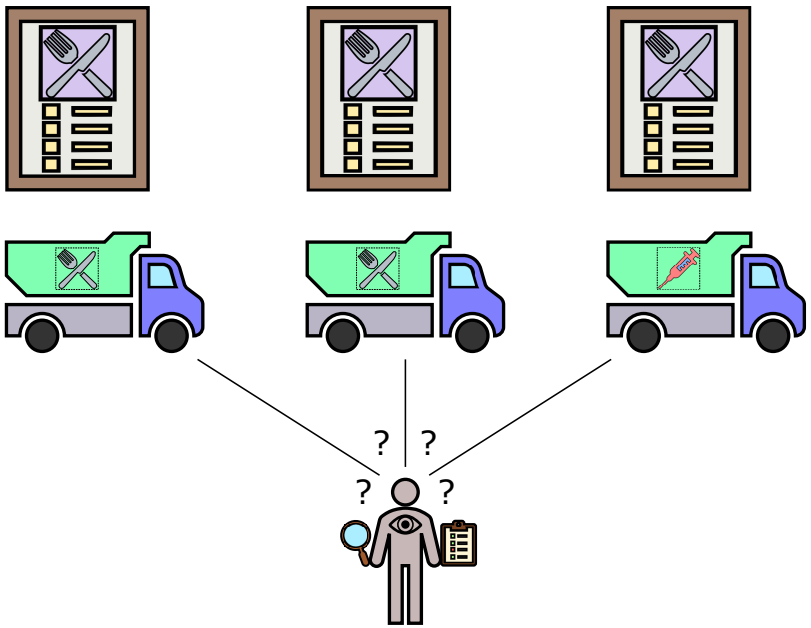
Waste Shipment Regulation



- Ensure proper waste handling
- Enforcement by ILT
  - Notices
  - Deposit
  - Inspections
- Possible company misconduct
  - Cheaper label

Goal

Use outlier detection for finding **mislabeled** notices.

- Strongly deviating notices (within same reported class)

Data

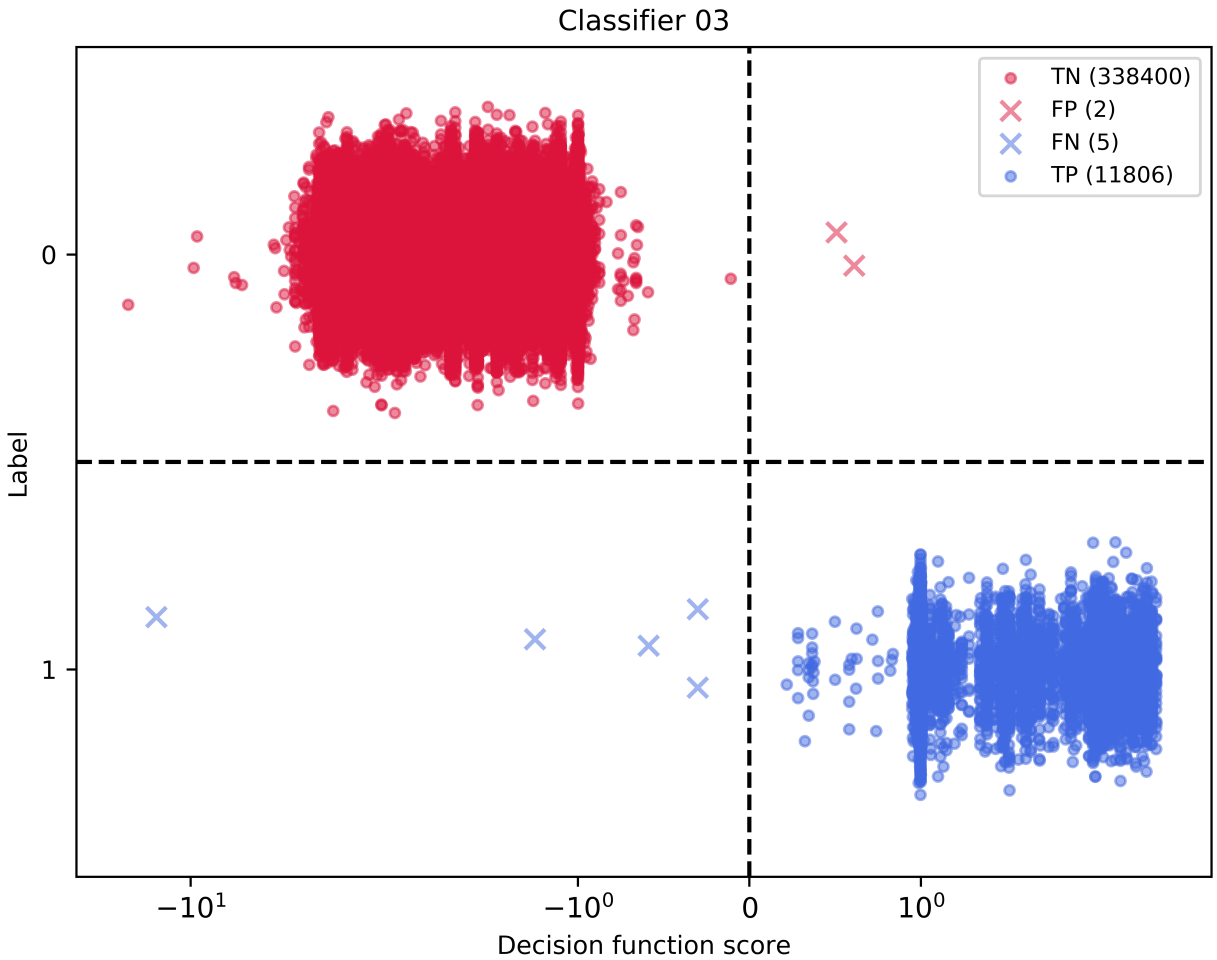
Labeled data

- 20 waste types
- Features
  - Company name
  - Waste tonnage
  - Border crossing
  - Processor location
  - ...

Approach

- Target = waste category
- Linear SVM classifier
- One-vs-rest
- Five-fold train-test split
- Average precision metric
- Lowest scoring false negatives

Results


Classifier 03
TN (338400)
FP (2)
FN (5)
TP (11806)
Label
0
1
-10^1
-10^0
0
10^0
Decision function score

Future work

- Compare results with inspection data.
- Cooperate with domain experts (inspectors).

- Application of data-driven approaches to other data problems.

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Thank you for your attention!
Are there any questions?