

Training Data (human generation)

dataset

Big Jet 345 turn left immediately heading 270 to avoid traffic at 2 oclock 5 miles crossing right to left 500 feet below
 Big Jet 345 Metro Ground taxi to holding point C runway 27
 Big Jet 345 contact Metro Tower 119.2
 ...

labelMatrix

| turn | taxi | contact | ... |
|------|------|---------|-----|
| 1 | 0 | 0 | |
| 0 | 1 | 0 | |
| 0 | 0 | 1 | |

knownEntities (this is an example of an exclude_set)

Big Jet 345
 Metro Ground
 Metro Tower

Runtime data structures (automated generation)

word_bag

turn left immediately heading to avoid traffic at o'clock miles crossing right feet below taxi holding point C runway contact

feature_vectors

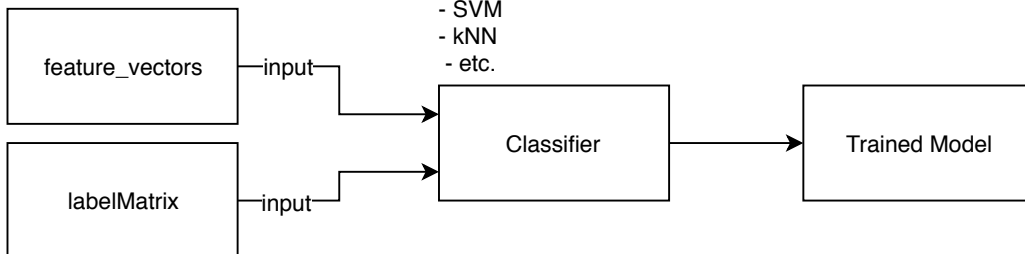
| turn | left | immediately | heading | to | avoid | traffic | at | oclock | miles | crossing | right | feet | below | taxi | holding | point | C | runway | contact |
|------|------|-------------|---------|----|-------|---------|----|--------|-------|----------|-------|------|-------|------|---------|-------|---|--------|---------|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

feature_vector (continued, additional encoded information)

| oneHot(numbers)[1] | oneHot(numbers)[2] | oneHot(numbers)[3] | oneHot(numbers)[4] | oneHot(knownEntities)[1] | oneHot(knownEntities)[2] |
|--------------------|--------------------|--------------------|--------------------|--------------------------|--------------------------|
| 0 | 0 | 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 | 1 |

Various classifiers to train

- logistic regression
- SVM
- kNN
- etc.



A trained model is produced for each class of command:

- taxi
- turn
- contact
- etc.

