



CLASSIFICATION PREDICTION FOR INDOOR LOCALIZATION WITH BLUETOOTH IBEACONS

A presentation by Nishq Ravindranath
s3823660

THE DATASET

- Collected by an individual walking around with an iPhone 6S
- 1420 rows with signal readings for each beacon from -55 to -200
- Each row has the corresponding location of the individual on a grid



Data Preparation

01
Beacon readings
normalized

02
Location column
values validated

03
Location column
split into two





RESEARCH GOAL

Classifying the location of an individual based on the readings from all 13 iBeacons

MODELS USED



K-Nearest Neighbor



Decision Tree

MODELLING STEPS

STEP 1

Run the classifier with
the default
parameters

STEP 2

Optimize the parameters
by using nested loops to
have all possible
combinations, and obtain
the best result

STEP 3

Run K-Folds cross validation to get the best train/test data

STEP 4

Apply this train/test fold to the tuned model

RESULTS → K-NEAREST NEIGHBOUR

	PRECISION	RECALL	F1-SCORE
ACCURACY			0.75
MACRO AVG	0.56	0.51	0.51
WEIGHTED AVG	0.84	0.75	0.75

RESULTS → Decision Tree

	PRECISION	RECALL	F1-SCORE
ACCURACY			0.62
MACRO AVG	0.48	0.40	0.41
WEIGHTED AVG	0.77	0.62	0.64

The background is a solid dark blue. On the left side, there are several overlapping, wavy, horizontal bands in shades of teal and light blue. Scattered across the blue background are several circles of different sizes and colors: a small yellow circle in the upper left, a medium-sized red circle in the upper right, a small yellow circle in the lower center, a medium-sized red circle in the lower center, a small yellow circle in the lower right, and a large red circle in the bottom right corner.

conclusion and recommendation

KNN!