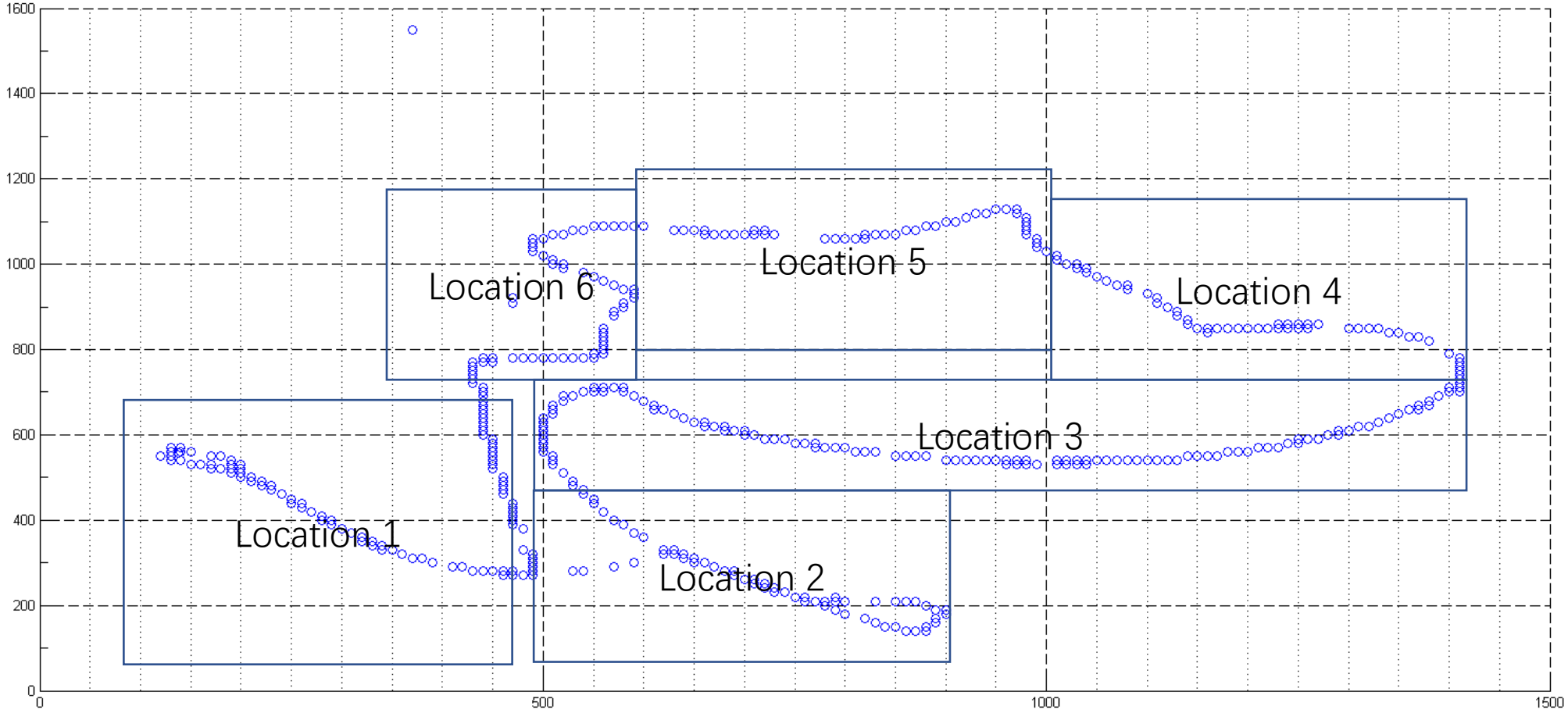
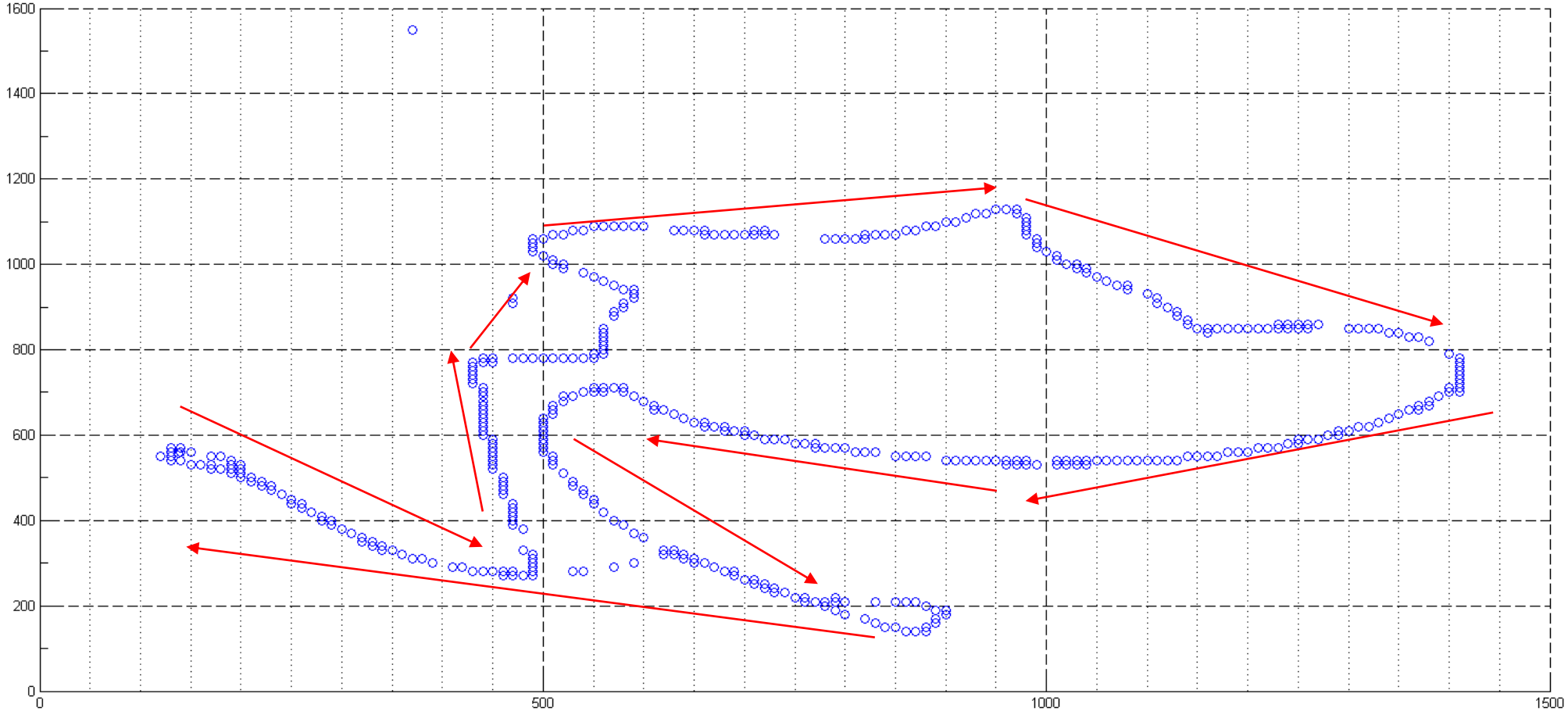
# PRR/RSSI-based localization

# DNN based method




1. Assumption:
Use SF7 (average time send one packet 0.103s)
100 packets -> 10.3s for each points
1336 data points
2. Use two PRR as input (PRR1, PRR2), and Location as output
3. Train DNN model (60% training: 400 data points, 40% testing: 200+ data points)
4. Testing accuracy: 41.29%

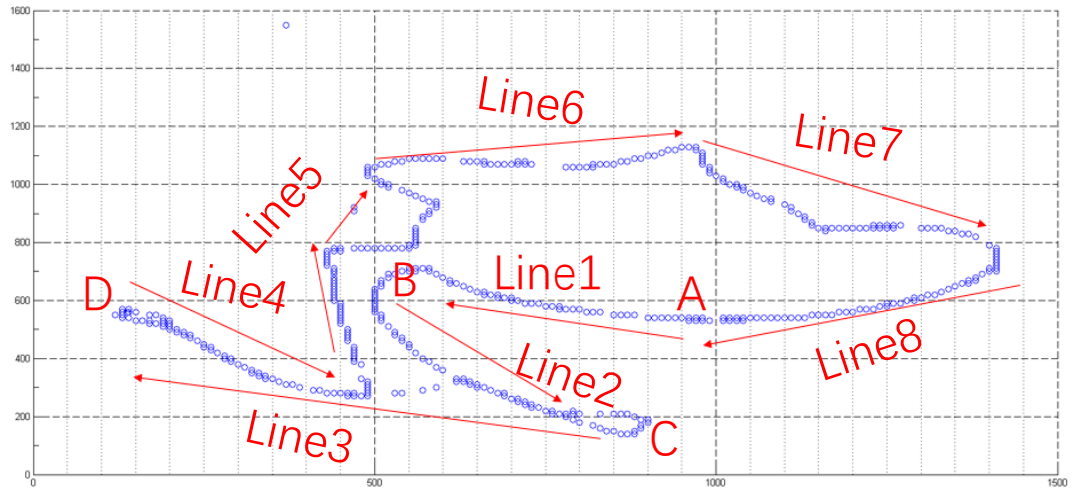
# Better Solution

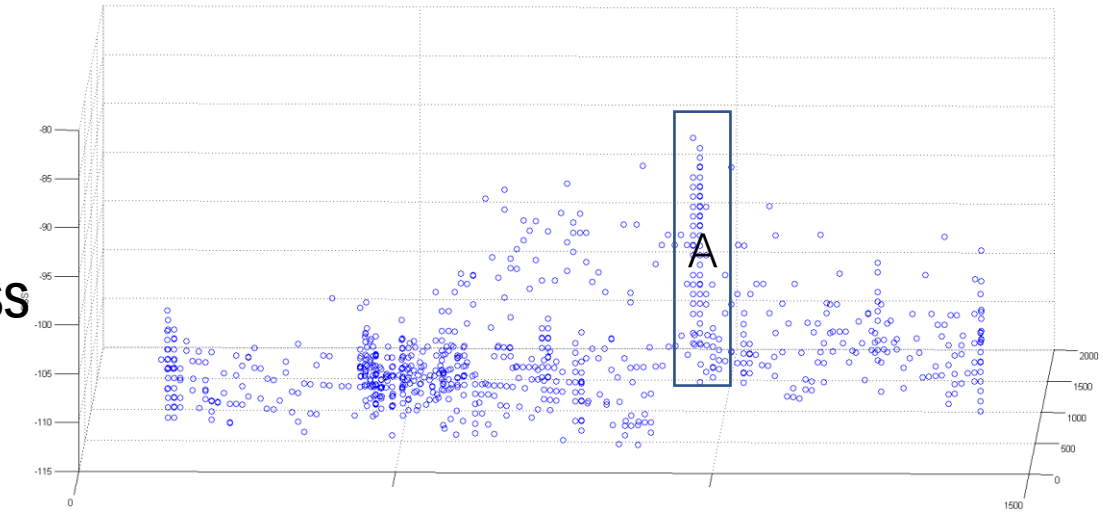


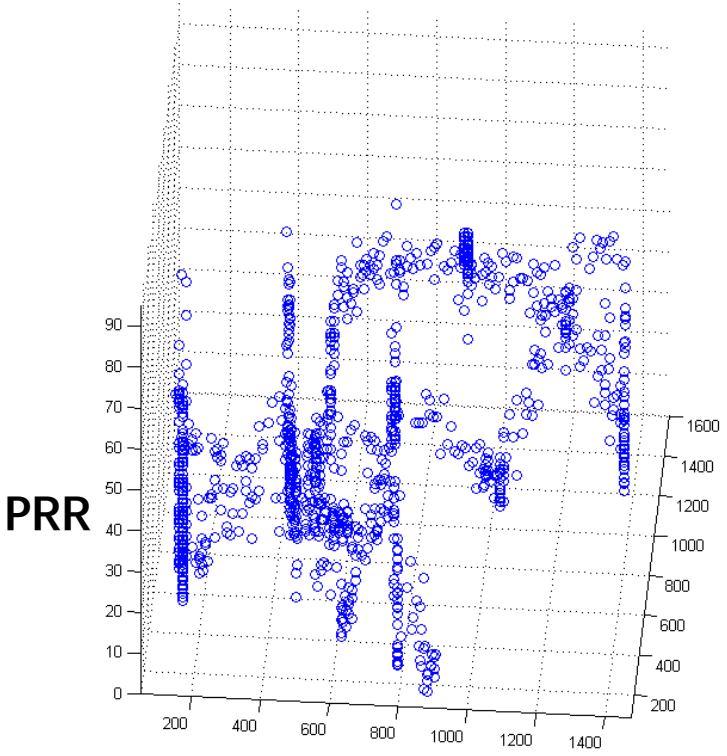

Stage-based shuttle bus localization. Collected inputs:

1. Maximum RSS value
2. PRR value
3. PRR change

# Better Solution




**Stage-based shuttle bus localization:**

- Position A (Stage 0): Get location A based on maximum RSS value and stable PRR value
- Line1 (Stage 1): PRR stable with high value
- Line2 (Stage 2): Before enter Line2, PRR will suddenly decrease and increase
- Line3 (Stage 3): PRR increases and change between 20%-80%
- Line4 (Stage 4): PRR consistently low
- Line5 (Stage 5): PRR increase and decrease
- Line6 (Stage 6): PRR consistently low
- Line7 (Stage 7): PRR increase and decrease
- Line8 (Stage 8): PRR increase and become stable