Datasets

After formulating the proposed mathematical methods into robust map-matching algorithms, we will implement them in python to evaluate their performance numerically using these datasets:

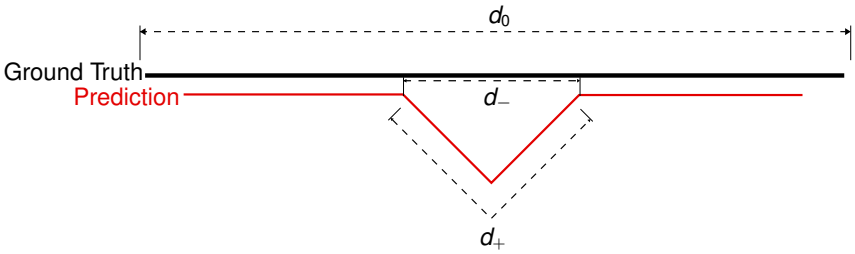
- *Dataset for testing and training of map-matching algorithms* [KCMMN] (GPS only, has ground truths),
- The BDD100K open data set provided by Berkeley [YCWXCLMD] (for GPS and IMU data, no ground truths).[1]

We will also compare the performance of our methods to a geometric method, such as point-to-curve, and HMM method, such as an extended Kalman filter (EKF) or Fast Map-Matching [YG].

[1] Because there are no public annotated ground truths, we compare our predictions with the standard EKF approach. This evaluation method is flawed but unavoidable.

Evaluation

How do we measure the accuracy of our prediction?



$$\mathrm{Err} = \frac{d_- + d_+}{d_0}$$

d_0 = length of ground truth

d_- = length of prediction route erroneously subtracted

d_+ = length of prediction route erroneously added

Thank You! And References


High-assurance Mobility Control Lab.
https://hmc.unist.ac.kr/research/autonomous-driving/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