SURF-201913 Kickoff Meeting:
Analysis of XJTLUIndoorLoc Multivariate Dataset for DNN-Based Indoor Localisation

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Plans

- WP1: Statistical analysis of XJTLUIndoorLoc dataset.
  - To quantify the dependency of measurement data on mobile devices.
  - To investigate the impact of mobile devices on indoor localization/trajectory estimation performance
  - To do additional measurements with new mobile devices.
    - For the investigation of time dependency of RSS samples.
      - Refer to the "*timestep-wise sample weighting*" with 'sample_weight' in keras.

- WP2: Handling device orientation information for geomagnetic field intensity.
  - To study the device coordinate frame and rotation data of smartphones based on their built-in accelerometer, gyroscope, and compass.
  - To investigate how to handle mismatch between the device orientation of geomagnetic filed data in the dataset and that of a new measurement during the online indoor localization/trajectory estimation phase.

- WP3: DNN-based indoor localization/trajectory estimation
  - To study advanced DNN-based indoor localization.
  - To study RNN-based trajectory estimation.
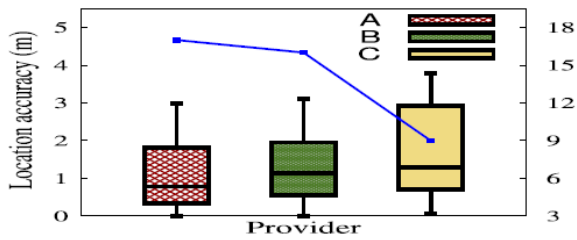
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Factor Analysis*
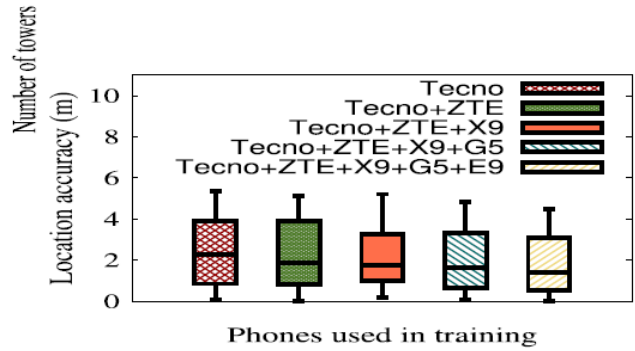

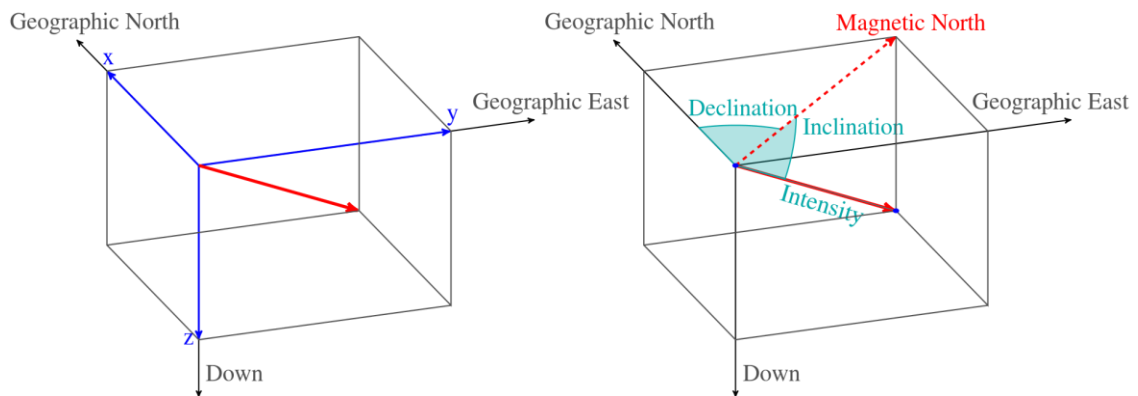
Fig. 10. Effect of cell providers on accuracy.

Fig. 11. Effect of device heterogeneity on accuracy.

*H. Rizk et al, "*CellinDeep: Robust and Accurate Cellular-Based Indoor Localization via Deep Learning*,"
IEEE Sensors Journal, vol. 19, no. 6, Mar. 2019.

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Common Coordinate Systems for Geomagnetic Field*

*"*Earth's magnetic field*," Wikipedia: The Free Encyclopedia, accessed: Jun./19/2019.*

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