Cross-Scene Passive Human Activity Recognition Using Commodity WiFi

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Problems & Ideas

- Problems of activity recognition based on commercial WiFi network
  - In traditional frameworks, the trained model in a certain scene cannot be directly used in another scene
- Ideas: BiLSTM-based recognition model and fine-tuning
  - Design a recognition model based on BiLSTM, and automatically extract human activity features in CSI during training
  - Use fine-tuning methods to adapt the recognition model to new scenes

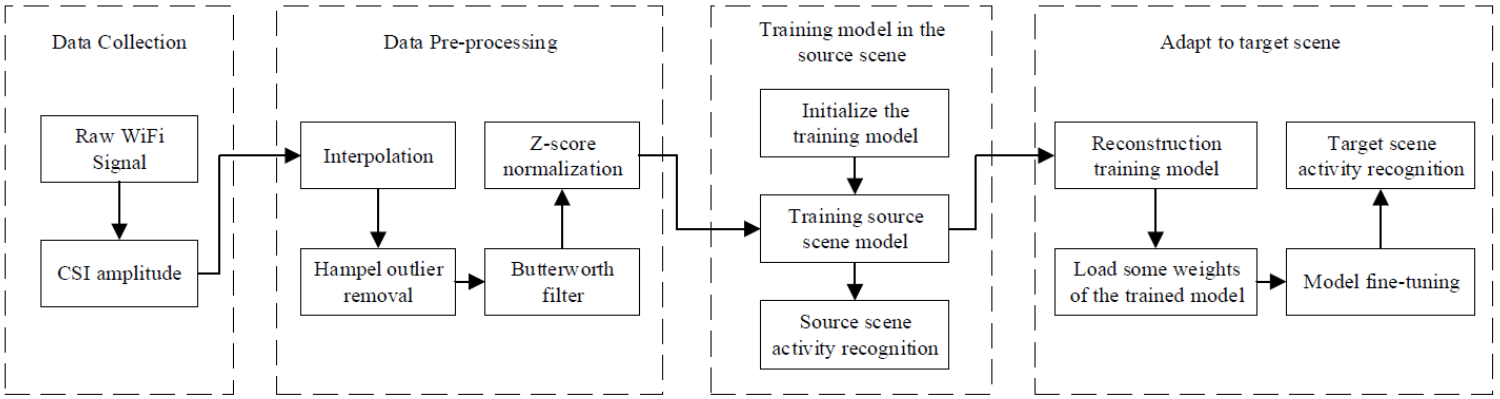

Fig. 3 System Overview

Main Contributions

- **Build a recognition system based on BiLSTM network to achieve a high recognition accuracy rate of over 90%**

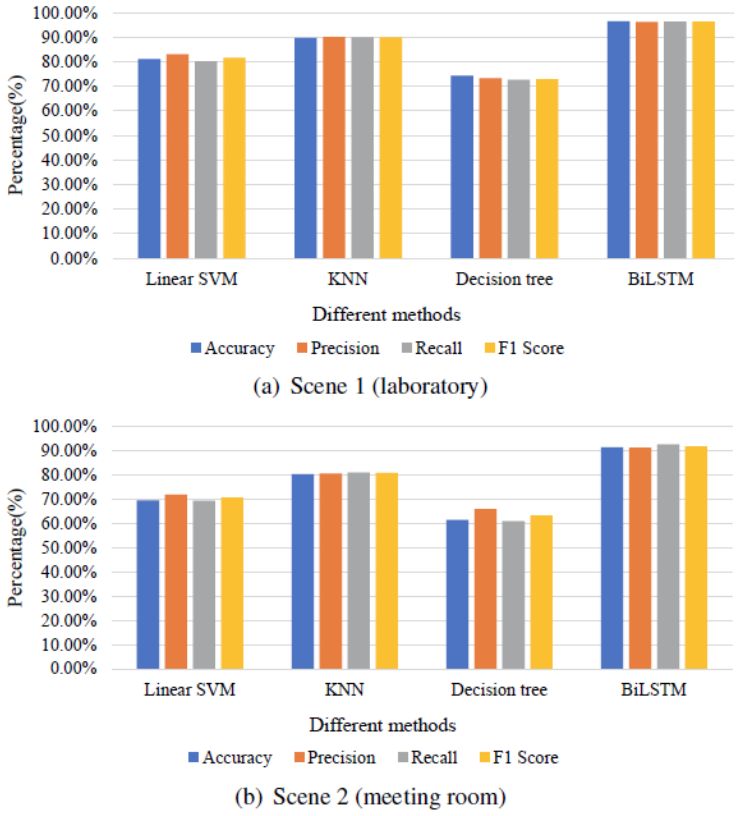

Fig. 9 Performance using the different methods of two scenes

- **Use fine-tuning method to adapt the model, reduce training time and maintain high accuracy**

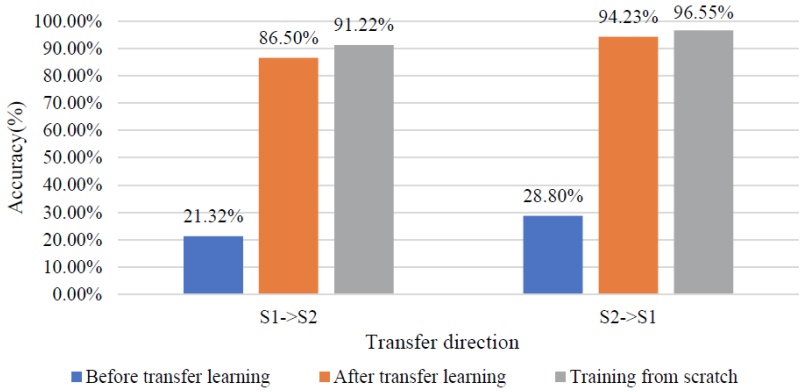

Fig. 14 The recognition accuracies in cross scenes