No Need to War-Drive: Unsupervised Indoor Localization

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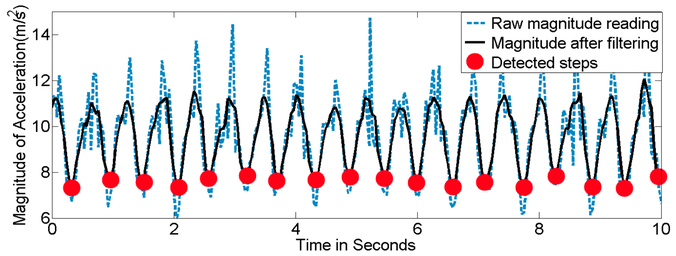
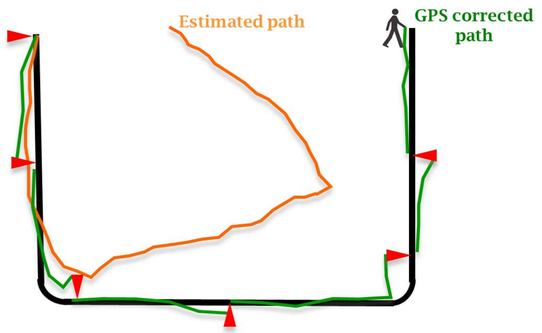
I. Basic Idea from the Past

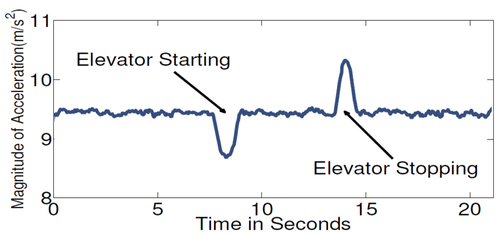


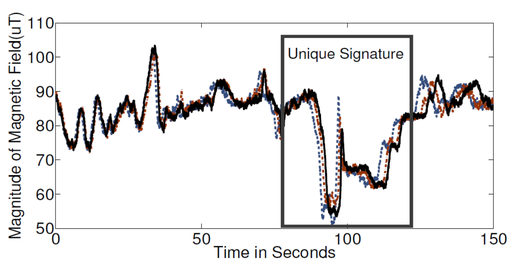


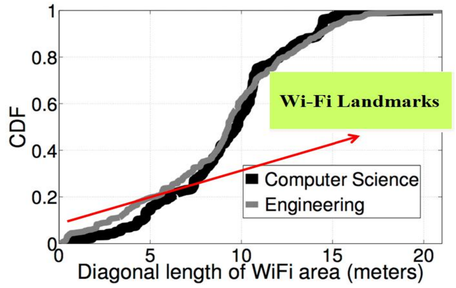
GPS can correct outdoor paths. How can **indoor paths be corrected** (given GPS is unavailable)?

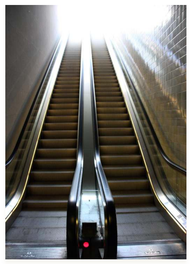
II. *UnLoc* Intuition

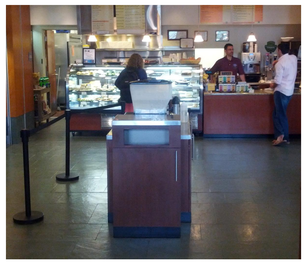
Certain locations in an indoor environment present an **identifiable signature**.



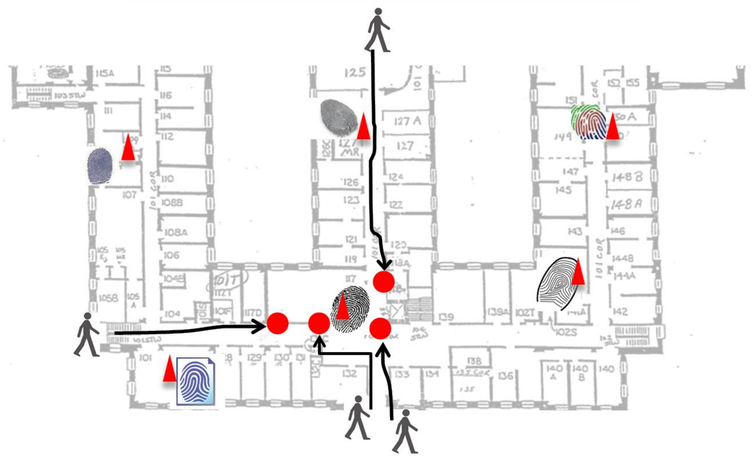






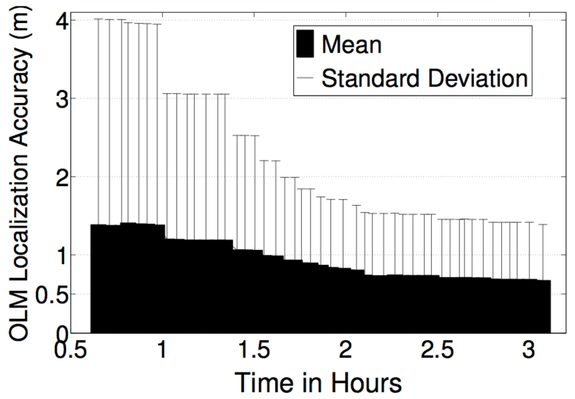


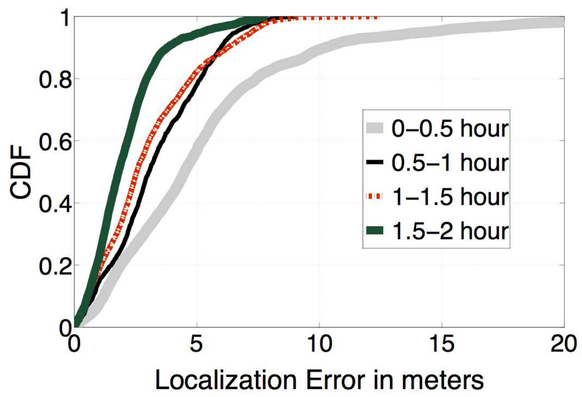
III. *UnLoc* Technique



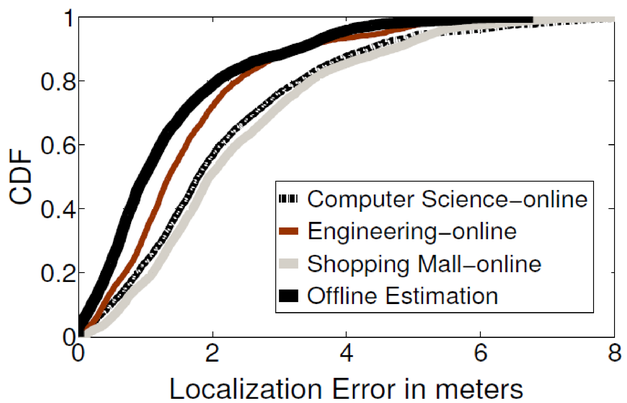
Users help in estimating landmark locations; landmarks help in estimating user locations. This is a **recursive approach**.

IV. Performance





Accuracy improves over time.



Tested in ECE and CS buildings and a shopping mall, *UnLoc* achieves **1.69 m online accuracy** on average.