



# Assessment of Changing Locations in Privacy-Preserving Ride Hailing Services

Ride Hailing Services (RHSs) have grown rapidly in the last decade. Users are continuously moving toward such services due to their convenience compared to conventional taxi services. Despite the gained popularity, RHSs pose significant privacy risks to their users. Such privacy risks include inferring sensitive information about riders such like social behavior from location data.



One possible solution to enhance privacy in such systems is to change the pick up and drop off locations. This way, pick up and drop off locations no longer reflect the precise location of the rider nor the target location and thus preventing inference attacks.

One approach to change the pick up and drop off locations is to have predefined taxi stops, so that a rider requests a trip from a stop ( $X$ ) to a stop ( $Y$ ). Another approach is to have an adaptive and ephemeral pick up locations among several riders whenever they request a taxi.

In this project, you will investigate these approaches in more detail and focus on implementing privacy metrics to assess the privacy level offered by such approaches. Privacy metrics in such a scenario include location privacy metrics such as  $k$ -anonymity,  $l$ -diversity, entropy, etc.

In addition to assessing privacy with the previous metrics, you will investigate the introduced walking-distance overhead of such approaches through one of the available taxi datasets, e.g., NYC taxi data.

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If you are interested or you need additional details, feel free to contact me or drop by for a non-binding chat.

