

# SiFu: Generic Signal Fusion for Multi-modal Localization



## Application

A novel technology on signal fusion of GPS, Wi-Fi, BLE, Magnetic and INS for indoor/outdoor positioning system, which can significantly decrease the localization error down by 30%. The solution is suitable for wide-range and dynamic scenario where single type of signal is not always stable or available.

Application area:

- Retails – wayfinding, customer journey analysis
- Healthcare– track of elderly or dementia patients
- Warehouse – asset or vehicle tracking



## Technology

Various signals such as GPS, Wi-Fi, BLE, geomagnetism and INS, all have their own strengths and limitations. Using a generic likelihood computation module, signal value is converted to location likelihood on pre-defined grid points in the feasible area of the map. The framework supports dynamic set of signals in terms of type and number, **enable seamless roaming over a wide range of signal environment.**



## Advantages

- Complement to the strength and weakness of multiple signals
- Improve localization error down by 30%
- Ubiquitous for dynamic indoor-outdoor environment
- Retrofit to existing signal infrastructure and low cost IoT devices

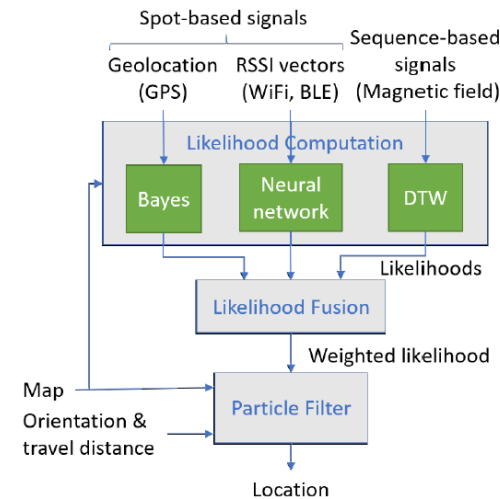


Fig. 1: SiFu framework.

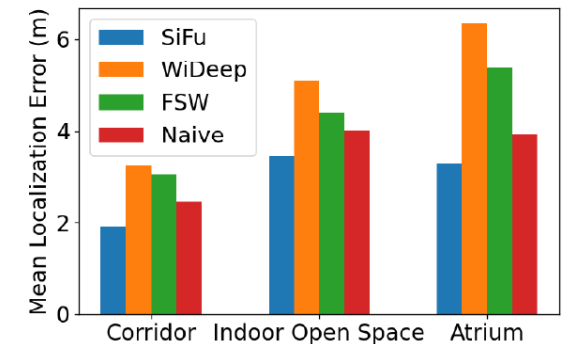


Fig. 6: Mean error of different schemes in different sites.



## Intellectual Properties

US Provisional Application: TBC

Affiliated patents (TTC code reference):  
TTC.PA.0772, 0909, 1181, 1186



## Talk to Us

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