



**UNIVERSITÀ
DI TRENTO**
Dipartimento di
Ingegneria Industriale

DII

Seminar



From modular aided inertial navigation to distributed collaborative state estimation

May 8th 2024, h. 14:30

Room A224, Polo Ferrari 1 - Via Sommarive 5, Trento

Speaker: Roland Jung Ph.D., Post-Doc at University of Klagenfurt - Austria

In this seminar, Roland Jung will provide a brief introduction to filter-based localization methods for unnamed aerial vehicles (UAVs) by means of an aided inertial navigation system. He will present his truly modular estimation approach that found application for scalable ultra-wideband aided inertial navigation. The estimation approach builds upon a novel state-decoupling scheme, denoted as Isolated Kalman Filtering (IsoKF), which allows for a unified filter architecture for both modular sensor fusion on a single UAV and for collaborative state estimation, i.e. multi-robot localization. In fact, the proposed IsoKF paradigm, allows to treat physical sensors as isolated estimator instances (e.g., mounted on an agent or distributed in the area of interest). This abstraction inherently supports modularity, but also allows to perform inter-agent observations efficiently, requiring only the subset of directly involved estimator instances.

Info

Email: comunicazione.dii@unitn.it

Local contact: davide.brunelli@unitn.it

www.dii.unitn.it