ETH zürich

Closed-Loop Multi-Sensor SLAM for Fixed-Wing UAVs.

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Master Thesis

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Motivation

Develop localization framework which can simultaneously:

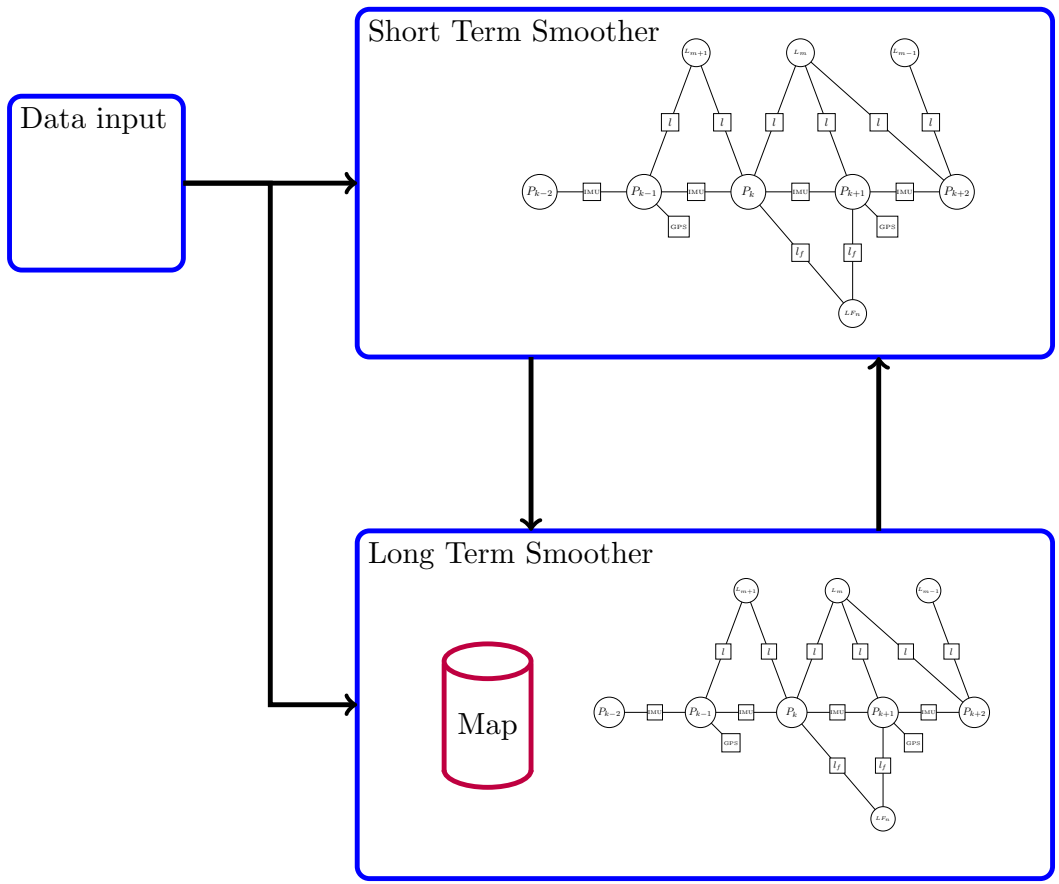
- Estimate local navigation solution with minimal latency
- Find optimal solution given all the measurements

COOL MOTIVATING PICTURE GOES HERE!

Approach

Splitting the problem into short and long term problems

- Short
  local navigation solution
- Long
  solution given all data

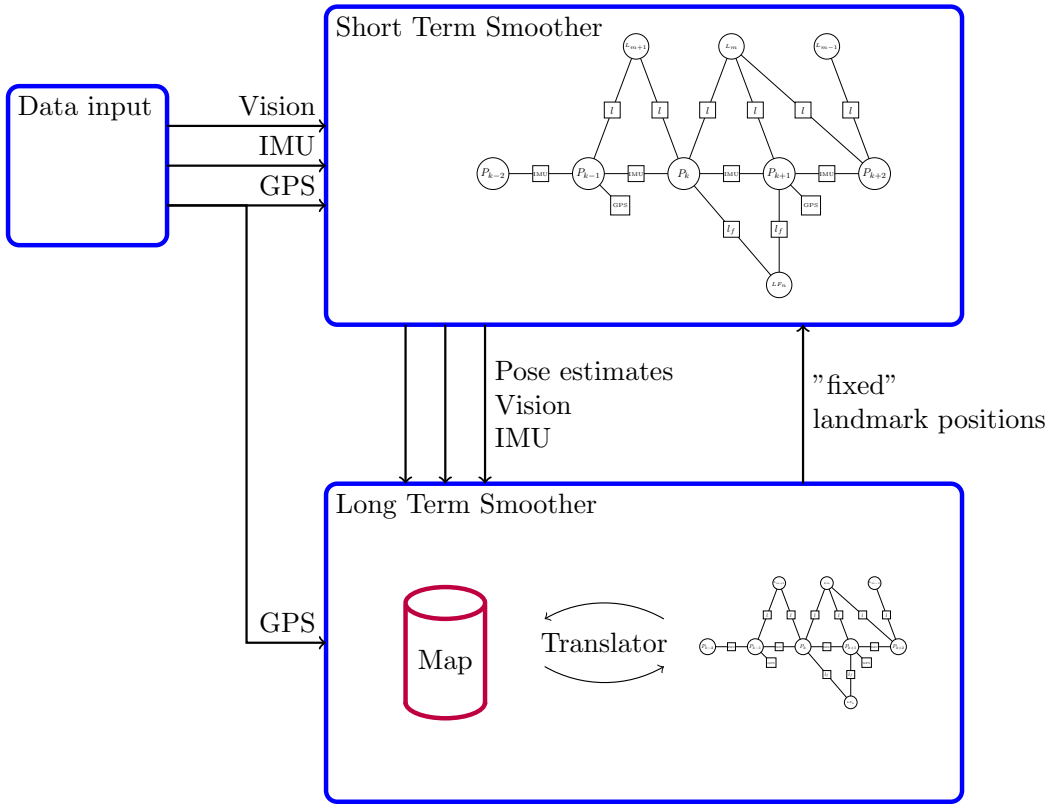


<It would be a cool slide to explain the loosely-coupled approach that we aim at and could be moved to the beginning.>

Work done so far

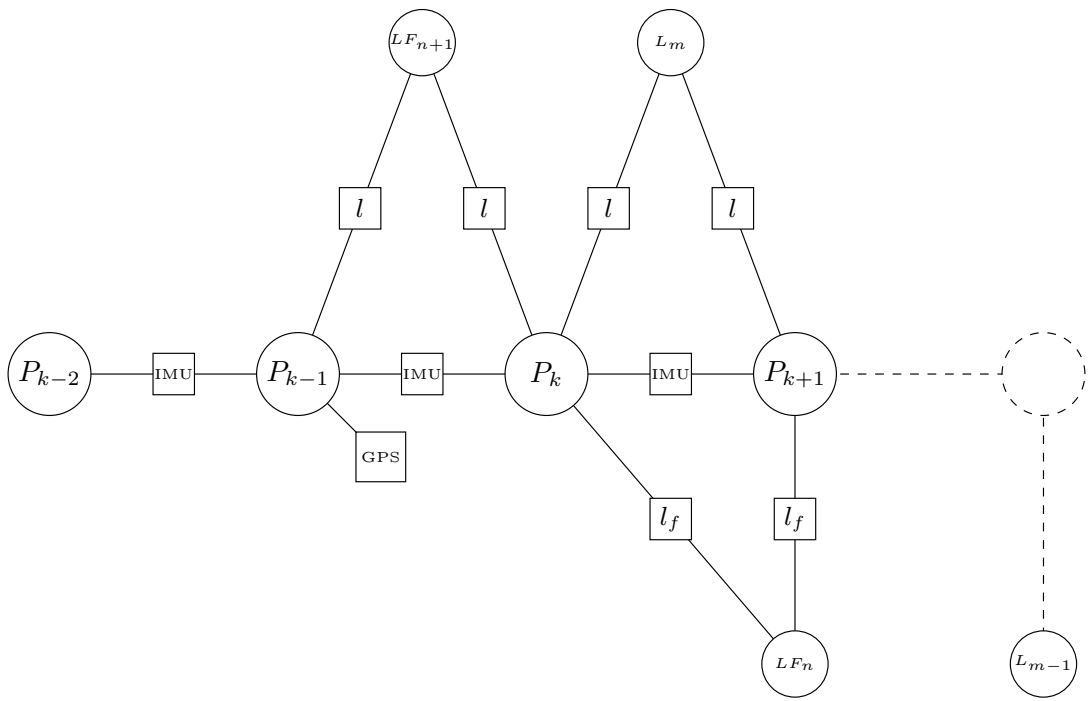
Short Term Smoother
- building a full factor graph given sensor data
- localization
- passing data to LTS

Long Term Smoother
- building a map
- building a full factor graph based on the map
- localization



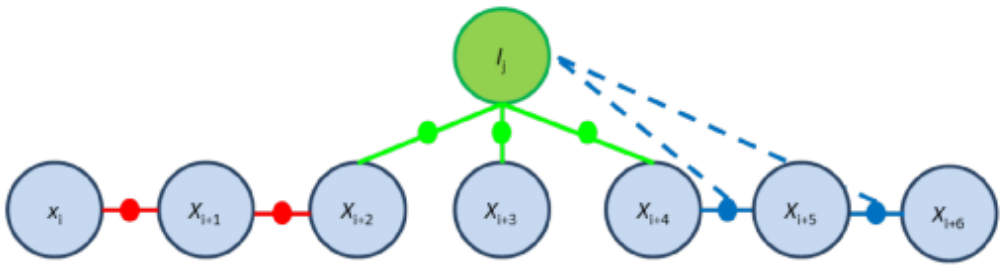
Current status

- Optimization of the factor graph
- Keeping map and factor graph updated
- Inserting fixed landmark positions to STS



Next steps

- 3-stage landmark initialization



??? HOW TO REFERENCE ???

- Sliding-Window STS
  - Marginalize old factors
- Loop closure