

# AI-ROX: Precise and robust positioning of vehicles with GNSS RTK/PPP, INS, camera and Lidar measurements

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Advanced Navigation Solutions

# AI-ROX: Integrated Multi-Sensor System for Positioning, Mapping and Object detection and classification



- **First-class sensors:**
  - 2 geodetic GNSS receivers from Septentrio
  - 3D Lidar with 128 vertical layers from Ouster
  - 1 stereo and 4 mono cameras from Basler
  - 1 fiber-optical inertial sensor from Litef (optional)



- **First-class performance:**
  - Ground truth for position, velocity, attitude.
  - Ground truth for mapping.
  - Ground truth for object detection and classification.



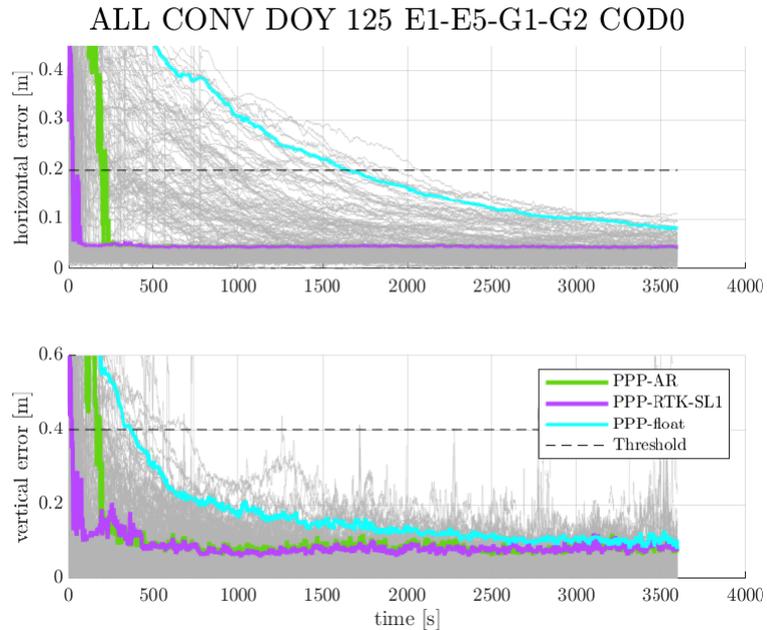
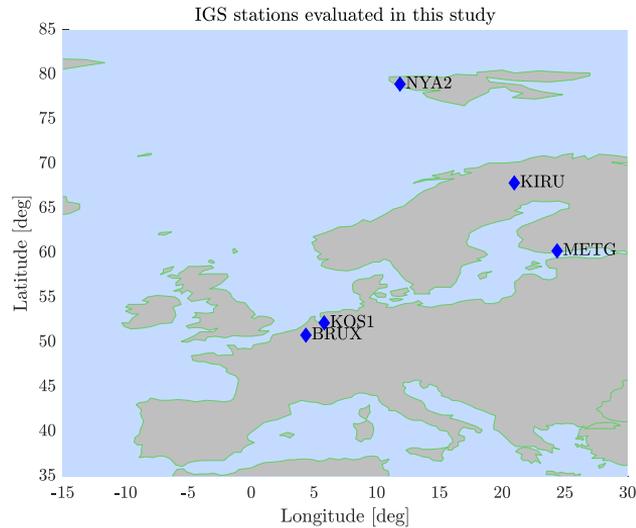
- **Easy system integration:**
  - All sensors in a single platform.
  - No need for individual cabling, calibration, synchronization, etc.
  - Numerous interfaces: CAN, Ethernet, WiFi, LTE.



- **Powerful AI:**
  - Reliable jamming and spoofing detection
  - Precise object detection and classification
  - Segmentation of images and maps

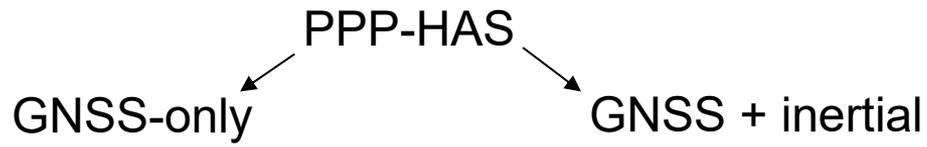
# Precise Point Positioning (PPP)

High accuracy + Fast Convergence + No need for mobile internet.

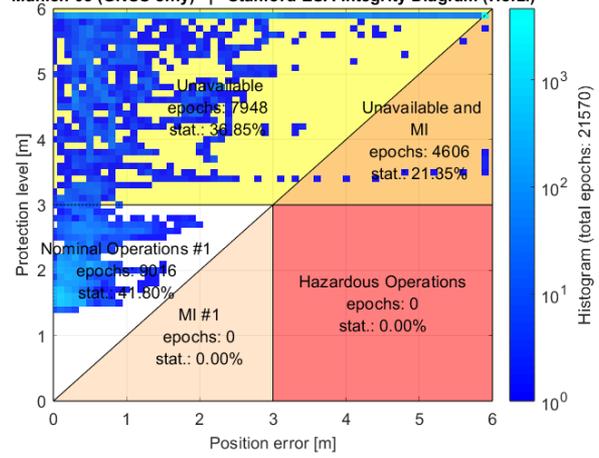


# Integrity:

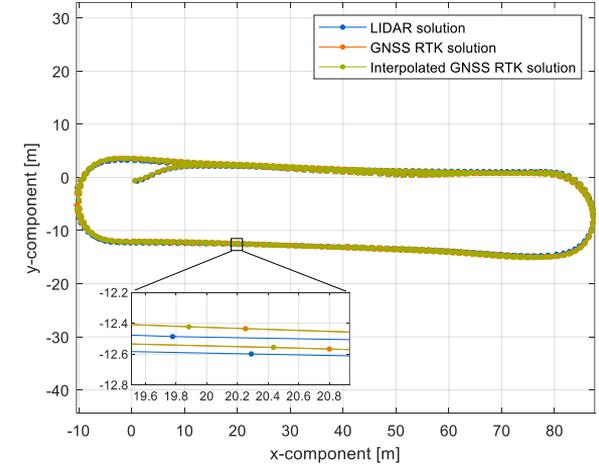
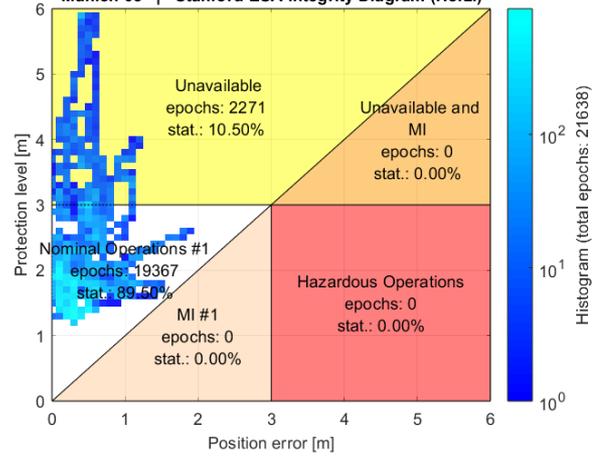
## Reducing Error Bounds by PPP and sensor fusion



Munich 03 (GNSS only) | Stanford-ESA Integrity Diagram (Horz.)

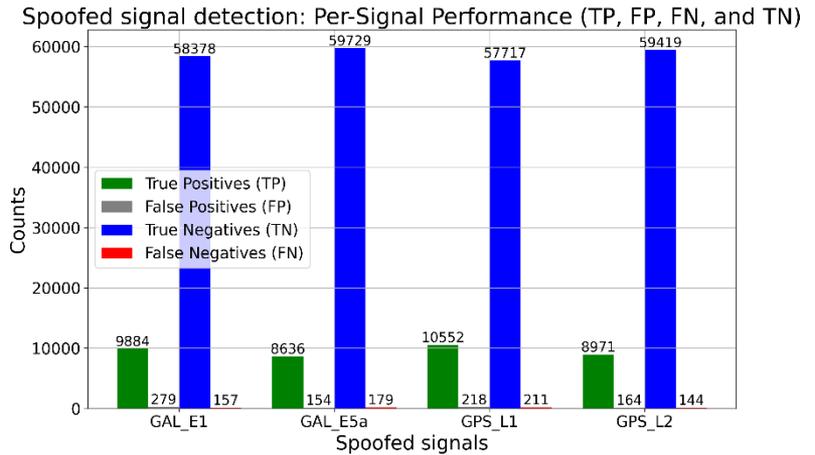
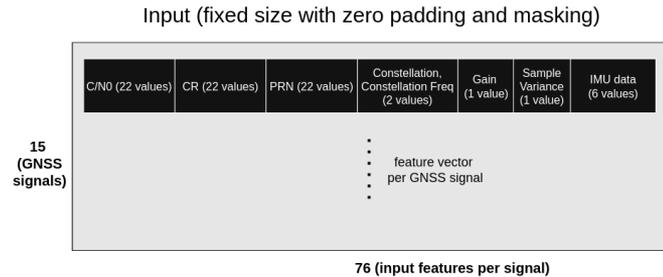
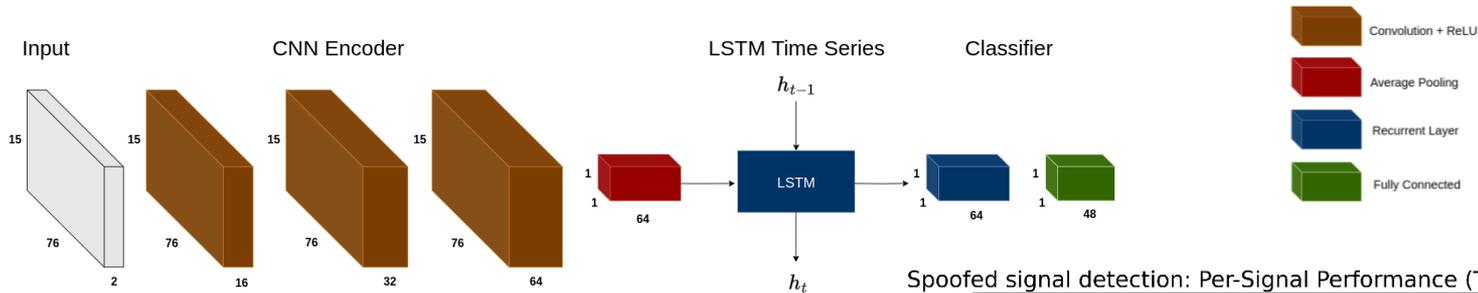


Munich 03 | Stanford-ESA Integrity Diagram (Horz.)



# Jamming and Spoofing Detection:

## Reducing false positive and false negative rates with AI.





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