



SPACE-BASED POSITIONING
NAVIGATION & TIMING
NATIONAL ADVISORY BOARD

29th Meeting
December 6 - 7, 2023
South Shore Harbour Resort and
Conference Center,
League City, TX

Resilient and application-friendly GPS as the standard

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- *Happy Golden Anniversary, GPS!*

*And the birds up on the wires and
the telegraph poles
They can always fly away from this
rain and this cold
You can hear them singing out
their telegraph code
All the way down the telegraph
road.*

Mark Knopfler, *Telegraph Road*

Source: <https://genius.com/Dire-straits-telegraph-road-lyrics>

Source: with appreciation to Prof Sanna Kaasalainen, Finnish Geospatial Research Institute (FGI), Finland,
https://media.licdn.com/dms/image/D4D22AQEA4ibL_Jk5TA/feedshare-shrink_800/0/1698334795741?e=1704326400&v=beta&t=9Z5CcSDWoSCY0je-vrzVgfYenAx_cw002gCBESE7PF0

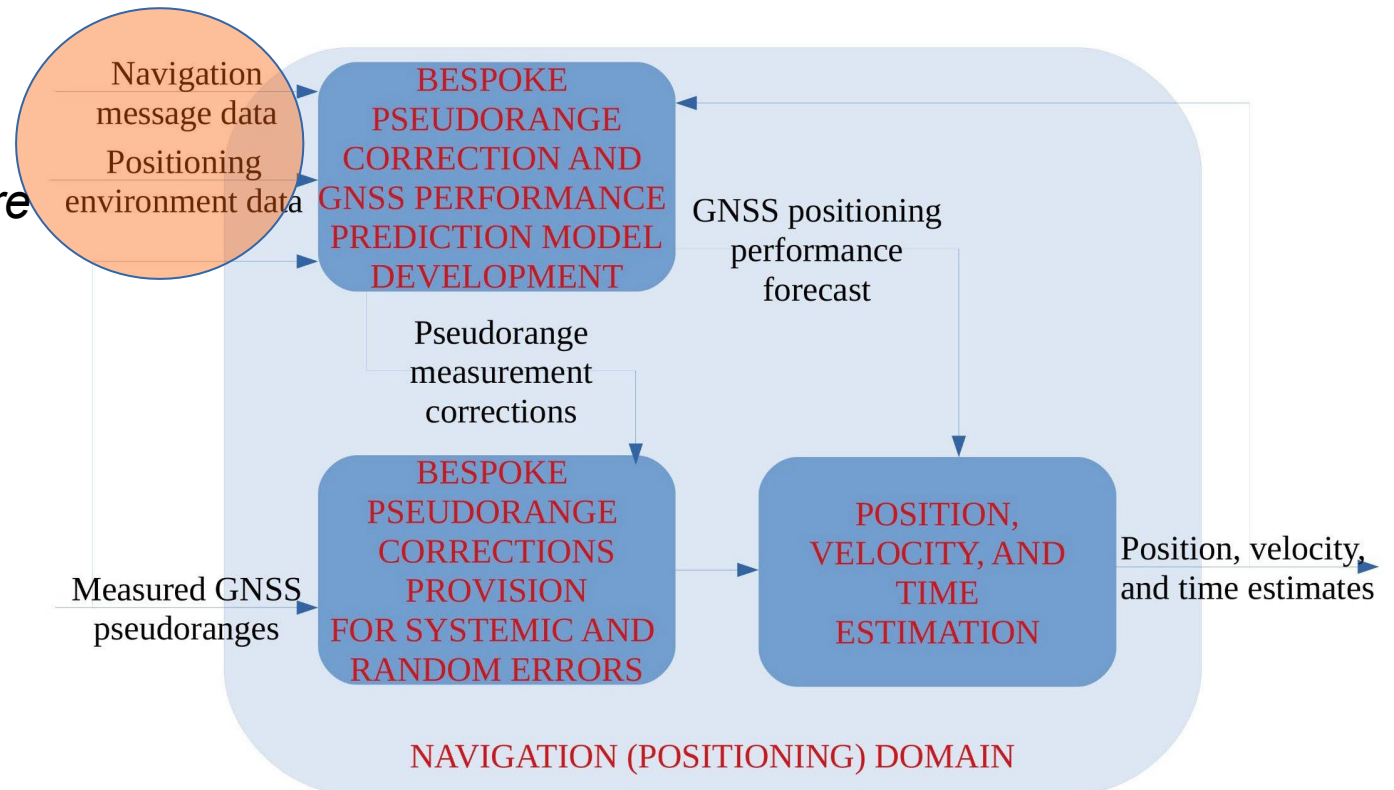


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- New concepts in GPS/GNSS applications development

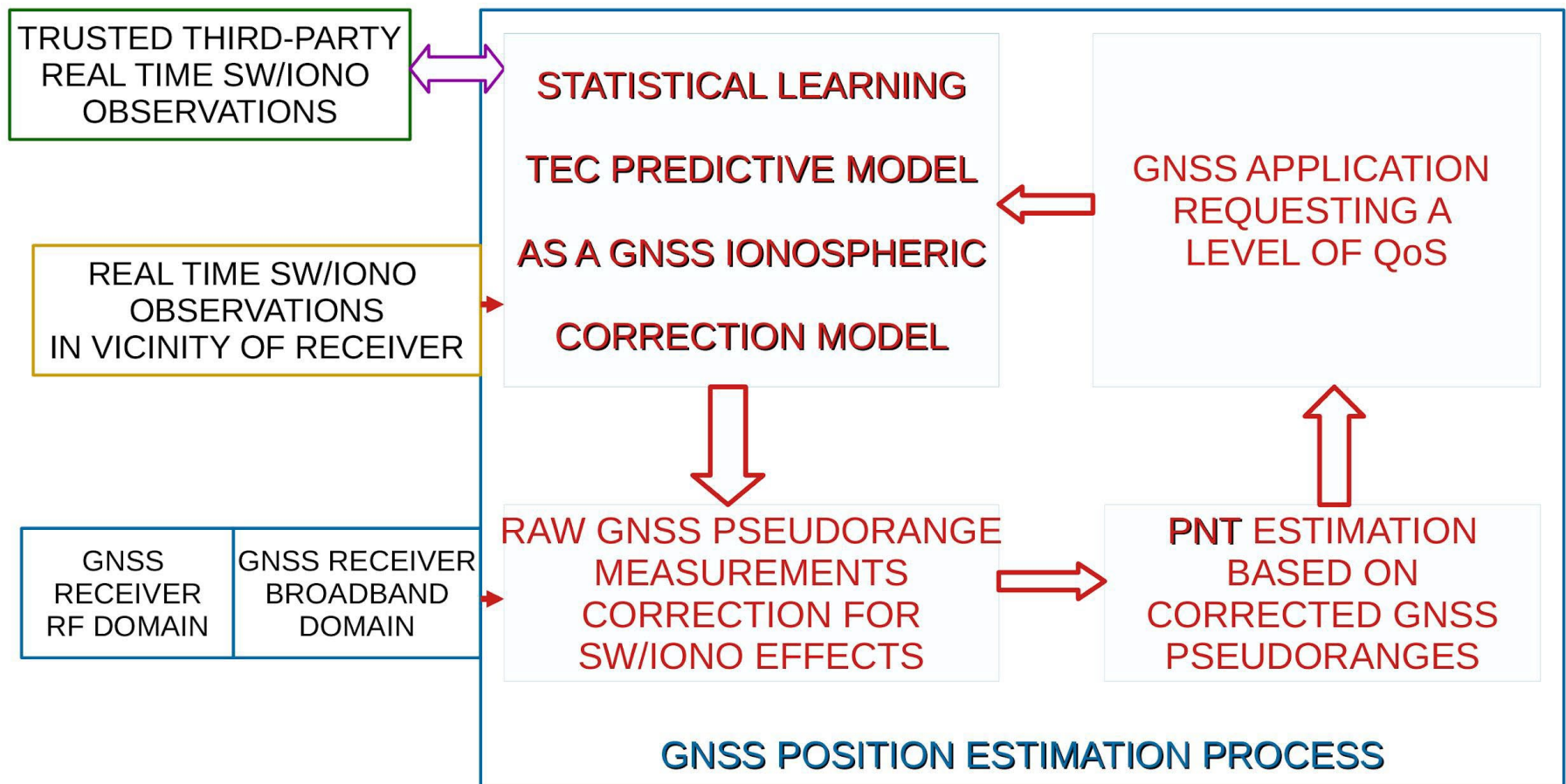
Where from?

- (1) *Mobile unit measurements*
- (2) *GPS infrastructure*
- (3) *Trusted sources*



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- New concepts in GPS/GNSS applications development
- Development & simulation frameworks



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- Role of Artificial Intelligence (AI) / Machine Learning (ML)
- ML: Automated development of predictive model based on experimental observations and statistical learning methods
- AI: Operational applications of the ML developed model above as a decision model
- Increased utilisation in GPS/GNSS PNT applications and GNSS operation, exploiting: Software-Defined Radio concept, computational developments (cloud and urban computing), 5G, IoT etc. → technology, regulatory, social, economic, security, trade ... impacts requiring considerations

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- Role of Artificial Intelligence (AI) / Machine Learning (ML)
- **President of the US:** Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence
(<https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/>,
<https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/30/fact-sheet-president-biden-issues-executive-order-on-safe-secure-and-trustworthy-artificial-intelligence/>)
- European Commission: EU AI Act
(<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206>,
<https://www.weforum.org/agenda/2023/06/european-union-ai-act-explained/>)

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- Facilitation of GPS adoption, GPS applications development and utilisation
- Accessible demonstration and simulation platforms for GPS applications development
- Multidisciplinary academic education & professional development – curriculum based on GPS, and comparison with GNSSs
- Industry-supportive national GPS cybersecurity test-bed to evaluate jamming, spoofing & meaconing threats and mitigation methods in real environment
- Clear assessment of, and recommendations on AI/ ML deployment for GPS PNT and GPS operation



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APPRECIATE YOUR ATTENTION!

With an invitation to
Baška SIF (Spatial Information Fusion) Forum
to be held in Baška, Krk Island, Croatia
Mid-June,, 2024

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