CELTIC-NEXT
Online Proposers Day

10th December 2019, via WebEx

Pitch of the Project Proposal

AISafe

AI for Safe Connected Automated Driving

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Teaser

- Prevent successful sophisticated cyber-attacks from impacting the safety of autonomous road vehicles – emphasis on perception
- The project goes beyond identifying compromised security, to limiting the ability of cyber-attacks to trick autonomous vehicles into harming passengers
- Strong eligible Swedish consortium including industry, university & research institute – looking for more partners!

Organisation Profile

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AVL MTC: with extensive experience contributing in variety of industrial R&D automotive-oriented projects within Sweden and Europe plays a central role in all task related testing environment, functions development, verification & validation processes.

KTH Mechatronics: Part of the largest technical university in Sweden, with active research in Dynamic Safety Assessment and technologies/standards for autonomous vehicles.

RISE: RISE is Sweden's research institute and innovation partner. It is an independent, State-owned research institute, which offers unique expertise in, e.g., applied research within AI/ML and analysis of safety-critical systems, including automotive control software.

Proposal (1)

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Successful cyber-attack compromises autonomous road vehicle

False perception data

- Missing vehicles
- Indistinct pedestrians
- Different sensors identifying different obstacles

Harmful decision making

Intrusion suspected, Decision with implications on safety required

Leveraging AI and connectivity for anomaly detection on physical limitations

Decision making under uncertainty

Risk reducing maneuver

Outcome and impact

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Expected Outcome:

- New AI-based methods to detect malicious tampering of sensor data and decision making to prevent impact on vehicle safety
- Supporting architecture and leveraging connectivity
- Methods for testing the effectiveness and efficiency of such solutions

Impact:

- More robust vehicle sensor-data infrastructure
- Successful cyber-attacks cannot cause physical harm
- Safer autonomous vehicles
- Reduced number of accidents

Partners

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Swedish Consortium

AVL,
Iman Delshad

KTH, Fredrik Asplund,
Martin Törngren

RISE, Research Institutes of Sweden
Daniel, Flemström, Tomas Olsson,
Malin Rosqvist

We are looking for:

- Industrial partners interested in cyber-security and safety, in automotive or other domains with similar needs

Contact Info

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Presentation available via: