CELTIC AI Proposers Webinar

31st March 2020, 14:00 – 17:00 CET

Pitch of the Project Proposal

SMART EDGE

Jerker Björkqvist, Åbo Akademi University
Jerker.bjorqkvist@abo.fi

Teaser

SMART EDGE in autonomous machine environment

Technology for performing sensor analytics on the Edge – i.e. close to the sensor

- *Data collection infrastructure*
- *AI*
- *Distributed machine learning*
- *Unsupervised anomaly detection*

Typical sensors
- Accelerometers
- Piezo sensors
- Microphones

Cloud processing not possible
- data amounts /costs
- latency

Advantages

- *Anomaly detection*
- *Diagnostics*
- *Prognostics*

Organisation Profile

Åbo Akademi University

Åbo Akademi University in a nutshell

1100
Employees in total, 680 working in teaching and research

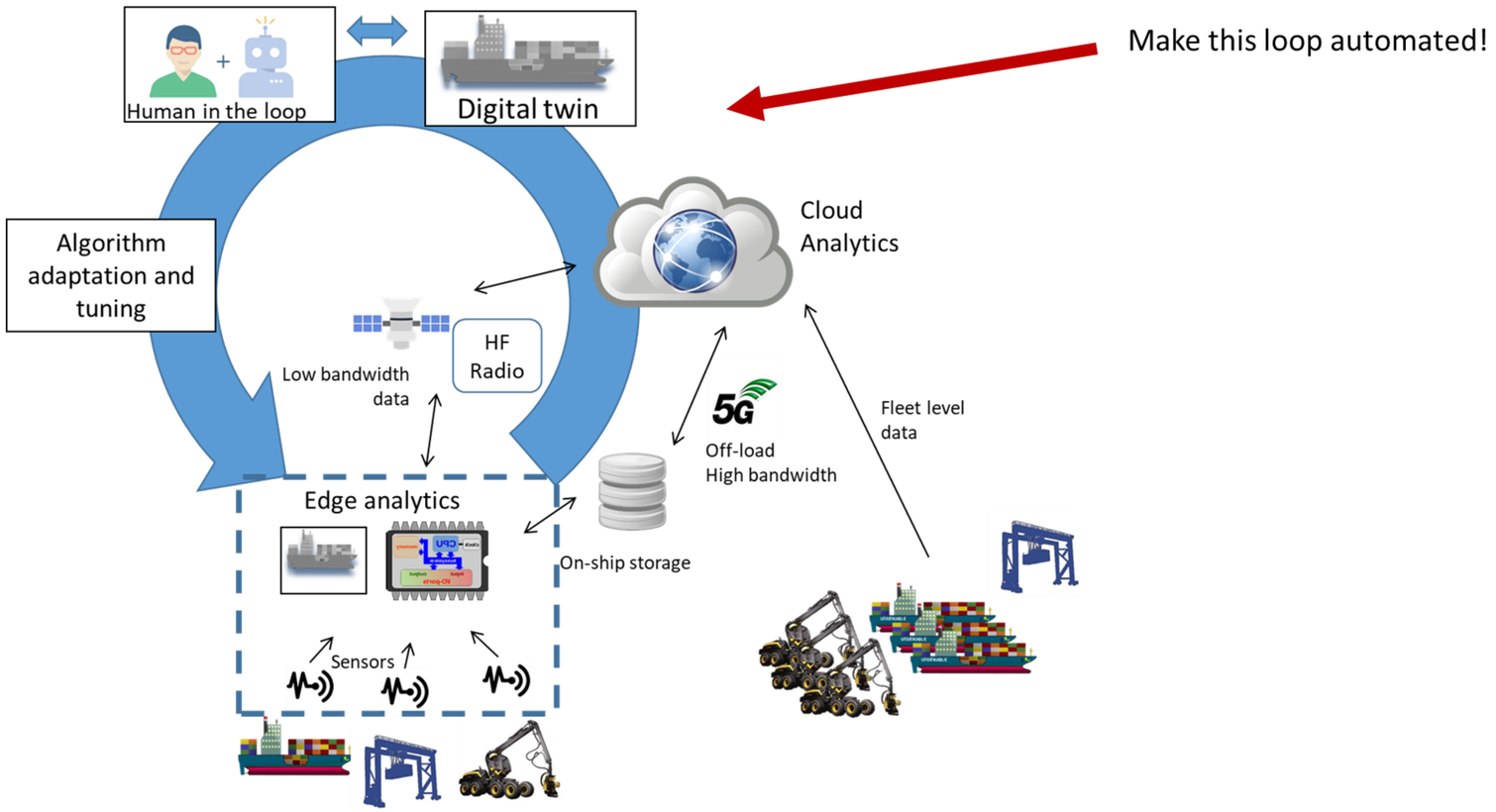
5500
Undergraduate students and 780 postgraduate students

1400
Scientific publications per year

104
The overall annual budget is approx. 104 million euro, including 42 million euro in external funding.

20%
The percentage of Finnish speaking students

Proposal Introduction



Proposal Introduction

Outcomes and impacts

- *Increased machine autonomy*
- *Emission reductions*
- *Optimized maintenance*
- *Reduced downtime*
- *Energy costs optimizations*

Schedule

- *Planned duration 36 month*

Looking for partners

- *need for edge computing*
- *algorithms development*
- *demonstrator environments*

Partners / demonstrators

Engine test bench (VEBIC, UVA)

- Sensing/validation
- High performance embedded computing
- Data transfer (low connectivity)
- EDGE updates
- Boost pressures, temperatures
- Image recognition

Substation switching devices

- Reliability
- Electrical and acoustics
- 1st generation data
- 2nd generation edge combatible

Crane

- Predictive maintenance / remaining lifetime
- Predict increases mechical load
- Motor, bearings
- Current, torque, speed, vibration, etc.

Forest machinery – bus data

- Fault codes
- Prediction
- Sensor and process information
- Low connectivity
- EDGE demands
- Time and safety critical

Ship engine

- Unmanned machine room
- Acceleration sensors
- Prediction
- EDGE demands
- Low connectivity at some locations
- Validation

Contact Info

For more information and for interest to participate please contact:

Jerker Björkqvist
jerker.bjorkqvist@abo.fi
+358504096335
Turku, FINLAND
www.abo.fi

https://www.linkedin.com/in/jerkerbjorkqvist