



LONGOPS RESEARCH & DEVELOPMENT OPPORTUNITIES

Supplier Engagement Event – 24th June 2021

UK Atomic Energy Authority

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Sensing & Perception in Unstructured Environments

WBS	Budget	Estimate Tender Publication	Estimate Contract Duration
3.5.1	£200k – £300k	September 2021	December 2021 – June 2023
3.5.2	£200k – £300k	December 2021	February 2022 – February 2023

Salvador Pacheco-Gutierrez (WP3.5 Lead)

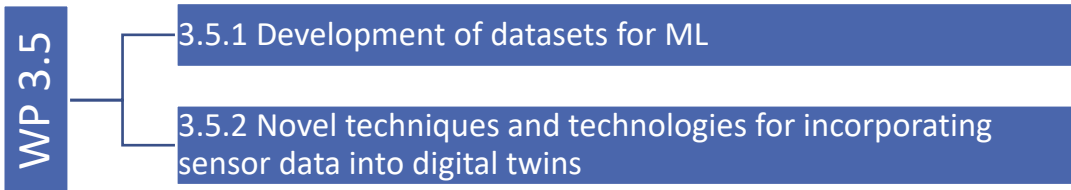
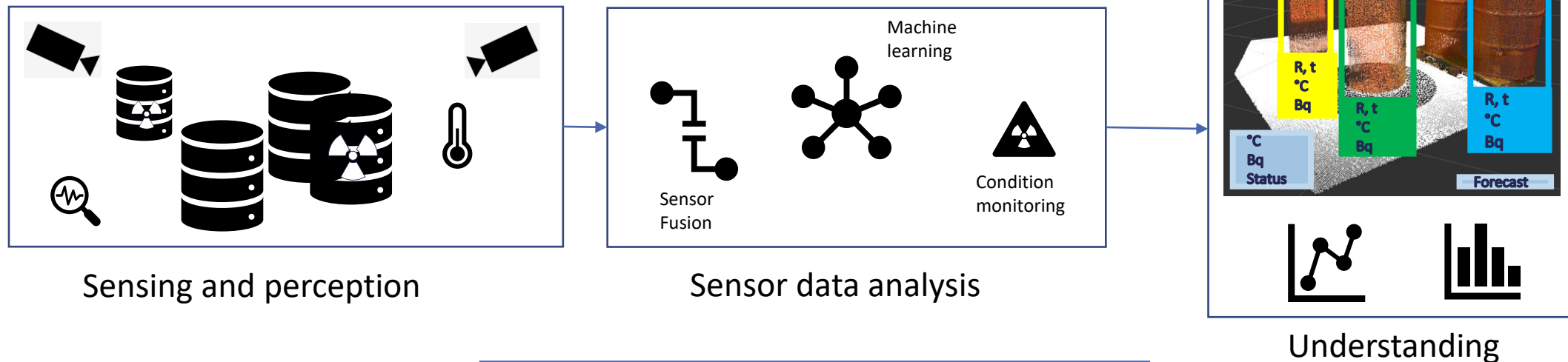
**For any questions please email:
enquiries@longops.race.ukaea.uk**

WP3.5 – Sensing & Perception to enhance awareness of unstructured environments

Planning and operating remotely in unstructured or uncertain (e.g. post-disaster) environments.

This work package aims at the integration of real-time sensor data into our digital twin to:

- Enhance awareness of the state of unstructured environments
- Estimate predictions based on gathered data
- Minimise the possibility of errors when performing real tasks



WP3.5.1 – Development of datasets for machine learning

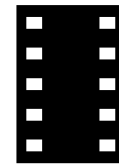
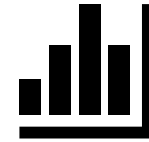
Creation of a high-quality data set relevant to a range of tasks in nuclear, to aid on visual and sensory perception.

The dataset is to be used for:

- Training
- Testing
- Developing
- Performance evaluation
- Information extraction

Requirements:

- Data collection
- Annotation of 2D image, 3D point clouds, sensor data
- Generation of multiple attributes and classes
- Dataset management
- High quality control
- High security standards



WP3.5.1 – Development of datasets for machine learning

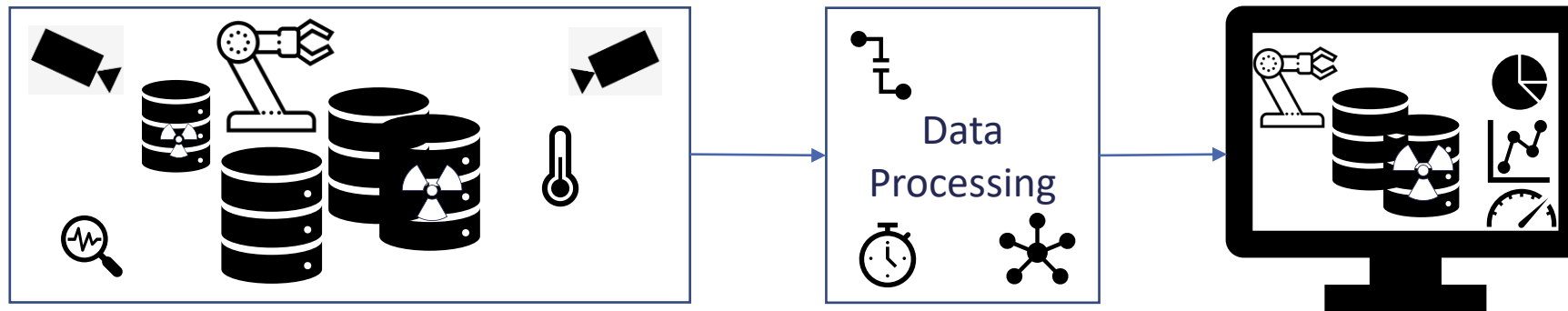
Desired skills:

- Data annotation for ML, perception and data mining
- Data management systems
- Training platforms and frameworks
- Experienced annotation workforce

A portfolio of successful projects with experience in the lifecycle of machine learning system deployments is desirable.

WP3.5.2 – R&D of novel techniques and technologies for incorporating sensor data into digital twins

Enhance the state-of-the-art in terms of real-time sensor updates to digital twins.



Requirements:

- Sensor fusion techniques
- Perception algorithms
- Tracking techniques
- Multiple sensor data integration
- Real-time update

WP3.5.2 – R&D of novel techniques and technologies for incorporating sensor data into digital twins

Desired skills:

- Digital twin technology
- Computer vision
- Sensor fusion
- Machine learning and AI algorithms
- Robotics

A portfolio of successful projects on these fields is desirable.