

Prof. Zidong Wang awarded Horizon 2020 funding for the DIG_IT project

01 May 2020

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Prof. Zidong Wang from the Department of Computer Science has been awarded Horizon 2020 funding for a 7 million Euro project entitled “A Human-centred Internet of Things Platform for the Sustainable Digital Mine of the Future (DIG_IT)”.

The vision of DIG_IT project is the development of an insightful, smart, sustainable and inclusive system that will address the challenges of the mining industry. It focuses on environmental impact mitigation, health and safety improvement, optimal operation and social acceptance to achieve the adoption of Industrial Internet of Things (IIoT) in EU mining by mediating to re-establish trust between mines and society with a view to delivering a sustainable future in raw material production.

Through DIG_IT, the EU will be put at the forefront of raw material production through re-establishing a vital relationship between the mine and the local community through sustainability compliance. The environmental impact of mining operations will be minimised through practices of optimal operations. As per Occupational Safety and OSHA (Occupational Safety and Health Administration) parameters a “Zero Harm” approach is adopted to minimise accidents that occur due to leadership errors, culture safety, and crisis response.

The impact of DIG_IT to the European Mining industry, but also the society itself, can be summarised in the following (with a horizon of 4 years after project ends): (i) increase of the mining efficiency by 17%, (ii) increased OEE (Overall Equipment Effectiveness) for machines and loading by 20% and 18% respectively, (iii) 19% reduction of CO₂eq, (iv) about 310 new jobs created and (v) over 28M EUR ROI (Return on Investment) for the consortium.

Brunel team (Prof. Zidong Wang together with Prof. Xiaohui Liu and Dr. Stasha Lauria) will lead the following two packages:

1. **Big data optimisation and analysis**, which is mainly concerned with the feature/event detection, classification and prediction in large scale data environments in both supervised and unsupervised modes.

2. **Smart Scheduling tool for optimal planning of mining operations**, which is based on the Many-Objective Optimization concept in order to optimize the full lifecycle of a complex digital mine consisting of several phases over time that include energy, water, waste, emissions, ventilation, routes, cooling, operation and recycle.

This project will kick off on 1st May 2020 and will last 4 years. This success comes shortly after the same team secured Horizon 2020 funding for the “Intelligent Data-Driven Pipeline for the Manufacturing of Certified Metal Parts through Direct Energy Deposition processes” project (EUR 610k for Brunel), which commenced in 2018, and is progressing well.