Northumbria University NEWCASTLE

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New research aims to develop AI-enabled solutions for obsolescence management

Researchers at Northumbria University, in partnership with Siemens Energy, have been awarded a grant from Innovate UK for a transformative Knowledge Transfer Partnership (KTP) project. The project aims to change the way obsolescence in gas turbine components is predicted and managed, leveraging cutting-edge artificial intelligence (AI) and machine learning technologies.

The 28-month project, with a total budget of £242,000, is being undertaken in collaboration with global energy leader Siemens Energy and will leverage

the expertise of Northumbria University's researchers to design an advanced platform capable of predicting and tracking the degradation of gas turbine components. By integrating latest technologies in AI and machine learning, the platform will make a step-change in the way obsolescence challenges are managed in the energy industry.

Dr Hamed Farokhi, the project lead from Northumbria's Department of Mechanical and Construction Engineering, emphasised the importance of this collaboration: "*Obsolescence management is a critical concern in industries reliant on long-lifespan equipment, such as gas turbines. Our aim is to develop an AI-powered platform that will provide predictive insights and actionable strategies, enabling more efficient resource allocation, cost reduction, and improved operational reliability. By collaborating with Siemens Energy, we have the opportunity to apply our research to real-world challenges, making a tangible impact on the energy sector*."

Gas turbines face significant challenges due to the obsolescence of critical components over time. Traditional methods of addressing these issues often involve reactive measures, leading to costly downtime and inefficiencies. The new platform will shift the paradigm to a proactive model, using AI-driven predictive analytics to anticipate component obsolescence before it becomes a problem.

Siemens Energy, with its extensive expertise in energy technology and solutions, brings invaluable industry insights and technical know-how to the partnership. Tobias Herzog, the Head of Small Gas Turbine (SGT) Service Centre of Competence at Siemens Energy UK, said: "*This collaboration with Northumbria University marks a significant step towards integrating advanced AI solutions into our operations. The obsolescence management platform aligns with our commitment to our customers and driving innovation and sustainability in the energy sector*." Fatemeh Mashak, SGT Obsolescence Project Lead, added that: "*This partnership with academia and innovate UK is an exciting opportunity to enhance how we manage obsolescence at Siemens Energy. Integrating AI-driven tools into our operations enables us to manage obsolescence for our fleets more sustainably and contribute to a more efficient energy future*."

The KTP initiative, supported by Innovate UK, showcases the important role of academia-industry collaborations in fostering technological advancements. This project not only addresses a pressing industry challenge but also provides a unique opportunity to bridge academic research with practical

applications. The project also delivers broader benefits, including enhanced safety through better forecasting of component lifecycles, improved energy security with more reliable turbines, and reduced environmental impact by extending turbine lifespan and lowering emissions.

As part of this exciting initiative, Northumbria University will soon be recruiting for an AI and Data Systems Engineer to join the project team. Details of the position will be posted on the University's website in the coming days.

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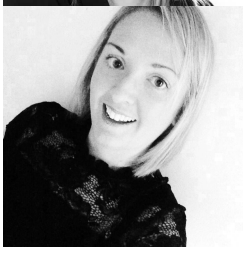

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