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## Curtin University, DUG partner to advance green innovation

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Curtin University and **DUG Technology Ltd** have partnered to collaborate in the fields of high-performance computing (HPC), education and research. This partnership between industry and academics will accelerate a range of research areas, including astrophysics, biomedicine and meteorology.

DUG and Curtin will develop green technologies that reduce the carbon footprint of supercomputing. Creating and realising opportunities for education and training in high-performance computing will also be a priority. Over the next decade, DUG and Curtin aim to train significant numbers of undergraduate and postgraduate students in high-performance computing, and employ Curtin's expertise in renewables to find new energy resources for powering future DUG data centres.





As part of this agreement, DUG will provide scalable HPC, storage and archive capabilities, and support for HPC education, code onboarding and optimisation. DUG will also provide its Insight processing and visualisation tools to support Curtin's involvement in the Square Kilometre Array (SKA) Project.

The DUG–Curtin partnership has yielded significant results in radioastronomy and astrophysics, connected to the international SKA Project, half of which will be constructed in Western Australia. DUG's experience in software engineering and code optimisation, combined with its supercomputing facilities and the experience of Curtin's astronomers, has led to new results in the search for the first stars and galaxies in the early Universe. This requires looking for weak signals that originated more than 13 billion years ago.

Using data collected by radio telescopes, DUG and Curtin have co-developed algorithms that can detect and monitor space junk and satellites in Earth's orbit; this will be increasingly important as the space environment becomes more congested and contested.

DUG Founder and Managing Director Dr Matthew Lamont, a Curtin graduate, said the partnership is a vote of confidence in DUG's technology and an example of the company's ability to provide cost-effective and reliable HPC for the tertiary education sector's research and data analysis needs.

"Our solution is unparalleled as we can also provide education, onboarding support and code optimisation services," Dr Lamont said.

Curtin's Deputy Vice-Chancellor of Research, Professor Chris Moran, said Curtin has a large and growing need for a diverse set of high-performance computing solutions.

"Curtin University has been at the forefront of computational and data sciences in Australia for almost two decades. The exciting new partnership with DUG will complement the important work Curtin does through the national Pawsey Supercomputing Centre," Professor Moran said.

Professor Steven Tingay, astronomer from the Curtin University node of the International Centre for Radio Astronomy Research, said Curtin's partnership with DUG is advancing both fundamental physics and practical applications in the real world.

"From looking at the early Universe, soon after the Big Bang, to what satellites in Earth's orbit are doing minute by minute, all requires a lot of time on powerful computers," Professor Tingay said.

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