



Press Release

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Quest to fight fires with powerful thinking

Seven months after devastating bushfires ravaged parts of Australia, a team of researchers is about to embark on a seven-day challenge to find new ways to detect fires and predict their behaviour in a bid to save lives and property.

The Bushfire Data Quest 2020 is supported by universities and agencies including the Australian Space Agency, the NSW Government and the Minderoo Foundation, and will use the high-performance compute power of DUG Technology's networked supercomputers in Perth, Kuala Lumpur, London, and Houston.

The aim of the Data Quest, which starts on August 7, is to determine if AI, primed with data from multiple satellites and local sensor networks, can detect fires earlier, predict fire behaviour, and help emergency services respond more effectively to protect homes, people, and wildlife.

The Data Quest has access to data from public and private satellites, including new high-resolution images of fires from the last Australian fire season taken over several months using the latest satellite technology.

DUG's science and data experts and the company's cloud-based DUG McCloud platform will support interdisciplinary research teams from bushfire research, machine learning and data science as they work to solve the challenges.

Bushfire Data Quest lead, Dr Cormac Purcell from Trillium Technologies, said the quest was based on seeing how machine learning as a tool can help to solve some of the challenges around bushfires. By making huge resources available to brilliant minds, the Data Quest aims to accelerate the research being done.

"Without the large amounts of compute that DUG is donating it wouldn't be possible. It's a key component," Dr Purcell said.

DUG Managing Director Matt Lamont said the company was honoured to provide the technology platform that will be the launching pad of truly powerful thinking.

"The team is excited to be part of a collaboration of industry, technology, science, and research that will push the boundaries of conventional thinking in the quest to discover real solutions to improve our planet," Dr Lamont said.

Predicting the behaviour of bushfires is difficult, made more complicated by factors such as fuel load, atmospheric conditions, soil moisture, and availability of water.

"We're hoping for an additional leap forward in the research by using machine learning," Dr Purcell said.



Research teams comprising of the brightest minds from New Zealand and Australia will examine three areas: fuel assessment, early detection, and fire behaviour.

The aim is to identify a prototype tool, or promising method, for each research area.

“With fuel assessment, it might be a better prototype to assess moisture content using satellite data, so there is a more frequent update to assess bushfire risk,” Dr Purcell said.

“The behaviour team is looking at providing earlier warnings of when fires turn extreme.

“Fires can travel at a walking pace, but something can happen in the environment to trigger change.

“One of the questions our researchers are addressing is can we give advance warning of this. An extra half an hour warning will change what a firefighter does.

“With fire detection, estimating the exact position of where a fire starts can be difficult.

“The real progress comes from private data sets that are being provided by Planet Labs.

“It will show the promise of what we can do with this next generation of satellite data and inform Australia’s future direction in space.”

Ends

More information on the Bushfire Data Quest 2020 is available [here](#).

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About DUG

DUG is a technology company at the forefront of high-performance computing with a strong foundation in applied physics. DUG’s innovative hardware and software solutions for the global technology and resource sectors enable clients to leverage large and complex datasets. The company provides cloud-based, high-performance computing as a service (HPCaaS), multi-tiered support for technology onboarding and code optimisation, and integrated services. DUG has offices in Perth, London, Houston, and Kuala Lumpur. The company designs, owns, and operates some of the largest and greenest supercomputers on Earth.

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