Using AI to avert 'environmental catastrophe'

A new Centre at the University of Cambridge is developing AI techniques to help address some of the biggest threats facing the planet.

Funded by UK Research and Innovation (UKRI), the Centre for Doctoral Training in Application of Artificial Intelligence to the study of Environmental Risks (AI4ER) was one of 16 new Centres for Doctoral Training (CDTs) announced earlier this year. The Cambridge Centre will be led by Professor Simon Redfern, Head of the Department of Earth Sciences.

Climate risk, environmental change and environmental hazards pose some of the most significant threats we face in the 21 century. At the same time, we have increasingly larger datasets available to observe the planet, from the atomic scale all the way through to global satellite observations.

"These datasets represent a transformation in the way we can study and understand the Earth and environment, as we assess and find solutions to environmental risk," said Redfern. "Such huge datasets pose their own challenges, however, and new methods need to be developed to tap their potential and to use this information to guide our path away from environmental catastrophe."

The new Centre brings computer scientists, mathematicians and engineers together with environmental and geoscientists to train the next generation of thought leaders in environmental data science. They will be equipped to apply AI to ever-increasing environmental data and understand and address the risks we face. The first cohort of PhD students will start their studies next month (October).

At the same time as human-induced climate change becomes increasingly apparent, urbanisation and the growth of megacities generate other risks, as society becomes potentially more fragile and vulnerable to geohazards such as earthquakes, volcanic eruptions, floods and tsunamis. Alongside satellite data, autonomous sensors, drones, and networks of instruments provide increasingly detailed information about such risks and their potential impacts.

Examples of the projects already underway that apply AI methods to exploring environmental risk include the use of satellite observations to chart the distribution and pathways of whales through the oceans1, large datasets to understand biodiversity changes in woodland habitats, machine learning to understand earthquake risk2 and the use of drones to monitor hazards at active volcanos.3

Cambridge is already a world leader in artificial intelligence and machine learning research4, and many of its AI researchers work alongside world leaders in environmental monitoring and modelling, including from the British Antarctic Survey and elsewhere at the University.

The new centre combines this work with the interests of dozens of external partners including Microsoft, DeepMind, The European Development Bank, Friends of the Earth, the European Space Agency, the Environment Agency, resource industry leaders and policy partners, to form an outstanding alliance focused on leading the next generation of environmental data science forward.

The new Centre is part of an overall £200 million funding announcement that will support more than 1,000 new research and business leaders in AI across the UK.

1. https://www.bbc.co.uk/news/science-environment-46046264
2. https://www.cam.ac.uk/research/news/machine-learning-used-to-predictearthquakes-in-a-lab-setting
3. https://www.cam.ac.uk/research/news/drones-used-toanalyse-ash-clouds-from-guatemalan-volcano
4. https://www.cam.ac.uk/research/spotlight-on/artificial-intelligence

This article has been reproduced under a Creative Commons Attribution 4.0 International License (www.creativecommons.org/licenses/by/4.0/)

'These datasets represent a transformation in the way we can study and understand the Earth and environment, as we assess and find solutions to environmental risk' — *Simon Redfern*

ONE JOB £50

GeoConnexion.com attracts a daily audience bigger than any in the industry, the biggest element of which comprises business professionals and graduates. It's the natural choice for those seeking suitable candidates for demanding appointments at home or abroad, often at short notice. As such, we can provide a quick and convenient media solution to your recruitment needs. Advertise your vacancies for £50 per job.

CONTACT US TODAY: RECRUITMENT@GEOCONNEXION.COM

ADVERTISER INDEX

COMPANY		PAGE
Cadcorp	cadcorp.com	33
Eos Positioning	eos-gnss.com	37
European Space Imaging	euspaceimaging.com	15
Geo Connect Asia 2020	GeoConnectAsia.com	19
GeoConnexion	geoconnexion.com	47, 51, 59
Gexcel	gexcel.it	29
ITC	utwente.nl/go/se	55
KOREC Group	korecroup.com	43
Leica Geosystems AG	leica-geosystems.com	2
Pix4D	pix4d.com	60
Riegl	riegl.com	9,11
Silicon Sensing	siliconsensing.com/general	7
Topcon Positioning	topconpositioning.com/aerial-mapping-mass-data collection	5
Vexcel Imaging	vexcel-imaging.com	13

To advertise call: Micki: +44 (0)7801 907666 or Mai: +44 (0)1223 279 151

PR/MARKETING SERVICES

AERIAL SURVEY SERVICES

www.aerialsurvey.com

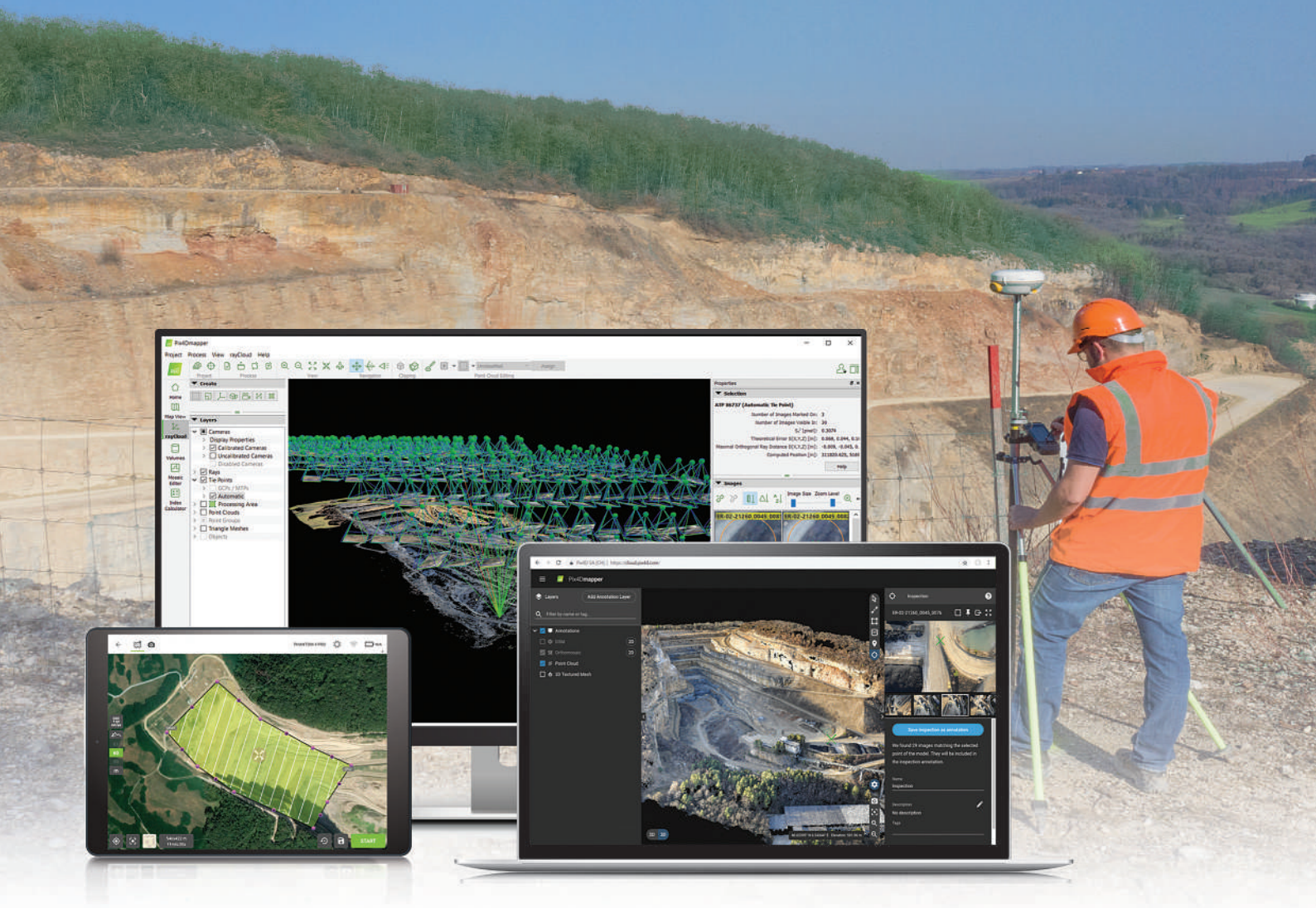
- ✔ For all your pre-owned aerial survey equipment requirements worldwide.
- ✔ For selection of equipment and services visit www.aerialsurvey.com
- ✔ Aeroplanes, cameras, lidar and all associated equipment/ services.
- ✔ Also aerial survey consultancy with netwrok of hire/charter survey modified aeroplanes worldwide.
- ✔ Wherever your project? We can facilitate anything anywhere!

Trackair Services Ltd
(aerialsurvey©aerialsurvey.com)

ADVERTISE HERE FROM ONLY £30 PER MONTH!

Contact: MickiKnight@geoconnexion.com

Drone flight is just the **first step**



Trusted by surveyors and GIS professionals

Generate classified point clouds, digital surface and terrain models, orthomosaics, textured models and more, purely from images

Discover Pix4D powerful solutions at **pix4d.com**

PIX4D