



LA TROBE
UNIVERSITY

AT THE FOREFRONT OF DIGITAL TECHNOLOGY AND CYBER



Cutting edge digital and tech capabilities

At La Trobe we're at the forefront of research and education in the areas of cybersecurity and intelligence and big data. Our research focuses on answering some of the biggest digital and technology questions of our time. We are committed to being a partner of choice for industry and government, with researchers connecting to partners through co-location at our Research and Innovation Precinct (Melbourne Campus, Bundoora) and our world-class research centres.

We've developed an agile research and education strategy that responds to rapid changes in digital technology and cyber, and includes:

- A dedicated **Optus Cybersecurity Chair** and a team of internationally-renowned and multi-disciplinary academics in cybersecurity
- The **Research Centre for Data Analytics and Cognition** carrying out world-class research in artificial intelligence, machine learning, data mining and text analytics
- The **Centre for Technology Infusion** that works on taking next generation technology solutions from the lab into real world environments, such as Sensadata and the Autonomobus autonomous vehicle project
- **Courses in data analytics, cybersecurity and industrial engineering** that address an increasing need for a highly skilled workforce
- **Engineering courses preparing graduates for digital transformation and Industry 4.0** – the fourth industrial revolution of automation, artificial intelligence, digitalisation and data exchange
- The **La Trobe Law Tech** network addressing issues arising from eLaw and the increasing intersection of law and information technology
- Equipping graduates with **digital health skills** to use technology and innovation to improve patient outcomes, particularly in our extensive regional health footprint



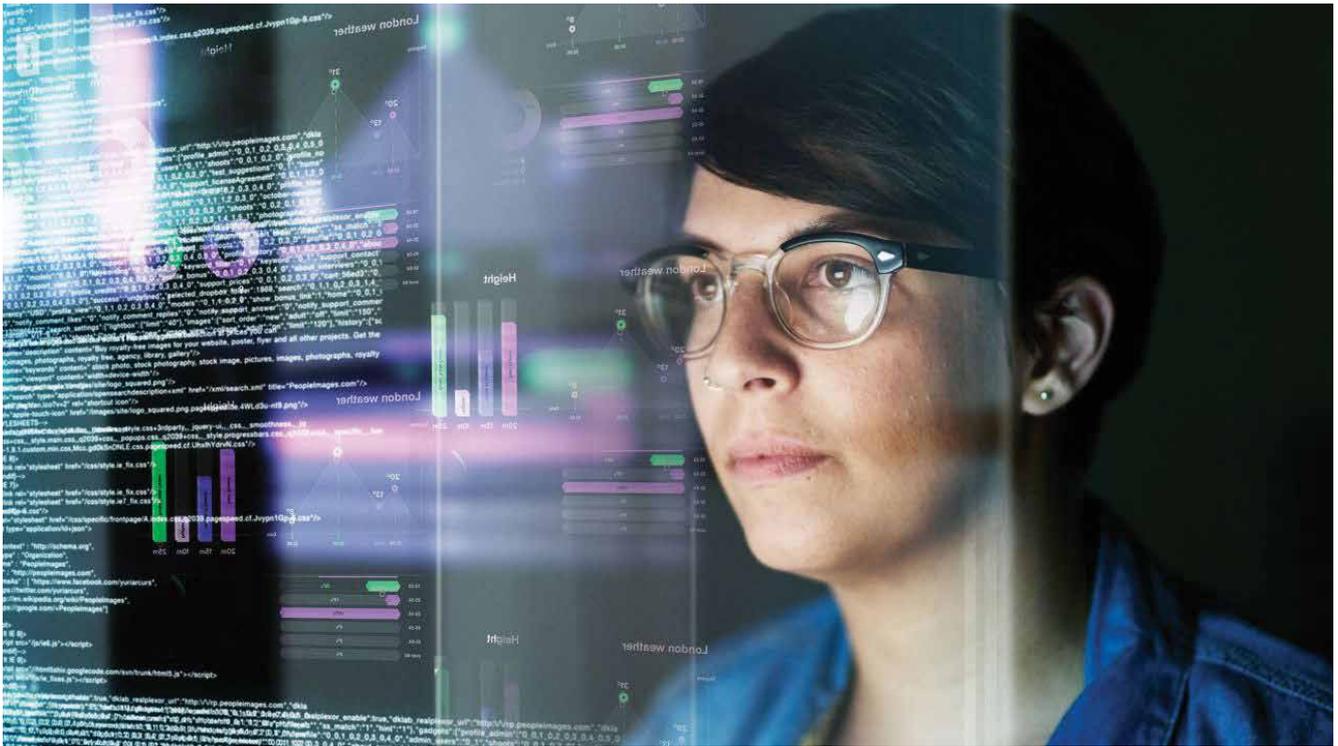
RESEARCH LEADERS
IN CYBERSECURITY AND
DATA ANALYTICS



**TECHNOLOGY AND
CYBER PARTNERSHIPS**
CONNECTING OUR RESEARCHERS
TO INDUSTRY AND GOVERNMENT



WORKING WITH INDUSTRY
ON AUTONOMOUS VEHICLES
AND SPACE TECHNOLOGY



Cybersecurity

Working with industry partners, we're addressing the growing cybersecurity and intelligence demands of government, business, defence and law enforcement. We've partnered with Optus to appoint our inaugural Optus Chair in Cyber and a team of internationally renowned cybersecurity and IT academics whose expertise covers:

- Machine learning and other Artificial Intelligence (AI) techniques for cybersecurity
- IT and cyber law and policy
- Cybersecurity skills and training
- Cybersecurity ethics

Our undergraduate and postgraduate courses in cybersecurity have been designed in partnership with industry to address the technical, legal, policy, business and behavioural needs of this growing sector. La Trobe's cybersecurity partner, Cisco, estimates there are one million information security job openings worldwide* and there are expected to be up to 9 100 vacancies in Australia alone by 2019**.

Big Data

The need for analytics professionals is at an all-time high as organisations seek to understand the massive amounts of data now at their disposal. Our courses are producing data analysts, business analysts, data scientists, supply chain analysts, sports data analysts, data engineers, market research analysts and business intelligence developers to supply the new knowledge economy.

Our dedicated **Research Centre for Data Analytics and Cognition** is conducting world-leading research in AI machine learning, data mining and text analytics. The Centre has developed a unique AI approach to social media analytics as well as a new paradigm in AI by developing core algorithms which build themselves to suit the task. This new paradigm has been adopted by international research institutions such as Max Plank Institute (Germany), A-Star Academy (Singapore) and the Chinese Academy of Science.



* Cisco Security Capabilities Benchmark Study Cisco, Oct 2014

** Employment Projections 2015, Australian Bureau of Statistics

Meeting the challenges of digital disruption

Digital disruption is transforming entire industries, professions and work practices at an unprecedented rate, impacting the way we work, study and live. Traditional manufacturing jobs are being replaced by new technologies in our communities in Melbourne's north and across Victoria.

It is estimated that over the next two decades 40% of jobs that exist today will disappear. The onset of Industry 4.0, or the fourth industrial revolution, means that universities must ensure our research and education addresses the challenges and opportunities created by digital disruption including increased demand for skills in areas such as data science and analytics, automation, robotics and artificial intelligence.



At the edge of innovation in Victoria in 2018

Autonobus – Autonomous Vehicle Trial

In 2018 the Autonobus, Victoria's first autonomous shuttle, was trialled at our Melbourne Campus (Bundoora), bringing autonomous vehicles a step closer to a public reality.

The Autonobus trial is a collaboration between VicRoads, founding partner Keolis Downer, HMI Technologies, RACV, the Australian Road Research Board (ARRB) and many others, and is a shining example of La Trobe's applied digital technology work with major industry partners. The trial drew passengers from across the community, and examined all aspects of safety, operations, passenger experience and integration with other transport modes.

Cyber solutions

We're meeting digital disruption head-on by increasing our focus on research, development, innovation and training in crucial areas such as cybersecurity and data analytics, and the digital technologies that underpin the emerging knowledge economy. We are:

- **Developing a \$5 billion multi-precinct University City of the Future, including a thriving Research and Innovation Precinct** at our Melbourne campus (Bundoora)
- Building a University City of Future underpinned by **partnerships with government and industry** and the capability to use our campuses as **"living laboratories"** for the application of new, replicable and scalable digital technologies
- Strengthening strategic alliances with **Optus** and **Cisco** to create a digitally-connected campus, state-of-the-art Sports Park and collaborative research to drive innovation
- Delivering jobs and economic growth in Melbourne's north as the anchor for **Plan Melbourne's La Trobe National Employment and Innovation Cluster**
- Continuing world-class research, development and innovation on the challenges associated with digital disruption and the transformation to a knowledge economy, including a specific focus on health and wellbeing and agribioscience and food
- Collaborating with sector-leading industry partners to develop and **deliver new subjects and courses that address the needs of the workforce of the future**
- Training graduates with the skills required **for the new knowledge economy** in areas such as **Cybersecurity, Data Analytics and Digital Health delivery** to improve patient outcomes
- Continuing to strengthen and expand our industry leading technology partnerships

Space tech for Elon Musk rocket

La Trobe's engineers have been involved in creating a number of advanced on-board control systems to manage the critical handling of image data and storage for a camera launched as part of the payload on Elon Musk's Space-X Falcon 9 (launched in June 2018).

The development of this technology at La Trobe cements Victoria's role as a world leader in space-technology, and aligns with the Victorian Government's efforts to see the Australian Space Agency housed in Victoria.

This work was completed as part of La Trobe's ongoing partnership with the German Aerospace Center (DLR). This partnership is the first of its kind for an Australian university, and is leading the way at a national level.

La Trobe's technology will control the high definition camera located on the International Space Station – images and data collected will be used to help monitor the impacts and controls for phenomena such as bush fires, floods, ash clouds, storms, rainfall, drought and water quality from 400 km in outer space.



Disclaimer: Every effort has been made to ensure the information contained in this publication is accurate and current at the date of printing. For the most up-to-date information, please refer to the La Trobe University website. Published by La Trobe University, December 2018. La Trobe University is a registered provider under the Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS). CRICOS Provider 00115M.

Contact Us

If you would like to know more about our Digital Technology and Cyber capabilities or are interested in talking to us about how you can become involved, please reach out to us at.

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