GRADUATE IT RESEARCH AT MONASH

Develop expert knowledge. Drive meaningful change.
Monash is united by one desire: using research as a vehicle for positive change and a better world. If you share this aspiration, there’s no better place for you to start your career.

Internationally recognised, Monash ranks in the top 100 research universities in the world. We are also the largest postgraduate IT faculty in Australia, with more than 300 graduate research students, and the depth and breadth of our research covers the whole gamut of our field.

Our faculty is structured into three world-class departments, each with achievements that stand out on a global stage. Collectively, they contribute to three cross-cutting themes of IT for Sustainability, Digital Health and AI for Social Good.

The Department of Data Science and Artificial Intelligence is home to the largest group of data scientists in the southern hemisphere. It also encompasses a world-leading optimisation group and recognised pioneers in areas such as learning analytics.

Our Human-Centred Computing (HCC) department is one of the top contributors to ACM-CHI, the world’s most important conference on human-computer interaction. It is also one of the leading HCC groups globally, with extensive expertise from IT specialists to social scientists, anthropologists and more.

The Department of Software Systems and Cybersecurity leads the way when it comes to cutting-edge cryptocurrencies, blockchain technology and cybersecurity, with esteemed labs and a key membership in the Oceania Cyber Security Centre – a not-for-profit involving eight Victorian universities and many industry and international partners.

Our breadth of research is an incredible advantage for anyone embarking on a PhD. You will always find an expert to support your work, whichever challenging question you may encounter. And if your project goes beyond IT, you’re embedded in one of the world’s most comprehensive universities whose ten faculties span every possible discipline.

With students and staff coming from more than 90 countries, the members of our diverse research community work together peacefully and learn from each other every day – culturally as much as scientifically.

Our students also receive generous support beyond their stipends to encourage rewarding collaborations and their integration into our international research community.

If you’re striving for groundbreaking research for social good, we’re eager to welcome you to our faculty. We pride ourselves on being open-minded, respectful and supportive, and I personally look forward to meeting you on campus and in our labs.

Best wishes

Associate Professor Guido Tack
Associate Dean (Graduate Research)
Faculty of Information Technology
Monash University
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BREAK NEW GROUND WITH A LEADER IN INNOVATION

Australia’s most innovative university

When you choose Monash Faculty of IT, you’re instantly aligning yourself with our global reputation for excellence in research and education.

Home to the largest group of data scientists of any research institution in the southern hemisphere, we’re:

• ranked ‘Above world standard’ across all categories in Information and Computing Sciences
• rated five out of five for AI and Image Processing
• in the global top 100 for Computer Science and Information Systems.

Plus, Monash is the only Group of Eight university to have a dedicated IT faculty.

Real industry experience

With Monash, you can take up an internship while completing your PhD.

This will help you enhance your research, grow your connections and develop professional skills that are desired globally – including project management and leadership.

Some of our past students have interned at top-tier organisations such as IBM, CSIRO, Google, Telstra and Amazon.

WHY MONASH FACULTY OF IT?

Looking to leave your mark in the world of IT? Want to develop in-depth expertise and make new discoveries to address global issues?

Monash is the place for you.

1 2017-2019 Reuters Top 75: Asia’s Most Innovative Universities
3 2021 QS World University Rankings by Subject
The world’s best minds in IT
At the forefront of their disciplines, our academics are known for research that drives global transformation for social good.

We’re home to data science innovators, cybersecurity pioneers, software engineering leaders and a global top 10 human-centred computing group.

They’re inventing better cryptocurrencies, enhancing education, fast-tracking vital healthcare and more, all to create positive change. And their future-focused, creative minds are why Monash is a destination of choice for graduate researchers year after year.

Global research exposure
Monash hosts and participates in a wide range of events that can put your research on a global stage and demonstrate its industry applications.

These include our annual Innovation Showcase and the Monash Three Minute Thesis® competition.

And whenever exciting opportunities arise – like special events and competitions – your supervisor will always alert you and support your involvement.

A worldwide presence and network
With Monash, you have infinite access to international secondments, internships and partner research programs.

Plus, our rich alumni community of over 380,000 members across the globe gives you endless opportunities to network.

Monash is also strongly connected to many international organisations and professional associations. These partnerships give you greater opportunities to expand the reach, breadth and depth of your research.

Collaboration that leaves an impact
As a Monash graduate researcher, you will have the chance to work with organisations from a range of sectors to champion social good.

Through our Graduate Research Industry Partnerships (GRIPs) program, we connect researchers and academics from various fields with external partners to explore challenging and important world issues.

This allows you to gain interdisciplinary insights and put your skills into practice – making a real impact on global issues.

Research is my passion, and Monash, a well-known university, provided me with a great environment, advanced technology and a robust research community.

As a researcher in a multi-disciplinary area, healthcare/genomic data privacy, Monash and its diverse research areas have truly enriched my academic experience. It has been a great opportunity to work with, and learn from, outstanding researchers of different backgrounds.
SCHOLARSHIPS AND SUPPORT

HOW WE SUPPORT YOU
An abundance of scholarships

Every domestic and international graduate research candidate is automatically considered for a scholarship.

In addition, we offer scholarships to students in underrepresented groups, including:
- women in IT
- students with a low socio-economic status.

We also have dedicated scholarships for Indigenous Australian students interested in IT graduate research.

Applications are evaluated all year round and we have no deadlines. Our faculty is also open to self-funded and externally-funded scholarships.

More financial benefits (stipends)

Our faculty allocates AUD$4K graduate research funding to PhD students in Australia for the duration of their candidature. ($2K for MPhil.)

You can use this for travel, fieldwork and data collection, specialised training and research equipment.

For international students who are awarded a faculty-funded scholarship, we also pay for your overseas health cover (for the duration of your visa) which protects your immediate family members as well.

Empowering initiatives and support services

Monash Faculty of IT has many initiatives that will empower you to develop your academic and professional skills, and build your connections. These include the:
- IT Graduate Research Student Committee
- Women Graduate Researchers in IT Network
- biennial graduate students’ research retreat.

You will also have access to the following Monash-wide services:
- Monash Career Connect
- Graduate Student Academic Services
- Monash Graduate Association
- e-Research services
- family support
- Monash Sport
- Wellbeing hub
- disability services
- on-campus accommodation.

Learn more about student life at Monash
JOIN A FACULTY THAT INNOVATES ACROSS IT

We’re home to 170+ academics across three world-class departments that contribute to cross-cutting themes.

During your time with us, you’ll develop deep expertise by drawing on the diverse experiences, skills and technologies across our many institutes, centres, labs, groups and facilities – which have all played a formative role in the advancement of IT.

OUR RESEARCH DEPARTMENTS

Data Science and Artificial Intelligence
Working with some of the world’s most influential data scientists, this department uses data to better understand the past, manage the present and prepare for the future.

With unrivalled expertise in AI, machine learning, modelling, optimisation and visualisation, it’s solving real-world problems to advance industry, commerce, governance and research.

Software Systems and Cybersecurity
Our software engineering team is a leader in the Asia-Pacific region. And we’re home to cybersecurity pioneers responsible for world-first cryptocurrencies and blockchains.

Together, they conduct innovative research to safeguard our world and ensure that humans remain at the heart of software.

Human-Centred Computing
Composed of IT specialists, social scientists, ethnographers and more, our Department of Human-Centred Computing is one of the top groups in HCC globally.

Its researchers explore the future of human-computer interaction and how new interaction and visualisation technologies (such as augmented and virtual reality) can support a more equitable and just world.
Digital Health

Our digital health researchers engage in a broad spectrum of socio-technical projects which aim to:

- address issues in patient-doctor interaction
- achieve optimal treatment decisions and patient-centred monitoring
- explore trustworthy data sharing and integration across healthcare systems and organisations.

Sustainability Informatics

Sustainability is a key focus for organisations, communities and people across the globe. With technology underpinning our modern world, we’re harnessing IT to accelerate projects and collaborations across sustainable energy, environmental modelling and agriculture.
RESEARCH ENTITIES AND FACILITIES

Monash Blockchain Technology Centre (MBTC)

Responsible for the blockchain research lab, education and training, the MBTC’s key capabilities span consensus, security, efficiency and privacy. Its work can also be applied in a range of areas including digital health and smart energy.

Monash Data Futures Institute

Monash Data Futures believes that AI and data science can change the world for the better. The Institute creates transformative, lasting change in governance and policy, health sciences and sustainable development.

Monash Energy Institute

A collaboration between the Faculty of IT, Faculty of Engineering and Monash Business School, this Institute undertakes research to create innovative products and services in the global energy sector.

Action Lab

Focusing on human-centred computing, Action Lab conducts real-world research with communities, NGOs and governments. It strives to use digital technologies to transform the roles citizens play in the design and delivery of health and wellbeing, education and media.

Artificial Intelligence for Law Enforcement and Community Safety (AILECS) Lab

A partnership with the Australian Federal Police, this lab investigates how AI can make our communities safer. It builds on past research into using machines to classify distressing child exploitation materials to reduce trauma among officers.

Centre for Learning Analytics Monash (CoLAM)

CoLAM develops next-generation data analytics that unlock the potential of digital data to optimise education and empower learners for the age of AI.
Collective Behaviour Lab
Encompassing ecology, social science, citizen science, sustainable energy systems and more, this Lab is an interdisciplinary research group uniquely underpinned by IT. Blending detailed domain understanding with computational methods, it’s well-positioned as a leader in advanced modelling and a core collaborator for other collective behaviour groups.

Computational and Collective Intelligence
This discipline group investigates modern agent technologies, decision-making methodologies and new modelling, planning and reasoning techniques to solve real-world problems involving multiple intelligent agents, collective behaviour, learning environments, big data and fundamental uncertainty.

Data Engineering
Harnessing emerging technologies, we’re developing techniques to wrangle, process and analyse big data generated from diverse places – such as the Internet of Things (IoT), urban computing and geospatial sources.

Digital Equity and Digital Transformation
This group is optimising the social, cultural and economic benefits of information communication technologies (ICTs). Its research focuses on understanding the people and organisational dimensions, complexities and needs of the social networks that ICTs serve.

Emerging Technologies Research Lab
A collaboration between the Faculty of IT and the Faculty of Art, Design & Architecture, this group investigates an emerging technological environment where automation, AI and data raise questions of ethics, responsibility, user experience and engagement. Its core themes include energy futures, future mobilities, public space, e-waste and design for wellbeing.

Exertion Games Lab
This Lab draws from interaction design and human-computer interaction, sports, health, psychology and embodiment thinking to design interactive technology that helps us discover who we are and who we want to be.
Human-Centred AI Lab
This group is developing deeply human-centered systems at the boundary of HCI and AI to identify human emotional, cognitive and health statuses. Its aim is to create more personalised and adaptive interfaces based on this information across a range of areas such as health and education.

HumaniSE Lab
The HumaniSE Lab explores approaches to creating software systems that account for ‘human’ elements. It also finds new ways to capture and use human-centric requirements in model-driven software engineering – and verify that systems meet these requirements.

Immersive Analytics Lab (IALab)
The IALab is internationally renowned for its research into informational visualisation, accessibility and responsive document layout. Strongly connected with industry on a global scale, the Lab’s technology is used by global brands such as Apple and Microsoft.

Inclusive Technologies Lab
Led by an interdisciplinary team of researchers, the Inclusive Technologies Lab is known for its innovative, community-driven research. The Lab explores how emerging technologies can improve the lives of people living with disability – while empowering their families and educators.

Laboratory for Dialogue Research (LDR)
The LDR designs, builds and evaluates dialogue systems underpinned by AI technologies such as machine learning and natural language processing. The group partners with other research groups in the Faculty of IT and Faculty of Engineering, as well as a range of government, industry and education bodies around the world.

Operationalizing Values in Software (OVIS) Lab
Established in 2018, OVIS Lab focuses on embedding human values into methodologies, tools and guidelines to drive software for social good.

SensiLab
SensiLab is a joint venture between the Faculty of IT and the Faculty of Art, Design & Architecture. Led by a diverse team, the lab explores the creative possibilities of technology – including how it can change us and how we can harness its power.

Vision and Language
At the forefront of vision and language research, this multimodal group is using interdisciplinary expertise to solve big challenges and make a lasting contribution to society. Its award-winning work focuses on empowering machines to comprehend and produce images, scenery, text and languages.

Woodside FutureLab
The Woodside FutureLab is dedicated to uncovering technology innovation opportunities across the oil and gas industry.
STANDOUT FACILITIES

Woodside Building for Technology and Design
Innovative and energy-efficient, this building hosts a range of cutting-edge spaces that support and augment our research in human-centred computing, software systems, cybersecurity, data science and AI.

Future Control Room (FCR)
Designed as a proxy to future energy system control rooms, the FCR captures and displays heterogeneous real-time datasets on a 37-megapixel wall. This technology drives research into improved monitoring and control systems, reaching into advanced data integration and mining – and ultimately, the autonomous operation of smart energy systems.
WHAT CAN YOU EXPECT?
WHERE CAN YOU GO?

From business to healthcare, technology is evolving the world in almost every way. With so many different projects, partners and places to explore, your research experience with us is sure to be an enriching one.

STAND-OUT PROJECTS

PROTIC II: EMPOWERING RURAL WOMEN IN BANGLADESH

Human-Centred Computing

A collaboration between Monash Faculty of IT and OXFAM, PROTIC II is the second phase of PROTIC – a five-year international development project that was dedicated to empowering rural women in Bangladesh.

This second part of the project seeks to articulate the impact of societal digital transformation initiatives on disadvantaged and low-literacy communities. It also aims to develop contextually and culturally-sensitive strategies and actions to ensure that citizens are not marginalised further.
Monash has given me the chance to collaborate with world-leading researchers in my area of interest. Plus, the university has purpose-built spaces with amazing equipment and technology, which I wouldn’t have been able to complete my research without.

No doubt the highlight of my time at Monash has been the opportunity to get my research into the hands of end users, and see the look of amazement on their faces as they interact with my models and access information that was previously inaccessible to them.

Sam’s research focuses on the creation of accessible graphics for the vision impaired, using 3D-printed models and interactive interfaces.
BE GUIDED BY THE BEST

The relationship you have with your supervisor will be the core – and highlight – of your research experience at Monash. All leaders in their fields, they’re extensively trained and certified to support your project.

They are here as your mentor. To help you question the answers, strive for excellence and support your commitment to solving challenges.

It’s therefore important to find a suitable supervisor to guide you through a rewarding faculty project – or even one of your own. Here are just a handful of our many standout supervisors, search our database Supervisor Connect to find your match.

PROFESSOR MARIA GARCIA DE LA BANDA

With more than 25 years’ experience as an academic, Professor Maria Garcia de la Banda is a professor in the Faculty of IT within the Department of Data Science and AI. She is also our Deputy Dean (Research) – and Co-chair of the Monash-Woodside FutureLab.

Before this, she served as the overall Deputy Dean of the Faculty as well as the head of the Caulfield School of Information Technology.

Her research interests include:
- modelling and solving combinatorial optimisation problems
- program analysis and transformation
- programming languages
- bioinformatics.

Read Professor Maria Garcia de la Banda’s full profile
An integral member of our Department of Software Systems and Cybersecurity, and our Associate Dean (Engagement and Impact), Associate Professor Aldeida Aleti is a 2014 ARC Discovery Early Research Career Award Fellow – and a former member of the Athena SWAN Charter accreditation program.

Her research focuses on developing automated software engineering solutions to building complex software systems, and in particular AI-based software systems, such as self-driving cars and AI software used in digital health.

Her research interests include:
- search-based software engineering
- detecting and repairing AI bias
- automated program repair
- fairness testing in AI software systems
- AI software reliability.

Professor Geoff Webb is a leading data scientist in the field of machine learning, data mining, data analytics and user modelling. He was awarded the 2017 Australian Museum Eureka Prize for Excellence in Data Science for his work using algorithms to obtain insights from ambulance call-out data.

His other awards include the 2016 Australian Computer Society’s ICT Researcher of the Year and the 2016 Australasian Artificial Intelligence Distinguished Research Contributions.

His research interests include:
- data mining
- machine learning
- data analytics
- knowledge acquisition.

Read Associate Professor Aldeida Aleti’s full profile

Read Professor Geoff Webb’s full profile
An electronic media artist, theorist and computer science researcher, Professor Jon McCormack’s research develops new forms of creativity with technology. He is also the founder and director of SensiLab, a creative technologies research space that offers a unique form of PhD – through practice-based research.

He received an ARC Future Fellowship grant in 2017 for a project called ‘Generative Materialism: advancing design of the digital and physical’.

His research interests include:
• creative AI
• generative and evolutionary art and design
• computational design
• digital music and sound art
• multi-sensory, interactive space.

Read Professor Jon McCormack’s full profile

Associate Professor Gillian Oliver is the lead of the Digital Equity and Digital Transformation group (formerly known as the Centre for Organisational and Social Informatics).

She is supervising projects relating to digital citizenship, recordkeeping informatics and business information systems.

Her research interests include:
• information and data cultures
• people and cultural aspects of cybersecurity
• digital citizenship for disadvantaged communities.

Read Associate Professor Gillian Oliver’s full profile
Dr Hao Wang started as a lecturer within the Department of Data Science and AI, Faculty of IT in 2020 following a Postdoctoral Research Fellowship at Stanford University and a Washington Research Foundation (WRF) Innovation Fellowship in the US. He serves as the Deputy Theme Lead for IT for Sustainable Energy.

His research interests include:
- optimisation for smart grid, electric vehicles, energy storage
- energy data analytics (energy disaggregation, load profiling, etc.)
- AI for energy systems (online learning and reinforcement learning)
- energy economics and business models (game-theoretic analysis and mechanism design).

Read Dr Hao Wang’s full profile

Associate Professor Alan Dorin’s research links computer science to fields as diverse as ecology, history of technology and art. He currently leads our Computational and Collective Intelligence group and has been our Head of School (Clayton) and Deputy Dean (Academic Resourcing).

He is currently establishing a new interdisciplinary research space called the ‘Native Bee+Tech’ facility.

His research interests include:
- artificial life, agent-based modelling and simulation
- machine learning for ecological data extraction from social media
- ecological interactions of insects and plants
- the history of technology, science and art
- ecological and agricultural technology.

Read Associate Professor Alan Dorin’s full profile
# OUR GRADUATE RESEARCH OFFERINGS

We have three key programs that enable you to pursue your research interests in IT.

## Doctor of Philosophy

Through this program, you will complete a substantial research thesis on an agreed topic of interest under the guidance of a supervisory team. You will also engage in professional development activities or coursework units to support your research training.

**Course requirements**
- a research program on an agreed topic
- one of the following:
  - An 80,000-word thesis or longer on the research program.
  - A practice-based research project with a written exegesis.
- the Information Technology PhD program.

**Course duration**
- Choose between:
  - four years (full-time)
  - eight years (part-time).

**Enrolment conditions**
- You will need to complete:
  - the Monash Graduate Research Induction (online)
  - Research Integrity (online)
  - the faculty or program induction
  - Respectful Research at Monash (online).

[Find out more](#)

## PhD by practice-based research and exegesis

Offered by SensiLab, this innovative form of PhD is a first for IT doctoral research in Australia. It encourages creative and dynamic projects that centre on making, building and creating. Your research will typically be interdisciplinary, linking IT and creative technologies with fields such as health, urban planning and cultural heritage.

**Course requirements**
- present a substantial amount of your research through an immersive, interactive demonstration or exhibition that engages one or more of the senses
- complete a written exegesis of 35,000 words (minimum).

**Course duration**
- Choose between:
  - four years (full-time)
  - eight years (part-time).

**Enrolment conditions**
- You will need to complete:
  - the Monash Graduate Research Induction (online)
  - Research Integrity (online)
  - the faculty or program induction
  - Respectful Research at Monash (online).

[Find out more](#)
The main reason I chose Monash for my PhD study was the fact that it has world-leading experts in my area of research, cybersecurity. I got to make excellent friends and build strong collaborations in my PhD journey.

One of them was the opportunity to do an internship at the prestigious IBM Research, Zurich labs. The highlight of my research at Monash was getting to see the patenting and commercialisation of a technology I invented, which will be deployed by an Australian cryptocurrency developer in future.
标准路径

本科 IT 学位或相关学科
（3年）

入读要求

荣誉学位
在相关学科
（1年）3个学分、
小论文和
研究方法

入读要求

研究生课程
学位

研究项目

MPhil

研究至多2年

H2B (65%)或更高

H2A (70%)或更高

PHD

研究至多4年

H2B (65%)或更高

H2A (70%)或更高

入读要求

入读要求
English language conditional pathway, conditional offer and packaged offer

All graduate research applicants must meet our English Language Proficiency (ELP) requirements. However, if you don’t meet these requirements at the time of applying but have demonstrated capacity to undertake significant research, we may make a conditional offer.

For the conditional and packaged offer, you will need to complete the Monash English Bridging (MEB) program for graduate degrees and higher degrees of research, and achieve the ELP requirements.

CHANG WEI TAN
PhD candidate

Recipient of the 2019 Mollie Holman award, Chang Wei’s research focuses on designing machine learning algorithms to analyse large corpus of time series data faster and more accurately.

Doing a PhD with Monash Faculty of IT was a really great experience that helped me become an expert in the field of time series analytics. It has given me the chance to travel around the world, collaborating with leading researchers in the specialisation and broadening my views. Working with world-class researchers has also improved my networking skills.

The highlight of my time at Monash has to be the unlimited support and resources that were given to me. My supervisors and the people I worked with were all very supportive and friendly, always pushing me to be the best of myself. Furthermore, analysing large time series datasets would not have been possible without the world-class computing resources provided by the university.
ELIGIBILITY AND APPLICATIONS

When you apply for a graduate research program with the Faculty of IT, you’re also automatically considered for eligible scholarships.

More than 80% of the PhD students in our faculty are supported by scholarships, and we also offer other financial benefits (such as graduate research funding) and services to assist you throughout your candidature.
I chose Monash for graduate research because its collaborative, cross-disciplinary projects are creating real impact in our world.

The foundation courses and workshops played a big role in advancing my understanding and skills as a researcher. And thanks to my standout supervisors, academics, peer groups and academic language specialist, all the support I needed was there – I only had to ask.

My PhD experience has been a lifetime achievement and will definitely contribute to my future prospects.
FIND A RESEARCH PROJECT TODAY

Head to Supervisor Connect to get started.