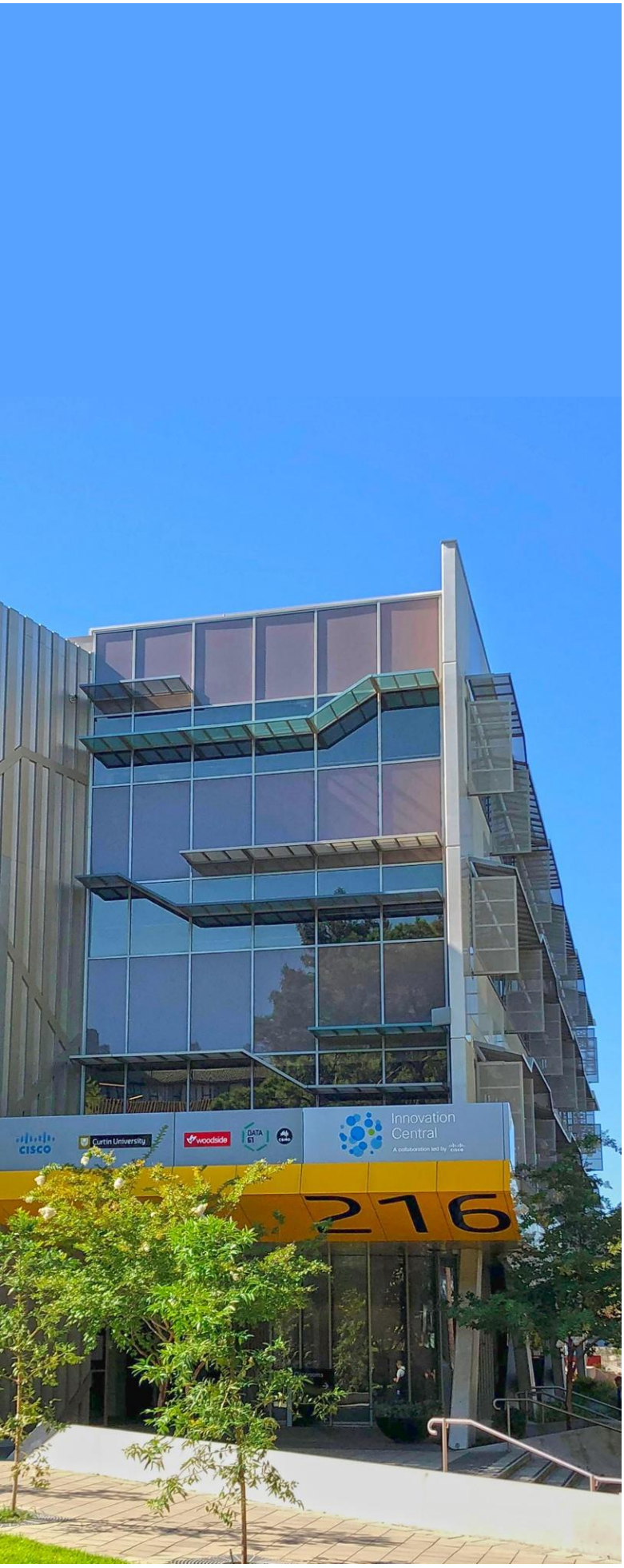
OPTUS | Curtin University

OPTUS CHAIR, ARTIFICIAL INTELLIGENCE

CANDIDATE INFORMATION BOOKLET

Make tomorrow better. curtin.edu.au



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OVERVIEW OF THE UNIVERSITY

Curtin University is an inspiring, vibrant, international organisation, committed to making tomorrow better. It is a beacon for innovation, driving advances in technology through high impact research, and offering more than 100 practical, industry-aligned courses connected to the workplaces of tomorrow.

Curtin University is ranked in the top 1% universities worldwide (ARWU 2018 and QS World University Rankings 2019), and is placed 20th in the world for universities less than 50 years old (QS Top 50 Under 50 2019). Curtin is WA's most preferred university, with highly engaged industry-facing partners. A major global player, with well-integrated campuses in Singapore, Malaysia, Mauritius and Dubai.

The University is committed to international engagement and supports a diverse international student population. This cultural diversity adds a rich and valuable dimension to the campus atmosphere and prepares graduates to live and work in an increasingly global environment. Curtin maintains campuses in Western Australia, Malaysia, Mauritius, Singapore andDubai, while also conducting face-to-face teaching in a number of countries.

Offering a wide range of undergraduate and postgraduate courses in health sciences, business, humanities, resources, engineering andrelated sciences, the University is recognised for high-impact research across a range of areas.

The practical and applied nature of Curtin's courses equips graduates with the skills and knowledge that employers look for, by exposing students to industry, business and research that has a focus on solving real world problems. This combination enables graduates to be effective in the workplace immediately upon graduation.

As part of this approach, Curtin has always fostered successful partnerships with industry, business and government to enhance the quality of our scholarships, teaching and research. Curtin will continue to develop existing partnerships and to establish new ones in areas relevant to research and teaching. We have an exciting future and we invite you to join with us as we move forward.

STRATEGIC PLAN

In late 2015 and throughout 2016, Curtin undertook a substantial review of its strategic direction and positioning, involving University-wide consultation.

The outcomes of this highly collaborative process have been captured in the Strategic Plan 2017- 2020.

The focus for this planning cycle will be on 'Delivering Excellence' as we look forward to securing our position as a leading global university that is positioned in the top 200 globally and top 10 nationally. As we head towards 2020, we will ensure that we:

- strengthen our capacity to be future looking;
- maintain a focus on excellence in everything we do;
- strive to be both industry-facing and industry-embedded;
- deepen our well-established culture of innovation;
- build life-long connections with an engaged alumni;
- above all, be led by our values as we support our staff, promote Indigenous reconciliationand contribute to a fairer and more just society for all.

Our Strategic Plan is comprised of six themes:

- Learning and Student Experience;
- Research and Innovation;
- Engagement and Impact;
- People and Culture;
- Global Positioning; and
- Sustainable Future.

Each theme contains a high-level goal and series of desired outcomes for 2020, and details the initiatives and actions that will enable us to achieve this.

OPTUS

Australian business is experiencing unprecedented change through digital disruption. Innovation in technology is creating fresh opportunities for companies to operate, generate new revenue models and thrive in this new digital era.

It's why so many organisations are looking for someone who understands the full breadth of managed technology and services, from applications, security and cloud to collaboration and contact centres. Someone who can deliver connected, integrated and trusted experiences on premise or as a service.

Today, thousands of Australian organisations entrust Optus Business to be that partner – from government and education to large enterprises, and across a wide range of industries - we help our customers create experiences for their customers and employees across all the spaces in which they live, work and play.

Regardless of whether your priority is creating connected and personalised experiences for customers, mobilising and engaging with your employees, or creating safe and secure connected spaces to improve collaboration, the Optus Smart Network underpins every experience so your business can achieve its end goal.

Backed by the international strength of the Singtel group and the power of our mobile, fixed and satellite networks, regional strength and local expertise, we bring together best of breed partners to create the solution that's right for your business.

CURTIN OPTUS ALLIANCE

Curtin University and Optus Business have recently formed an Alliance to collaborate in research in the Artificial Intelligence field. The focus of the collaboration will be in the impact of artificial intelligence on regional telecommunications, higher education and the urban environment.

The five-year alliance will develop an artificial intelligence research group embedded in the School of Electrical Engineering, Computing and Mathematical Sciences at Curtin University, with strong links to the Curtin Institute for Computation. The alliance will leverage synergies between Curtin's excellent research, teaching and learning capabilities, and Optus' market-leading technology and infrastructure capabilities.

The alliance will appoint an Optus Chair in Artificial Intelligence and three Optus Research Fellows focusing on applying artificial intelligence technologies in areas such as regional telecommunications, improving higher education student outcomes and the urban environment, as well as funding for PhD scholarships and student projects.

FACULTY OF SCIENCE AND ENGINEERING

The Faculty of Science and Engineering develops internationally focused graduates who are committed to excellence in their field.

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The faculty is noted for its achievements in innovative teaching and learning and, in particular, its high research profile through participation in Commonwealth Government Cooperative Research Centres, State Government Centres of Excellence, and joint activities with industry and government. Teaching staff from the faculty have received national and international awards for their teaching qualities and practices.

The faculty is also committed to community engagement and runs several successful outreach programs that take science and engineering to schools and the wider community.

THE FACULTY OF SCIENCE AND ENGINEERING COMPRISES FIVE SCHOOLS:

- School of Civil and Mechanical Engineering (CME)
- School of Earth and Planetary Sciences (EPS)
- School of Electrical Engineering, Computing and Mathematical Sciences (EECMS)
- School of Molecular and Life Sciences (MLS)
- WA School of Mines: Minerals, Energy and Chemical Engineering (WASM:MECE)

RESEARCH

Research at Curtin is facilitated across a range of research centres, groups, institutes and collaborations, which bring together well-respected researchers from Australia and the world.

Curtin is recognised internationally as a leader for the quality of its higher degree by research programs.

Underpinning our research endeavours are strong partnerships with industry, business and government, which result in outcomes that greatly benefit the broader community at local, national and global levels.

The faculty carries out cutting-edge research in areas ranging from radio astronomy to agricultural science, from the development of new fuels to improving water quality, from nanoscience to Earth science. We collaborate widely with other research centres and universities, both in Australia and overseas, as well as with CSIRO and our industrial partners.

The faculty is involved in a variety of high-impact research initiatives, including the Murchison Widefield Array (MWA) and the Square Kilometre Array (SKA). The SKA is a mega-science and engineering collaboration that will explore the universe through the world's most sensitive radio telescope.

CURTIN ENGINEERING PAVILION COMPLEX

The $32.5 million Curtin Engineering Pavilion Complex is made up of an exhibition plaza and two buildings: the student-centered Curtin Engineering Pavilion and the Engineering Postgraduate Research Hub. An aerial bridge links to adjacent buildings to form an impressive engineering precinct.

The facility's innovative design and technologies double as hands-on learning tools for Curtin's engineering students. Referred to as a 'living laboratory', the pavilion provides interactive visualisations of the building's mechanical and chemical processes. A data recorder and playback device interact with stress and vibration sensors installed on various parts of the building. Because the pavilion is designed to foster research and industry collaboration as well as meeting educational needs, on-demand, real-time and historical building data can be used for engineering education and research.

Rooftop water tanks and temperature banding, designed to reduce water usage and electricity consumption by 39 per cent and 42 per cent respectively, contributed to the facility receiving a 5-star Green Star rating by Green Building Council of Australia.

INNOVATION CENTRAL PERTH

Innovation Central Perth, based on Curtin's Bentley campus, is a state-of-the-art collaborative community developing ingenious solutions for cloud, analytics and Internet of Things (IoT) network platforms. It is a partnership of Cisco, Curtin University, Woodside Energy and CSIRO's Data61. By creating an environment that fosters collaboration, small-to-medium enterprises, industry experts and researchers can develop original and inventive solutions through rapid prototyping and proofs-of-concept to solve real business problems.

Innovation Central facilitates partnerships between large corporations and innovators to develop innovative business solutions, achieve efficiencies and create opportunities. It offers unique access to world-class facilities and global networks for any SMB or Large Corporate in search of a bold solution to a business problem.

SCHOOL OF ELECTRICAL ENGINEERING, COMPUTING AND MATHEMATICAL SCIENCES (EECMS)

The School comprises of four disciplines areas:

- Discipline of Electrical and Electronic Engineering
- Discipline of Computing
- Discipline of Mathematics and Statistics
- Discipline of Physics and Astronomy.

The School also hosts the Curtin Institute of Radio Astronomy (CIRA).

The School's major teaching and research operations are at Bentley and Technology Park, but also offers teaching Programs at Curtin Malaysia, Curtin Dubai and in Curtin Mauritius. EECMS offers off-shore undergraduate teaching programs in Sri Lanka in collaboration with the Sri Lankan Institute of Information Technology (SLIIT).

RESEARCH PRIORITIES

- Renewable Energy and Power Systems,
- Signal Processing and Stochastic systems,
- Large scale pattern recognition
- Cyber security
- Artificial Intelligence
- Material Science (Hydrogen Storage Materials, Nano-Carbon/Semiconductors)
- Radio Astronomy
- Theoretical Physics (Few-Body Quantum Collision Theory)
- Financial Mathematics
- Industrial & Applied Mathematics
- Numerical and Computational Mathematics
- Data Science

LEARNING AND TEACHING PRIORITIES

In Learning & Teaching, the School offers UG and PG programs in:

- BE: Electrical and Electronic Engineering
- BTech: Computer Systems and Networking
- BSc: Computing (IT, software, Cybersecurity, Computer Science)
- BSc: Maths and Stats (Actuarial Science, Financial Maths, Industrial & Applied Maths, Data Science).
- BSc: Physics (Astrophysics, Environmental Physics, Material Sciences, Mathematical Physics Advanced Science)
- MEngSc: Electrical Engineering
- MPredAnylt: Master of Predictive Analytics
- Data Science

INDUSTRY ENGAGEMENT

The School has a history of high industry involvement and is a world leader in the translation of research outputs into industry. This culture allows the School to increase its attractiveness to HDR students and is a driver for producing high quality postgraduate work and research. The partnership, among others, includes:

- Research funding (research collaboration / consultancy)
- Student scholarship, awards, and prizes
- Industry recognition, commercialization and patent.
- Work-integrated learning, i.e., final-year student projects in collaboration with several industry partners, including: Thales, Amristar, Australian Finance Group (AFG), Deloitte, Immersive, IBM, Maple and Embedded Technology Corporation.
- Student recruitments. The annual University Open Day includes Industry Panel to help recruit students.
- Industry advisory board for all Disciplines within the School. All decisions in terms of course content, new course offerings, new graduate attributes are discussed and endorsed by the Industry Advisory Board.
- The power engineering group has a history of strong collaboration with Western Power, API and other utility companies in Australia and are currently in discussion with ABB and Magellan regarding research collaborations.
- In Communication Signal Processing the School has strengthened its involvement with Sensear, US defence companies, Association for the Blind and DSTO.
- The School has a strong track record of research commercialisation with the creation of Spin-off companies including: Atmosphere, Regan Power, Xelor, Sensear, TheBuzz, MobiRoam and Nuheara.

CURTIN INSTITUTE FOR COMPUTATION (CIC)

Computation now fundamentally underpins the majority of internationally competitive research across all fields and disciplines. As the demand for computational skills has grown, so too has the need for a dedicated institute at Curtin that can support the research community.

The Curtin Institute for Computation (CIC) was established to meet this increasing demand for computational modelling, data analytics, and visualisation. The CIC initiates and fosters collaborative, interdisciplinary research and education programs with researchers.

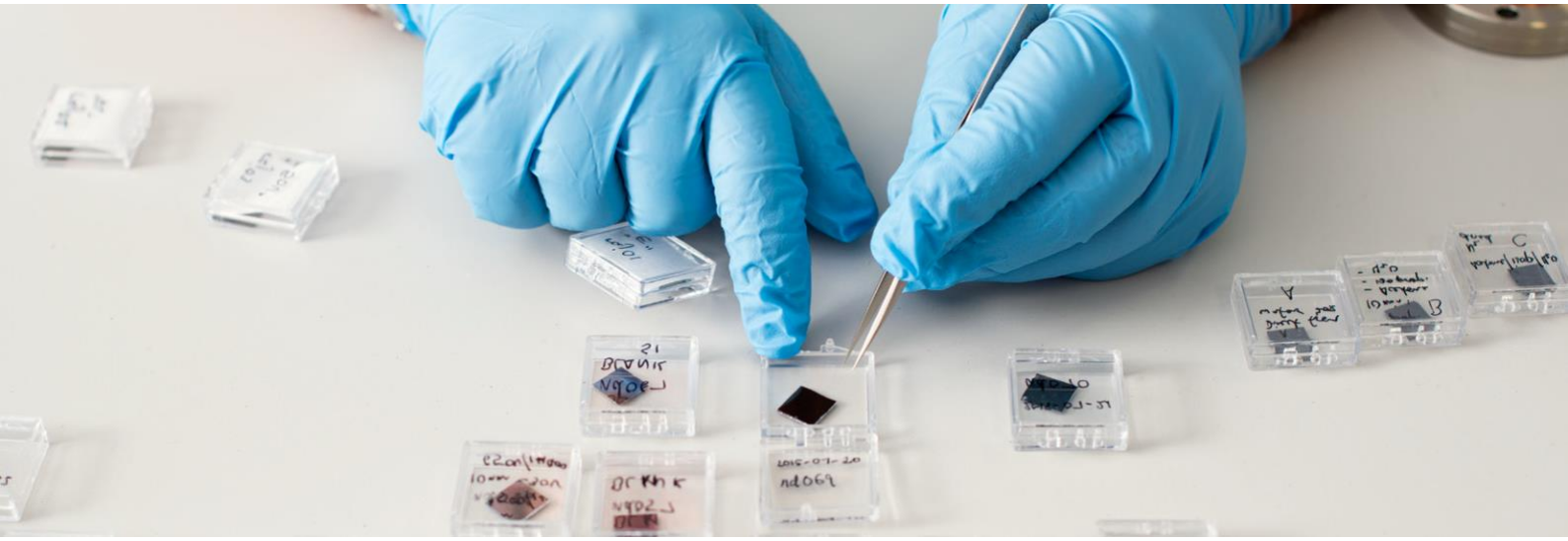
Since it went into full operation in 2016, it has had a significant impact on Curtin researchers, helping them attract over $20 million of external funding. Its team of data scientists has enabled researchers to write over 30 papers underpinned by new data science techniques.

It is anticipated that the Optus chair will work closely with the CIC.

ARC TRAINING CENTRE FOR TRANSFORMING MAINTENANCE THROUGH DATA SCIENCE

This new Australian Research Council Industrial Transformation Training Centre aims to use data science to transform asset maintenance for Australia's resources sector. It is led by Curtin University in partnership with The University of Western Australia, CSIRO and the University of Adelaide, and industry partners Alcoa, BHP and Roy Hill, as well as CORE Innovation Hub and the Minerals Research Institute of Western Australia.

The goals of the centre are to enable development and adoption of new practices to improve productivity and asset reliability for industry and to foster a new maintenance technology services sector for national and international markets.



RANKINGS

QS WORLD UNIVERSITY RANKINGS BY SUBJECT 2018

In the QS World University Rankings by Subject 2018, Curtin ranked:

- 2nd in the world for Mineral and Mining Engineering 42nd in the world for Earth and Marine Sciences
- Top 100 in the world for Civil and Structural Engineering
- Top 200 in the world for Agriculture and Forestry
- Top 150 in the world for Electrical and Electronic Engineering
- Top 200 in the world for Environmental Sciences (no change in rank)
- Top 100 in the world for Chemical Engineering
- Top 200 in the world for Mechanical, Aeronautical & Manufacturing Engineering
- Top 200 in the world for Geography

EXCELLENCE IN RESEARCH FOR AUSTRALIA (ERA)

In the Australian Government's Excellence in Research for Australia (ERA) 2015 assessment, Curtin University ranked well above world standard for:

- Astronomical and Space Sciences
- Crop and Pasture Production
- Electrical and Electronic Engineering
- Geochemistry
- Geology
- Physical Chemistry (including Structural)

CWUR RANKINGS BY SUBJECT 2017

In the CWUR Rankings by Subject 2017, Curtin ranked:

- Equal 6th in the world and 3rd in Australia for Mineralogy

SHANGHAI RANKING'S GLOBAL RANKING OF ACADEMIC SUBJECTS 2018

In the Shanghai Ranking's Global Ranking of Academic Subjects 2018, Curtin ranked:

- Top 75 in the world or equal 3rd in Australia for Earth Sciences
- 49th in the world or 2nd in Australia for Chemical Engineering
- 14th in the world or 5th in Australia for Mining and Mineral Engineering

THEWUR 2018 BY SUBJECT

In the THEWUR 2018 by Subject results, Curtin ranked:

- In the 201-250 band in this listing of the top 500, and is equal 16th nationally for Engineering & technology
- In the 201-250 band in this listing of the top 500, and is equal 10th nationally for Physical sciences.

POSITION DESCRIPTION

PURPOSE OF POSITION

Curtin University has risen quickly in key international rankings and is demonstrating strong research growth. Curtin aspires to become a balanced University that supports and develops researchers across the continuum of curiosity driven through to demand driven research and its commercialisation.

Curtin and Optus have entered into a five-year strategic alliance focused on leveraging synergies between the University's excellent research, teaching and learning capabilities and Optus leading-edge technology and infrastructure services and solutions.

The impact of artificial intelligence on regional telecommunications, higher education and the urban environment will be the key focus of the Curtin/Optus alliance. A new research group headed by the Optus chair in Artificial Intelligence will be embedded in the School of Electrical Engineering, Computing and Mathematical Sciences at Curtin University, with strong links to the Curtin Institute of Computation.

The Optus chair/Professor in Artificial Intelligence will play a leading role in leading a team of three Optus Research Fellows, and HDR students focusing on applying artificial intelligence technologies in the key areas. The Optus Chair will be involved in the recruitment of the Fellows and Students.

The purpose of this role is to build algorithms, models and large scale systems that solve problems including but not limited to telco management, transportation, urban planning, real time crowd management, retail intelligence etc. using telco and other data sources.

RESPONSIBILITIES AND ACCOUNTABILITIES

- Provide academic and strategic leadership in scholarly research and teaching in the field of computer science focusing on artificial intelligence and machine learning.
- Be an effective advocate for excellence and innovation in AI and ML, nationally and internationally. In particular, provide leadership and advocacy of the Optus/Curtin Strategic Alliance.
- Collaborate with colleagues from around the University on applying AI to their discipline areas.
- Develop, in consultation with key stakeholders, a strategic vision and priorities for the School and associated joint ventures.
- Lead the conception, development and execution of research programs and policy that align with and support the strategic research objectives of the School, the Faculty and University.
- Provide leadership and mentoring to academic staff in relation to the development of their research careers, including Higher Degree by Research student supervision.
- Develop collaborative networks within the broader academic community in WA, Australia and internationally.
- Lead the development and consolidation of research and professional linkages and relationships with external stakeholders, including other universities, industry and government agencies, and related associations, professional bodies and the wider community.
- Undertake research of the highest quality and impact in an area related to School's strategic priorities, including the Optus/Curtin Strategic Alliance.
- Make significant contributions to Curtin University's international research reputation and standing in one or more fields of research related to the School's strategic priorities.
- Disseminate research findings through publication in peer-reviewed international journals and through seminars, workshops and conferences.
- Seek and obtain research grant funding via a range of competitive funding opportunities, and other mechanisms.
- Provide expertise and leadership in the development and execution of the Schools educational programs at all levels.
- Participate in, and contribute to, relevant staff meetings and University committee meetings.
- Participate in professional and other external activities, including as an expert reviewer for funding agencies, as required.
- Guide, and participate in, promotional and outreach activities.
- Undertake other activities which the incumbent might reasonably be expected to do, and which are consistent with the accountabilities and responsibilities as listed above.
- Conduct data exploration and discovery analysis on telco data and other data sources, including online behavioural data. Design novel investigative questions and solutions. Build working prototype to demonstrate the ideas/result.
- Research novel machine learning and data mining methodologies and techniques for analysing telco and other data.

KEY PEOPLE INTERACTIONS

- Pro Vice-Chancellor
- Head of School
- Curtin Institute for Computation
- Academic and Professional staff within the School of Electrical Engineering, Computing and Mathematical Sciences.
- Research Office at Curtin (ROC)
- Optus, government agencies and national and international academic partners – including direct representation of Curtin University on boards, committees and working groups.

CRITERIA

Qualifications

- A doctoral qualification in electrical engineering or computer science.

Knowledge, Experience and Skills

- Demonstrated leadership of integrated research activity both within and across groups in academic and/or applied research.
- Proven record of world-leading research in artificial intelligence, in particular machine learning, including ground-breaking research in internationally visible research projects.
- Strong cooperation skills and ability to work in a team; successful candidates are expected to collaborate with colleagues from around the University on applying AI to other disciplines.
- An excellent record of obtaining research income, including competitive research grants, industry funding, or other R&D support mechanisms.
- An established and significant record of publication in high quality peer-reviewed journals, consistent with leadership in the field, including recent leadership of high impact publications.
- Evidence of a leading international reputation and profile, and significant citation indices or equivalent esteem measures, as appropriate to the field.
- Proven leadership and mentoring of academic staff in relation to professional development, and significant experience of providing supervision to Higher Degree by Research students.
- Demonstrated very high-level verbal and written communication skills, with the ability to represent Curtin University at the highest national and international levels.
- Demonstrated ability to lead, foster and promote the development of a collegial and supportive working environment and the ability to interact well with students, staff and external stakeholders, including those where cross cultural sensitivity is required.
- Ability to take high level, loosely defined business problems and identify precise, quantitative solutions
- Working knowledge of databases and engines for structure and non-structure data, data transformation (ETL), software development methodologies and data science languages.
- A passion for empirical research, data mining and ad-hoc analysis and for answering hard questions and identifying new opportunities

Desirable

- Demonstrated excellent lecturing and teaching ability and a commitment to ongoing excellence in teaching and student learning.
- Extensive experience of industry engagement in research programs.

WORK REQUIREMENTS

- Interstate and/or overseas travel may be required.
- Ability to work outside of normal office hours.

CAPABILITIES & BEHAVIOURS

(Curtin Leadership Framework)

It is a requirement that staff in leadership roles exhibit and model capabilities and behaviours consistent with the Curtin Leadership Framework (see odu.curtin.edu.au/curtin_leadership_framework (cfm). These include:

Managing Self

- Understanding self & others
- Modelling Curtin Values
- Managing time and wellbeing
- Building working relationships
- Effective Communication

Leading Others

- Building & leading high performance teams
- Developing staff capability
- Facilitating participative decision making
- Dealing with conflict

Leading Innovation & Change

- Thinking creatively & fostering innovation
- Managing change
- Influencing and inspiring others

Leading Strategically

- Thinking strategically & having vision
- Setting goals & objectives
- Thinking analytically to solve problems

Managing Operations

- Managing Curtin resources
- Continuous quality improvement
- Managing complex projects

UNIVERSITY VALUES

All staff must commit to and uphold Curtin's Values which are:

- Integrity – to act ethically, honestly and with fairness
- Respect – to listen, value and acknowledge
- Courage – to lead, take responsibility and question
- Excellence – to strive for excellence and distinction
- Impact – to empower, enable and inspire.

For more information, please visit the Living Our Values homepage **curtin.edu.au/livingourvalues/**

COMPLIANCY & LEGISLATIVE REQUIREMENTS

Occupational Safety and Health

All supervising staff are required to undertake effective health and safety measures to ensure compliance with the Occupational Safety and Health Act 1984 and related legislative requirements.

All staff must comply with requirements of the Occupational Safety and Health Act and all reasonable directives given in relation to health and safety at work, to ensure compliance with University and Legislative health and safety requirements.

Ethics Equity and Social Justice

All staff are responsible for informing themselves of their obligations and responsibilities in relation to Ethics, Equity and Social Justice. In particular, all staff must demonstrate appropriate and professional workplace behaviours in accordance with the University's Values and Code of Conduct.

Staff must familiarise themselves and comply with all other University policies and procedures and legislation relevant to the position.

CRICOS Provider Code 00301J

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