LA TROBE
UNIVERSITY

Centre for
Data Analytics
and Cognition

INNOVATIVE | RESPONSIBLE | ENGAGED

OUR UNIQUE IDENTITY

The Centre for Data Analytics and Cognition (CDAC) is a world-class research centre focusing on theoretical advancement of Artificial Intelligence and Data Analytics as well as the transition of these theories into practical tools and technologies for industry, government and society.

"Transforming human engagement and interaction in data intensive environments using AI and data analytics."

Fundamental research within the centre has introduced an innovative approach to artificial intelligence called Self-Structuring Artificial Intelligence (SS-AI) where the AI self-generates with minimal human intervention to better represent the unique characteristics of an individual situation. CDAC algorithms and technology platforms built upon

SS-AI better adapts to volatile, complex and unstructured big data, addressing key limitations in traditional AI and machine learning. The centre has developed a strong track record in providing actionable insights for data driven decision making for organizations and industry locally and internationally.

CENTRE ACTIVITIES

TECHNOLOGY
Developing AI and Analytics technology building blocks for real world applications

CONSULTANCY
Expert advice on analytics strategy, AI, data management, analytic skills development

RESEARCH
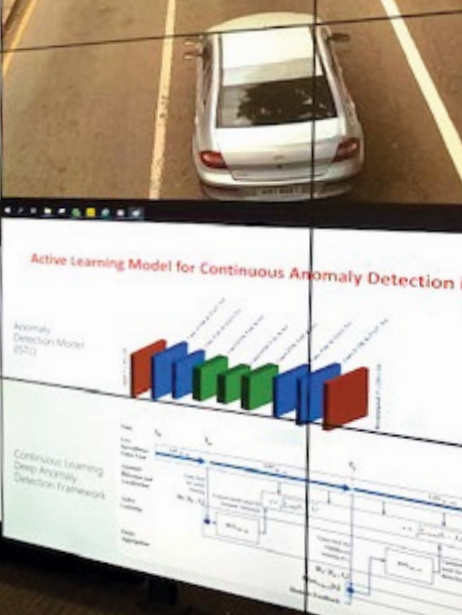Conducting innovative world class research in AI, machine learning & data analytics

EDUCATION
Teaching a top-ranked postgraduate course, Master of Business Analytics & related training programs.

COLLABORATION
Engaging industry, government & academia on AI & advanced analytics projects & initiatives

Active Learning Model for Continuous Anomaly Detection

We are a team of full-time academics and graduate researchers, supported by software developers and data scientists. The team collectively possesses a world-class track record in academic research alongside many years of industry-focused technology development expertise. This is our unique identity in academia, where we adopt an agile approach to deliver AI and analytics innovation to industry, government and society.

OUR RESEARCH

- Cognition-inspired intelligence & memory system
- Human-centric AI
- Incremental and Lifelong Machine Learning
- Information Fusion
- Developmental Robotics and Transfer Learning
- Deep Learning and Latent Representations
- Computer Vision and Video Analysis
- Swarm Intelligence
- Internet of Things and Cyber-Physical Systems
- Data Lakes and Data Streams
- NLP and Deep Emotions
- Energy efficient AI with hyperdimensional computing
- Generative and Explainable AI
- Analytics platforms for AI model persistence
- Visual Analytics and Interactive Dashboards
- Intelligent Federated Search
- Social Media and Psycholinguistics
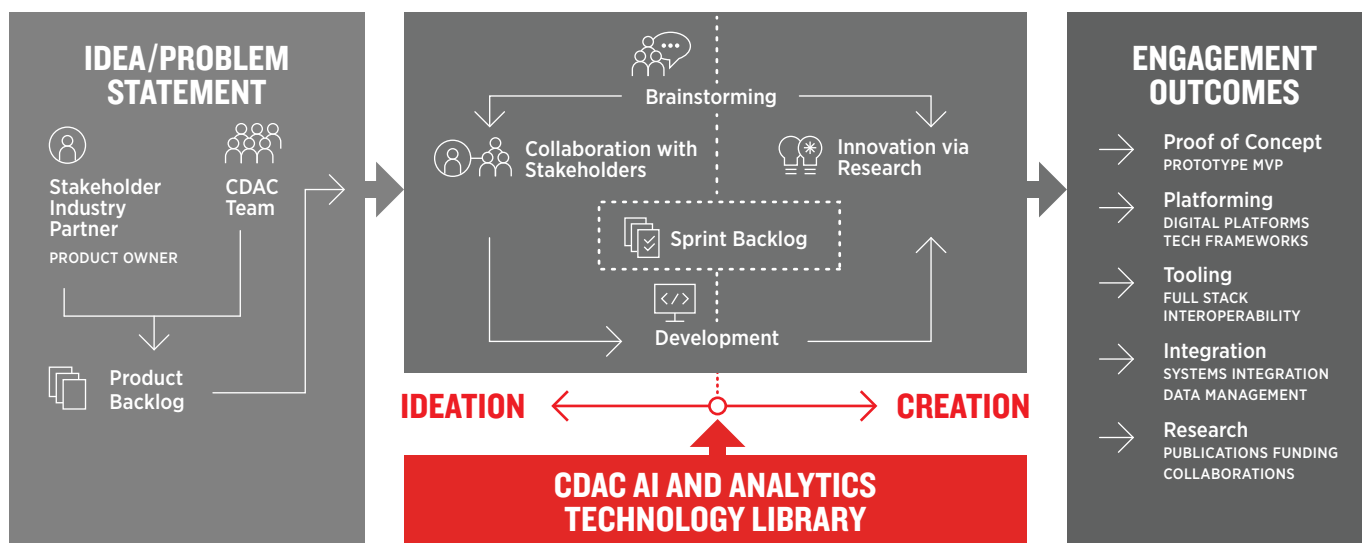- Ethics and Governance in AI

OUR EDUCATION & TRAINING PROGRAMS

Academic Qualifications
- Industry PhD program
- Full-time PhD program
- Master of Business Analytics
- Bachelor of Business Analytics

Customised Short Courses
- Data Visualization and Predictive Analytics (using Power BI, Python, R)
- Data Infrastructure Development (using warehouses, lakes and HDInsight on Microsoft Azure)
- Deep Learning (using Python, Jupyter notebooks and Google Colab)
- Management Masterclass on Data Analytics and AI
- AI, Data Ethics and Governance

CDAC SOLUTION DELIVERY PROCESS

IDEA/PROBLEM STATEMENT

Stakeholder Industry Partner
PRODUCT OWNER

CDAC Team

Product Backlog

Brainstorming

Collaboration with Stakeholders

Innovation via Research

Sprint Backlog

Development

IDEATION ⟷ CREATION

CDAC AI AND ANALYTICS TECHNOLOGY LIBRARY

ENGAGEMENT OUTCOMES

→ Proof of Concept
PROTOTYPE MVP

→ Platforming
DIGITAL PLATFORMS
TECH FRAMEWORKS

→ Tooling
FULL STACK
INTEROPERABILITY

→ Integration
SYSTEMS INTEGRATION
DATA MANAGEMENT

→ Research
PUBLICATIONS FUNDING
COLLABORATIONS

PUBLICATIONS

To view the full list of our research publications, please visit CDAC Google Scholar page.

For Scholarship enquiries:
www.latrobe.edu.au/scholarships

Follow us on LinkedIn:
www.linkedin.com/company/centre-for-data-analytics-and-cognition-cdac

CONTACT US

Email: **cdac@latrobe.edu.au**
Website: **www.latrobe.edu.au/cdac**