

KEY RESEARCHERS



BUSINESS DIRECTOR

Mr Eric Hall
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General Manager and Director of Business Development



RESEARCH DIRECTOR

Professor Ed Dawson
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RESEARCH EXPERTISE

- all aspects of cryptology, especially concerned with the design and analysis of encryption algorithms
- the application of cryptology to e-commerce and secure communications

DEPUTY DIRECTORS

Faculty of BEE



Professor Sridha Sridharan
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RESEARCH EXPERTISE

- Biometric Person Authentication and Surveillance using speech and image technologies

Faculty of Business



Associate Professor Peter Best
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RESEARCH EXPERTISE

- IT auditing including computer assisted techniques, security review, fraud detection and data mining

Faculty of Information Technology



Professor Colin Boyd
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RESEARCH EXPERTISE

- design and analysis of cryptographic protocols

Faculty of Law



Professor Sharon Christensen
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RESEARCH EXPERTISE

- Electronic contracting
- Liability aspects of electronic information
- Electronic property transactions

KEY RESEARCHERS



Dr Paul Barnes – BUS
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RESEARCH EXPERTISE

- business continuity planning
- crisis and risk management



Professor Bill Caelli – FIT
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RESEARCH EXPERTISE

- trusted systems
- information security policy



Associate Professor Vinod Chandran – BEE
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RESEARCH EXPERTISE

- Biometric Person Authentication and Surveillance using speech and image technologies



Dr Andrew Clark – ISI
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RESEARCH EXPERTISE

- all aspects of network security, especially intrusion detection
- computer forensics



Professor Stephen Corones – LAW
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RESEARCH EXPERTISE

- competition law
- legal implications of information exchange arrangements



Professor Peter Croll – FIT
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RESEARCH EXPERTISE

- Health Informatics
- Risk Assessment
- Privacy Compliance



Professor Bill Duncan – LAW
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RESEARCH EXPERTISE

- legal aspects of electronic conveyancing
- electronic contracting
- liability for electronic information



Professor Colin Fidge – FIT
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RESEARCH EXPERTISE

- high-integrity software engineering
- information security evaluation of communications devices
- formalisms for modeling and analysing complex systems



Dr Clinton Fookes – BEE
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RESEARCH EXPERTISE

- Image and Video Technology
- Biometrics
- Intelligence Surveillance



Associate Professor Audun Josang – FIT
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RESEARCH EXPERTISE

- Trust Management
- Subjective Logic
- Identity Management



Professor Bill Lane – LAW
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RESEARCH EXPERTISE

- information access regimes
- FOI
- privacy law



Associate Professor Mark Looi – FIT
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RESEARCH EXPERTISE

- network security, particularly in the areas of the security of smart cards, wireless systems and mobile networks



Dr Adrian McCullagh – ISI
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RESEARCH EXPERTISE
 Legal policy analysis in:

- digital rights management
- next general telecommunications
- authentication technologies



Associate Professor George Mohay – ISI
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RESEARCH EXPERTISE

- intrusion detection
- computer forensics



CONTACT

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FOR MORE INFORMATION

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*from worlds apart
from different directions
paths cross
minds merge
new connections are made
thoughts arise
anything can happen
solutions are found
nothing is set in stone*



Technology ■ Policy ■ Governance

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SECURITY, EDUCATION AND RESEARCH FOR THE REAL WORLD

Reliance on information assets has never been greater. Protecting those assets in a world that demands increased connectivity is a challenge for managers and technicians alike.

The Information Security Institute (ISI), a recently established research institute within Queensland University of Technology (QUT), consolidates the already acknowledged expertise that QUT has developed in all aspects of information security over the past 15 years, through the Information Security Research Centre (ISRC).

The ISI has been formed as a collaborative research undertaking of the Faculty of Built Environment and Engineering (BEE), the Faculty of Business (BUS), the Faculty of Information Technology (FIT), and the Faculty of Law (LAW).

Established as a multidisciplinary institute, the ISI continues to build real solutions for government, business and the community by undertaking research in technology, legal, policy and governance issues related to information security.

This multidisciplinary approach provides QUT with an opportunity to play a leading role in research in the area of safeguarding Australia, which has been identified by the Australian Research Council as one of the key areas of applied research for the nation.

Our services extend beyond traditional consulting/audit to include joint research and development projects targeted at the unique problems and challenges facing commerce and governments alike. Moreover, as dependency on information technology infrastructure rises, the protection of these systems and services takes on a global significance.

With our internationally recognised research and development team, and our wealth of experience in the provision of consultancy services and education activities, we are uniquely positioned to provide real-world multidisciplinary security solutions to both private and government sector organisations.

The ISI delivers working solutions to industry and government through consulting services and industry collaborative research. Its list of satisfied customers covers a wide range of industries in Australia and overseas including banking, telecommunications, utilities, government services, gaming, manufacturing, and retailing.

The ISI educate and train highly qualified information security professionals through extensive education programs. We are committed to providing training and education services aimed at all levels within an organisation.

The ISI has developed a strong international presence with links with other universities and research bodies throughout Australia and in Asia, Europe, North America and Africa. The ISI, through the ISRC, has been recognised by the Australian Government in a recent survey as the leading research group in information security in Australia at a university. The US National Institute of Standards recently ranked the Biometric Person Authentication Group's speaker recognition system as the best among a field of 11 competitors of world renown.

The ISI's success in real-world research means that we can work with you to help you meet your specific business and service objectives. Its unique position in the research community provides access to an unparalleled range of expertise and experience to assist you in solving the problems you face today and into the future.

RESEARCH GROUPS



Cryptology

Investigates the theoretical and applied areas of cryptology, with particular emphasis on the needs of banking and finance sectors, government requirements, gaming, manufacturing, insurance, utilities and allied industries globally and domestically.

Expertise

- Analysis and design of symmetric ciphers
- Analysis and design of public key algorithms
- Issues in global public key infrastructure (PKI)
- Proofs and specifications for cryptographic protocols
- Efficient software implementation
- Cryptographic protocols for control systems
- ID-based cryptography

Trusted Systems and Network Security

In-depth analysis of network architectures, user authentication and authorisations, communication protocols, and implementation of security policies.

Expertise

- Security of wireless and mobile networks
- Trusted systems and networks
- Network security architectures
- Cross-domain trusted networks
- Secure commercial wireless LAN access
- Location based security
- Security in control systems
- Secure linux



E-Business and E-Government

Information security is critical for the effective operation of commerce and governments in an electronic environment. This research examines and develops business models, appropriate policy responses, legislative, contractual and security frameworks and regimes.

Expertise

- Secure electronic auctions
- Electronic contracting
- Electronic land dealing systems
- Electronic banking
- E-tendering
- Secure electronic voting
- E-litigation – a 'best-practice' model
- Trusted Information Sharing Networks (TISN)
- Electronic government information

Governance and Information Protection

Effective management of information and related IT is critical for organisational survival and success. Governance issues in the protection of information assets, and its relationship with corporate governance, are investigated.

Expertise

- Technology (IT) governance
- SAP R/3 security and audit
- Governance frameworks
- Information security standards
- Business continuity planning in IT



Technology, Law and Policy

Investigates the legal and business infrastructure supporting information security. It addresses issues such as the diffusion of technology, technology transfer, legal and legislative frameworks, commercialisation of technology, and science and technology policy.

Expertise

- Digital rights management
- The policy framework
- Legal issues regarding free and open source software
- Competition policy
- The harmonisation of CIP
- Best practice models for intelligence
- Professionalisation of intelligence

Computer Intrusion, Forensics and Evidence

The identification of malicious or criminal behaviour carried out within computer systems. Tracking user activity, including incidents such as fraud, unauthorised information access and identity theft is critical for information security.

Expertise

- Event correlation for forensics
- Advanced intrusion detection techniques
- Detection of fraudulent activity in financial systems
- Internet monitoring for the detection of paedophile activity
- Identity fraud



Speech, Audio, Image and Video Technology

Technologies are developed for biometric person identification, person tracking, human activity detection and intelligence gathering for audio and video surveillance applications. This includes the use of sensors to monitor, detect and identify persons; track their movements and activity; monitor conversations of suspects; and signal processing techniques for extracting information and intelligence gathering.

Expertise

- Speaker verification and identification
- Multi-camera video surveillance
- Multi-microphone audio surveillance
- Face verification and identification
- Multi-biometric systems
- Person tracking in a crowd and activity detection
- Biometric policy
- Biometric smart cards
- Perimeter protection

Risk and Crisis Management

The capacity to identify vulnerabilities within complex organisations, institutions and systems, followed by appropriate risk mitigation strategies, is an important part of effective management. The research focuses on examining and developing end-user capacities to enhance functional and organisational resilience.

Expertise

- Threat, vulnerability and risk analysis in the private and public sectors
- Business continuity planning and crisis management
- Resilience and interdependency modelling in critical infrastructure

CASE STUDIES

INTERNATIONAL COLLABORATORS

Tsukuba University, Japan and University of Malaga, Spain: Global PKI

COLLABORATIVE PROJECT FUNDED BY THE NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

Over the past six years, ISI in collaboration with Tsukuba University in Japan and University of Malaga in Spain, has investigated challenges and applications of public key infrastructure technologies. Specifically, research has focused on the challenges associated with implementing PKI on a global scale and the integration of PKI technologies into identity management, token-based authentication, secure communications architectures and the associated legal and privacy aspects.

Eurocom Institute, France: HoFA – Honey pots for Forensic Analysis

A COLLABORATIVE PROJECT WITH EUROCOM INSTITUTE. FUNDED BY DEPARTMENT OF EDUCATION, SCIENCE AND TRAINING (DEST)

Researchers from ISI and the Eurocom Institute have been collaborating in the area of honeypot traffic analysis in order to gain a better understanding of emerging threats on the Internet. Eurocom Institute initiated a world-wide collective of honeypots for wide-scale Internet monitoring and QUT was one of the first partners in this collaboration. To date research has focused on time-based analysis of honeypot traffic.

Office of Naval Research (ONR), USA: Face Recognition

FUNDED BY ONR

The aim of this project is to develop automatic face recognition using a stereo camera system for authentication of military personnel. The stereo camera system enables reconstruction of 3-D models of the face of the clients, giving higher accuracy for face recognition under adverse lighting conditions. The system is to be commercialised for several applications including biometric smart cards for secure entry to restricted areas.

DOMESTIC COLLABORATORS

Defence Science and Technology Organisation (DSTO): Data Mining for Forensic Purposes

A COLLABORATIVE PROJECT IN CONJUNCTION WITH THE DSTO

The ISI, in collaboration with the DSTO, is working towards providing a systematic method of collecting and analysing data collected from many different sources. The ability to identify relationships between different activities, and then automate the search for traces of those activities within collected log information, is a major goal of this research. Data mining techniques are being utilised to assist in identifying meaningful relationships within the data.

Department of Natural Resources, Queensland Government

As each state and territory of Australia moves towards the implementation of an electronic land registration system it has become evident that there is a need to develop new legal and IT frameworks that ensure the existing expectations of security of title are maintained and fraudulent

activity is minimised. The ISI has been working collaboratively with the Land Titles Office to investigate and develop appropriate principles underlying a legal and IT framework for the introduction of electronic registration of land title dealings.

CRC for Construction Innovation: Electronic Contract Administration – Security and Legal Issues

A COLLABORATIVE PROJECT IN CONJUNCTION WITH THE COOPERATIVE RESEARCH CENTRE IN CONSTRUCTION INNOVATION

This multidisciplinary research aims to support the transition of the construction industry to the use of electronic environments for contracting and administration of construction contracts by identifying the legal and security issues, risks and barriers for the industry, explaining the legal and security framework and providing best practice examples and critical success factors for legally compliant and secure electronic contracting and contract administration.

Queensland Government Security Framework for Geospatial Data across Federated Data Repositories

FUNDED BY THE QUEENSLAND GOVERNMENT AS PART OF THE CRC FOR SMART INTERNET

This multidisciplinary project involves the development of a risk, legal and security framework for the protection of geospatial data that is spread across multiple autonomous data repositories. Each repository has its own security infrastructure that operates independently of any other repository. The investigation involves the analysis and development of security mechanisms that cover authentication and authorisation technologies, as well as the development of a risk framework and legal framework to better protect the Government in meeting its desired objective of commercialising a substantial part of its geospatial data.

ARC Linkage Grant with SAP: Integrated Financial Fraud Detection in Enterprise Applications

FUNDED BY AUSTRALIAN RESEARCH COUNCIL

The overall aim of the project is to develop an integrated financial fraud detection framework for enterprise applications to detect and reduce the occurrence of financial fraud. Australia has a \$3 billion per year financial fraud problem that is worsening. Enhancing the ability of organisations in the private and public sector to detect financial fraud is a significant challenge. This research is of particular relevance to financial institutions and the public sector, which are major financial fraud targets in Australia. These organisations represent a significant component of the national critical infrastructure.

ARC Discovery Grant: Voice Recognition Technology

FUNDED BY AUSTRALIAN RESEARCH COUNCIL

This research funded by the Australian Research Council aims to discover techniques which effectively model the unique characteristics of a speaker's voice, with small amounts of speech data in the presence of impairments and independent of the spoken language and text. An order of magnitude reduction in the error rate is aimed at, to enable widespread use of the technology in commercial as well as forensic speaker identification applications including voice-based tracking of terrorist activity.

