

Curriculum Vitae Paul Kwan

Discipline of Computer Science
School of Science and Technology
University of New England
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Australia

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CAREER ASPIRATIONS

- Establish a top Artificial Intelligence research group in Australia that engages in cross-disciplinary projects of national and international significance.
- Develop innovative Computer Science and Information Technology programs that excel in both theory and practice.
- Actively seek partnerships with ICT industries to achieve productive and sustainable research training goals.
- Raise the research quantum of the School through successes in competitive grant applications, publications in high impact journals, and investments in mentorship.
- Contribute to the School's administration through effective personnel management, communication and liaison skills.

EDUCATION

- 2003 **PhD in Engineering (Intelligent Interaction Technologies)**
University of Tsukuba, Japan
- 1988 **Master of Computer Science**
University of Arizona, USA
- 1986 **Bachelor of Computer Science**
Cornell University, USA

APPOINTMENTS

- 2004 - Current **Associate Professor of Computer Science** (2013 - Current)
Senior Lecturer of Computer Science (2009 - 2012)
Lecturer of Computer Science (2004 - 2008)
University of New England

Administrative Experiences

- *University & Faculty*
 - Member, Academic Board Higher Degree Research Examination Subcommittee (2014 - Current)
 - Member, Level D Academic Promotions Committee (2014)

- Faculty of Arts and Sciences representative on the University's Special Studies Program Committee (2010 - 2011)
- Faculty of Sciences representative on the University's Information and Communication Technology Strategy and Policy Committee (2006 - 2008)
- Academic Observer, Level C Academic Promotion Committee (2009)
- Member, Level B Academic Promotion Committee (2008)
- School of Science and Technology representative on the University's Library Advisory Committee (2011 - 2012)
- Bachelor of Science (major Forensic Science) Curriculum Development Committee (2009)
- *School & Discipline*
 - Computer Science Discipline Convenor (2014 - Current)
 - Bachelor of Computer Science Course Coordinator (2014 - Current)
 - Member, School of Science and Technology Executive Committee (2014 - Current)
 - Acting School HDR Coordinator (May - June 2014)
 - Computer Science representative, School of Science and Technology Teaching and Learning Committee (2014 - Current)
 - Computer Science representative, School of Science and Technology Research Committee (2009 - Current)
 - Member, Selection Panel for Lecturer/Senior Lecturer (Level B/C) in Computer Science (2014)
 - Computer Science Partnerships/Pathways Coordinator (2011 - Current)
 - Computer Science Research Seminar Coordinator (2008 - Current)
 - Member, Computer Science Course Team (2007 - 2008)
 - Higher Degree Research Coordinator, School of Mathematics, Statistics and Computer Science (2006 - 2007)
 - Member, School of Mathematics, Statistics and Computer Science Publicity Committee (2006 - 2007)
 - Member, School of Mathematics, Statistics and Computer Science Scholarship Committee (2006)

Teaching Experiences

- Introductory and Advanced Programming in Java
- C/C++ for Scientists and Engineers
- Computer Forensics and Biometrics
- Data Structures and Algorithms
- Data Mining
- Internet Publishing
- Knowledge Management Systems
- Operating Systems
- The Linux/Unix Programming Environment
- Web and Internet Programming

Curriculum & Teaching Development

- 2012 Faculty of Arts and Sciences Teaching Development Grant (co-recipient of \$3,640 for the development of Bachelor of Computer Science web portal)
- Introduction to Biometrics (revised and offered in 2011)
- Computer Forensics and Biometrics (developed and introduced in 2010)

Honours and Postgraduate Student Supervision

- *Bachelor of Computer Science (Honours)*
 - Thesis: Semi-automatic Annotation of Metadata in Digitized Photo Collections using Event Detection Algorithms (*principal supervision; student graduated with 1st class honours in April 2013*)
 - Thesis: COW: A Co-evolving Memetic Wrapper for Feature Selection (*principal supervision; student graduated with 1st class honours and University Medal in March 2012*)
 - Thesis: An Adaptive Fingerprint Identification System that uses Relevance Feedback (*principal supervision; student graduated with 1st class honours and University Medal in April 2010*)
- *Master of Computer Science*
 - Thesis: Fingerprint Matching using Robust Shape and Orientation Descriptors (*principal supervision; student graduated in February 2009*)
 - Thesis: Web Usage Mining: A Case Study on UNE's Computer Science Web Server (*principal supervision; student graduated in 2008*)
- *PhD of Computer Science*
 - Thesis: Impact of culture, motivation, and task complexity on the design of human computation systems (*principal supervision; July 2014 - Current*)
 - Thesis: A Vulnerability Analysis on the Adoption of Mobile Internet e-Voting in Australia (*principal supervision; July 2014 - Current*)
 - Thesis: The Design and Implementation of Clicker App for Teaching Purpose in Saudi Arabia (*principal supervision; July 2014 - Current*)
 - Thesis: Semantic Annotation of Digital Objects by Social and Multiagent Computing : Applications in Digital Cultural Heritage (*principal supervision; February 2013 - Current*)
 - Thesis: Parallelisation of Bayesian Evolutionary Computation for Bioinformatics (*principal supervision; February 2012 - Current*)
 - Thesis: Computational Modelling of Livestock Disease Spread (*principal supervision; February 2012 - Current*)
 - Thesis: Fuzzy Image Segmentation for Mass Detection in Digital Mammography (*principal supervision; February 2011 - Current*)
 - Thesis: The Genetic Architecture of Complex Traits in Sheep (*principal supervision; thesis submitted on 15 October 2014*)
 - Thesis: Influence of Cultural Factors on Behavioural Adoption and Acceptance of ERP Users in the Saudi Arabia Context (*co-supervision; student graduated on 9 September 2014*)

- Thesis: On Performance Improvement Techniques and Geospatial Data Visualisation of Large Scale Agent-Based Models: A Case Study on Computational Simulation of an Old World Screwworm Fly Invasion of Australia (*principal supervision; student graduated on 25 October 2014*)
- Thesis: Multiple Simultaneous Threats Detection in Distributed Systems (*principal supervision; student graduated in October 2011*)
- Thesis: Culturally Influenced Risks in Offshore Outsourcing of Software Project (*co-supervision; student graduated in 2009*)
- Thesis: Dimensionality Reduction for Non-vectorial Data (*co-supervision; student graduated in 2008*)
- Thesis: Electronic Procurement in The Australian Public Sector: The Organizational Assimilation Process and Its Impact on Public Procurement Performance (*co-supervision; student graduated in 2007*)

Research Leadership

- Leader of *Engineering Intelligent and Secure IT Solutions Group* in School of Science and Technology (2014 - Current)
- Deputy Leader of *Engineering Intelligent and Secure IT Solutions Group* in School of Science and Technology (2009 - 2013)
- Convener of *Computational Intelligence and Applications Research Group* (2005 - 2008)

Research Funding

- Internal grants
 - 2015 University Research Seed Grants
 - Keyframe analysis of smartphone-produced videos to enhance learning of computational concepts (Chief investigator of \$20,000)
 - Mathematical modelling of an experimental parasite vaccine for sheep (Co-investigator of \$10,000)
 - Animal Biometrics: Counter-terrorism technology for wildlife conservation and control (Co-investigator of \$9,470)
 - Building cyber-infrastructure to enhance national collaborative innovation in agricultural research (Co-investigator of \$20,000)
 - 2013 University Research Seed Grant (Co-investigator of \$9,603 for project on "SmartEye : Integrating Intelligence into Vision Based Security and Safety Systems in Smart Homes")
 - 2012 University Research Seed Grant (Chief investigator of \$10,000 for project on "Adaptive Fingerprint Identification System by Co-training of Hand Biometrics")
 - 2012 Incentive Grant for 2011 UNE ERA Publications (\$1,000)
 - 2011 Incentive Grant for 2010 UNE ERA Publications (\$1,000)
 - 2010 School of Science and Technology Strategic Research Grant (co-recipient of \$12,000 for Engineering Intelligent and Secure IT Solutions Group)

- 2010 School of Science and Technology Small Research Grant (awarded \$3,000 for project on "Mining Strong Herb-herb Interactions from Prescription plus Outcome Databases in Traditional Chinese Medicine Clinical Treatment of Insomnia and Diabetes using Hybrid Evolutionary Algorithms")
- 2009 School of Science and Technology Strategic Research Grant (co-recipient of \$12,000 for establishment of Engineering Intelligent and Secure IT Solutions Group)
- 2009 School of Science and Technology Small Research Grant (awarded \$3,000 for project on "Automatic Image Segmentation and Annotation of UNE Heritage Photo Collection")
- 2008 Faculty of Arts and Sciences Research Grant (awarded \$5,000 for project on "Adaptive Biometric Authentication: An Exploratory Study on Examiner-Centric Fingerprint Identification")
- 2005 University Research Grant (awarded \$10,000 for project on "Multimodal Biometric Person Authentication by Fusing Face, Hand and Fingerprint Geometric Cues")
- External grants
 - 2013, co-recipient of ARC Discovery Project (DP130100542) on "Evolution, Selection and Estimation of Polygenic Epistatic Networks in Quantitative Traits", awarded \$246,000 by the Australian Research Council
 - 2012, co-recipient of project on "Collaboration with Harbin Institute of Technology in the Field of Computer-Enhanced Surgical Systems", awarded \$38,000 by the Australian Government Department of Industry Innovation, Science, Research and Tertiary Education
 - 2012, co-recipient of project on "A Massively-Parallel Agent-based Simulation of a Screwworm Fly Invasion of Australia", awarded \$16,000 by Animal Health Australia
 - 2011, 2012 & 2013, co-recipient of project on "Computational Modelling of Animal Disease Spread", awarded \$99,000, \$10,000 & \$5,000 by the Australian Government Department of Agriculture, Fisheries and Forestry
 - 2010, co-recipient of project on "Massive Agent-based Modelling of Animal Disease Spread", awarded \$68,903 by the Australian Government Department of Agriculture, Fisheries and Forestry
- Other grants
 - 2012, Prime Minister's Education Assistance Program for Japan (awarded \$5,214 as short-term exchange researcher at the University of Tsukuba to support educational rebuilding and encourage enhanced collaboration between Australian and Japanese institutions)

Services to the Discipline

- Australian Research Council (ARC) Expert Assessor for National Competitive Research Grants

- Associate Editor, International Journal of Wavelets, Multiresolution and Information Processing (World Scientific, ISSN: 0219-6913; <http://www.worldscientific.com/page/ijwmip/editorial-board>)
- Associate Editor, Human-centric Computing and Information Sciences (SpringerOpen Journal, ISSN: 2192-1962; <http://www.hcis-journal.com/about/edboard>)
- *Reviewer for the following international peer-reviewed journals (ranking based on Excellence in Research for Australia of 2010):*
 - IEEE Transactions on Neural Networks and Learning Systems (A* journal), IEEE (ISSN: 2162-237X)
 - Decision Support Systems (A* journal), Elsevier (ISSN: 0167-9236)
 - Pattern Recognition (A* journal), Elsevier (ISSN: 0031-3203)
 - Journal of Machine Learning Research (A journal), MIT Press (ISSN: 1532-4435)
 - Pattern Recognition Letters (B journal), Elsevier (ISSN: 0167-8655)
 - Expert Systems with Applications (B journal), Elsevier (ISSN: 0957-4174)
 - Data and Knowledge Engineering (B journal), Elsevier (ISSN: 0169-023X)
 - Computers in Biology and Medicine (B journal), Elsevier (ISSN: 0010-4825)
 - Acta Tropica (B journal), Elsevier (ISSN: 0001-706X)
 - Information Sciences (B journal), Elsevier (ISSN: 0020-0255)
 - International Journal of Pattern Recognition and Artificial Intelligence (B journal), World Scientific (ISSN: 0218-0014)
 - Multimedia Tools and Applications (B journal), Springer (ISSN: 1380-7501)
- *Contributions to peer-reviewed international academic conferences*
 - Program Committee member for Technical Track on Computational Intelligence and Video & Image Analysis (CIVIA), at The 30th ACM-Symposium on Applied Computing (ACM-SAC'2015) on 13-17 April 2015.
 - Program Committee member for The 9th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP 2015) on 11-14 March 2015.
 - Program Committee member for Australasian Conference on Artificial Life and Computational Intelligence (ACALCI 2015) on 5-7 February 2015.
 - Reviewer for The IEEE Symposium Series on Computational Intelligence 2014 (SSCI 2014) on 9-12 December 2014.
 - Program Committee member for the Special Session on TCM Big Data Analytics at The 2014 IEEE Symposium on Computational Intelligence in Big Data (CIBD 2014) on 9-12 December 2014.
 - Program Committee member for the 12th Australasian Data Mining & Analytic Conference (AusDM 2014) on 28-29 November 2014.
 - Program Committee member for The 9th Conference of the Asian Federation for Information Technology in Agriculture - 2014 on 29 September - 2 October 2014.

- Technical Committee member for The 22nd International Conference on Pattern Recognition (ICPR 2014) Track 2: Pattern Recognition and Machine Learning on 24-28 August 2014.
- Program Committee member for The 10th International Conference on Natural Computation (ICNC 2014) on 19-21 August 2014.
- Program Committee member for The 2014 Pacific Asia Workshop on Intelligence and Security Informatics (PAISI 2014) held on 13 May 2014.
- Program Committee member for Technical Track on Computational Intelligence and Video & Image Analysis (CIVIA), at The 29th ACM-Symposium on Applied Computing (ACM-SAC'2014) held on 24-28 March 2014.
- Program Committee member for The 9th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP 2014) held on 5-8 January 2014.
- Program Committee member for the Academic Track of *The 11th Australasian Data Mining & Analytic Conference* (AusDM 2013) held on 13-15 November 2013.
- Program Committee member for *The 2013 International Workshop on Intelligent Sensors and Smart Environments* (ISSE 2013) held on 4-6 September 2013.
- Program Committee member for *The 8th FTRA International Conference on Future Information Technology* (FutureTech 2013) held on 4-6 September 2013.
- Program Committee member for *The 2013 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing* (PACRIM 2013) held on 27-29 August 2013.
- Program Committee member for *The 2013 Pacific Asia Workshop on Intelligence and Security Informatics* (PAISI 2013) held on 3-4 August 2013.
- Program Committee member for *The 9th International Conference on Natural Computation* (ICNC 2013) and *The 10th International Conference on Fuzzy Systems and Knowledge Discovery* (FSKD 2013) held on 23-25 July 2013.
- Program Committee member for *The 2013 International Workshop on Data Mining Applications in Industry and Government* (DMApps 2013) held on 14-17 April 2013.
- Program Committee member for *The 2013 International Symposium on Mining and Web* (MAW-13) held on 25-28 March 2013.
- Program Committee member for Technical track on Computational Intelligence and Video & Image Analysis (CIVIA) at *The 28th ACM-Symposium on Applied Computing* (ACM-SAC'2013) held on 18-22 March 2013.
- Program Committee member for *The 8th International Conference on Computer Vision Theory and Applications* (VISAPP 2013) held on 21-24 February 2013.
- Program Committee member for *The Tenth Australasian Data Mining Conference* (AusDM 2012) held on 5-7 December 2012.

- Technical Program Committee member for *The 2012 FTRA International Symposium on Advances in Cryptography, Security and Applications for Future Computing* (ACSA 2012) held on 22-25 November 2012.
- Program Committee member for *The 7th International Conference on Knowledge, Information and Creativity Support Systems* (KICSS 2012) held on 8-10 November 2012.
- Program Committee member for *The Third International Workshop on Intelligent Sensors and Smart Environments* (ISSE 2012) held on 26-28 September 2012.
- Program Committee member for *The 7th International Conference on Future Information Technology* (FutureTech 2012) held on 26-28 June, 2012.
- Program Committee member for *The Fifth International Symposium on Mining and Web* (MAW 2012) held on 26-29 March, 2012.
- Program Committee member for *The Pacific Asia Workshop on Intelligence and Security Informatics* (PAISI 2012) at The 15th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'12) held on 29 May, 2012
- Program Committee member for Technical track on Computational Intelligence and Video & Image Analysis (CIVIA) at *The 27th ACM-Symposium on Applied Computing* (ACM-SAC'2012) held on 25-29 March, 2012
- Program Committee member for *The 7th International Conference on Computer Vision Theory and Applications* (VISAPP 2012) held on 24-26 February, 2012
- Program Committee member for *The Ninth Australasian Data Mining Conference* (AusDM 2011) held on 1-2 December, 2011
- Program Committee member for *The First International Workshop on Bio-Sensing, Processing, Application and Networking* (BioSPAN'11) held on 26-28 October, 2011
- Program Committee member for *The 2011 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing* (PACRIM 2011) held on 23-26 August, 2011
- Program Committee member for *The 7th International Conference on Natural Computation* (ICNC'11) and *The 8th International Conference on Fuzzy Systems and Knowledge Discovery* (FSKD'11) held on 26-28 July, 2011
- Program Committee member for *The Pacific Asia Workshop on Intelligence and Security Informatics* (PAISI 2011) at The IEEE International Conference on Intelligence and Security Informatics (ISI 2011) held on 10-12 July, 2011
- Program Committee member for the *Workshop on Advances and Issues in Traditional Chinese Medicine Clinical Data Mining* (AI-TCM) at The 15th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'11) held on 24-27 May, 2011

- Program Committee member for *The 6th International Conference on Computer Vision Theory and Applications (VISAPP 2011)* held on 5-7 March, 2011
- Program Committee member for *Technical track on Computational Intelligence and Signal & Image Analysis (CISIA)* at The 26th ACM-Symposium on Applied Computing (ACM-SAC'2011) held on 21-25 March, 2011
- Program Committee member for *The Pacific Asia Workshop on Intelligence and Security Informatics (PAISI 2010)* at The 13th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'10) held on 21-24 June, 2010
- Program Committee member for *The 7th International Symposium on Neural Networks (ISNN 2010)* held on 6-9 June, 2010
- Program Committee member for *The 5th International Conference on Computer Vision Theory and Applications (VISAPP 2010)* held on 17-21 May, 2010
- Program Committee member for *The 4th International Conference on Complex, Intelligent and Software Intensive Systems (CISIS 2010)* held on 15-18 February, 2010
- Program Committee member for *The 2009 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM 2009)* held on 23-26 August, 2009
- Program Committee member for *The 5th International Conference on Natural Computation (ICNC'09)* and *The 6th International Conference on Fuzzy Systems and Knowledge Discovery (FSKD'09)* held on 14-16 August, 2009
- Co-chair of the *Workshop on Advances and Issues in Biomedical Data Mining (AIBDM'09)* at The 13th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'09) held on 27-30 April, 2009
- Program Committee member for *The Pacific Asia Workshop on Intelligence and Security Informatics (PAISI 2009)* at The 13th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'09) held on 27-30 April, 2009
- Chair of the *Information Access and Security* session at PAISI 2009 workshop held on 27 April, 2009
- Program Committee member of *The 2008 IEEE International Symposium on Mining the Asian Web (MAW'08)* held on 25-28 March, 2008
- Program Committee member of *The 2nd International Workshop on Integrating AI and Data Mining (AIDM'07)* held on 2 December, 2007
- Program Committee member of *The 5th SPIE International Symposium on Multi-spectral Image Processing and Pattern Recognition (ISMIPPR'07)* held on 15-17 November, 2007
- Program Committee member of *The 2007 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM'07)* held on 22-24 August, 2007

- *External examiners of HDR and Honours theses*
 - PhD thesis (Automatic Selection of High Quality Initial Seeds for Generating High Quality Clusters without Requiring any User Inputs) for Charles Sturt University (2014)
 - Honours thesis (Nonlocal Image Filtering Based on Image Guidance) for Charles Sturt University (2012)
 - MPhil thesis (Unsupervised Document Categorization Using Background Knowledge) for University of Sydney (2010)
 - Honours thesis (Artificial Neural Networks on Foreign Exchange Rates: Analysis of Loss Functions, Feasibility, and Data Transformations) for Charles Sturt University (2010)
 - PhD thesis (On the Evaluation of Face Identification Systems) for Macquarie University (2009)
 - Honours thesis (Dimensionality Reduction for Classification) for Charles Sturt University (2008)

Awards, Recognition and Achievements

- 2014 Vice-Chancellor's Scholar Nominated Academic (UNE)
- Recipient of *Unit Monitoring Commendation* awards for high overall student satisfaction and low attrition in teaching
 - *Data Mining* (Internal mode) in 2010
 - *Knowledge Management Systems* (Internal mode) in 2010
 - *The Linux/Unix Programming Environment* (Internal mode) in 2011
 - *Introduction to Programming and Professional Practice* (Period 2 - Internal and External modes) in 2012
 - *Introduction to Programming and Professional Practice* (Period 1 - Internal mode) in 2013
- Promoted to Senior Member of IEEE in June 2010
- Best paper award (A User-Centered Framework for Adaptive Fingerprint Identification) received at The Pacific Asia Workshop on Intelligence and Security Informatics (PAISI'09) on 27 April, 2009
- *Top 10 Nominee for The UniJobs Lecturer of the Year Award* in 2009 at the University of New England
- Recipient of *Excellence in Teaching* award in the Faculty of Arts and Sciences for Knowledge Management Systems in 2009
- Nominee for the Vice Chancellor's Excellence in PhD Supervision award in 2009 by the Head of School of Science and Technology
- Recipient of *Excellence in Teaching* award in the Faculty of Arts and Sciences for Internet Publishing in 2008
- Elected Member of Technical Committee of The Biometrics Institute in September 2008
- Promoted to Senior Member of ACM in February 2008

2003 - 2004

Postdoctoral Researcher

Japan Science and Technology Agency

Relevant Publications (full list available at the end of this CV)

- *Edited book*
 - Hsing-Wei Chu, Michael Savoie, Kazuo Toraichi and Paul Kwan, *Proceedings of The 2004 International Conference on Computing, Communications and Control Technologies (CCCT'04)*, International Institute of Informatics and Systemics, ISBN 980-6560-17-5.
- *Book chapters*
 - Paul Kwan, Kazuo Toraichi, Hiroyuki Kitagawa and Keisuke Kameyama, Approximate Query Processing for a Content-Based Image Retrieval Method, *Lecture Notes in Computer Science*, Vol. 2736 (2003), pp. 517-526.
- *Journal papers*
 - Tetsuo Sugiyama, Paul Kwan, Kazuo Toraichi and Kazuki Katagishi, A Contour Tracing Algorithm that Avoids Duplicate Tracing Common Boundaries between Regions, *Imaging and Visual Computing*, The Journal of the Institute of Image Electronics Engineers of Japan vol.33(4-B) (2004), pp.586-596.
 - Fumio Kawazoe, Kazuo Toraichi, Koji Nakamura and Paul Kwan, Fluency function approximation of thin line images, *Imaging and Visual Computing*, The Journal of the Institute of Image Electronics Engineers of Japan vol.32(4) (2003), pp.438-445.
- *Conference papers*
 - Heeburnm Ryu, Koji Nakamura, Paul Kwan, Yasuo Morooka and Kazuo Toraichi, High Precision and High Speed TV Picture Quality Enhancement Method based on Compactly Supported Sampling Function, *International Conference on Computing, Communications and Control Technologies (CCCT'04)*, Austin, Texas, USA, pp.36-41.
 - Paul Kwan, Koichi Wada, Nobuyuki Otsu and Kazuo Toraichi, Content-based Retrieval for A Database of Function Approximated Kamon Images, *International Conference on Computing, Communications and Control Technologies (CCCT'04)*, Austin, Texas, USA, pp.13-18.
 - Paul Kwan and Kazuo Toraichi, Automatic Road Map Encoding by Fluency Function of Thin Line Images, *International Conference on Computing, Communications and Control Technologies (CCCT'04)*, Austin, Texas, USA, pp.7-12.
 - Yasuhiro Ohmiya, Kazuki Katagishi, Paul Kwan, Kazuo Toraichi, Atsushi Matsumura, Ryoichi Kawada, Atsushi Koike and Hitomi Murakami, A Method for High Precision Enlargement of Pictures taken by Cellular Phone on Personal Computer, *Proceedings of International Conference on Computing, Communications and Control Technologies (CCCT'04)*, Austin, Texas, USA, pp.30-35. (*Best paper award*)

Research Grant

- Special Area Focus R&D Grant (equivalent to A\$475,000) on the project "Research & Development of Coding, Transmission and

Presentation Technologies for Ultra-high Resolution Medical Images" awarded by The Japanese Ministry of Public Management, Home Affairs, Posts and Telecommunications (*co-investigator*)

Services to the Discipline

- Chair of Invited Session on *Fluency Information Theory and Its Applications to Multimedia* at The 2004 International Conference on Computing, Communications and Control Technologies (CCCT 2004) in Austin, Texas, USA on 14 August, 2004

1994 - 1999

Senior Computer Officer (non-academic)

Hong Kong University of Science and Technology

Key Responsibilities

- Managed a team of nine Information and Communications Technologies (ICT) staff in the School of Business and Management
- Oversaw the daily operation of the School's research and teaching laboratories
- Delivered end-user, instructional and research support to more than 100 academic and general staff in the School of Business and Management
- Performed capacity planning and initiated projects on new research and instructional facilities
- Managed the progress of applications development projects
- Provided strategic and technical advices to the Dean of the School of Business and Management on sourcing and timing of hardware/software acquisitions
- Liaised with the University's Computer Centre on rollout of campus wide ICT services

Key Achievements

- Introduced high-bandwidth video conferencing services for the delivery of distance education programs of the School
- Initiated the construction of several advanced research and teaching facilities, including:
 - Multimedia Laboratory
 - Organizational Management and Behavioural Laboratory
 - Finance Laboratory for Stock Market Trading Simulation
- Developed the inaugural School of Business and Management's website
- Implemented an online support request registration and workflow system
- Established the consulting unit for research involving Finance and Economic datasets

1992 - 1994

Computer Officer (non-academic)

Hong Kong University of Science and Technology

Key Responsibilities

- Computer Centre (July 1992 - March 1994)
 - Developed and managed the University's Electronic Notice Board System
 - Offered technical support on the use of Oracle and Sybase RDBMS for teaching and research
 - Provided phone and walk-in consulting at the Computer Centre's Helpdesk
- Research Centre (April - October, 1994)
 - Administered high-end UNIX workstations and networking equipment for the Hong Kong Government funded Operations Windshear Warning System (OWWS) project to be deployed at the new Hong Kong International Airport

Key Achievements

- Commendation by Manger of Instructional Support for consistent and high quality services to the University community in performance review
- Promoted to Senior Computer Officer in October 1994 to head up the ICT technical team for School of Business and Management

1989 - 1992

Senior Analyst Programmer/Systems Analyst (non-academic)
Hongkong International Terminals (HIT) Limited

Key Responsibilities

- Senior Analyst Programmer (1989 - 1990)
 - Participated in the development of the Terminal Operations Planning System (TOPS), which was a decision support system for scheduling container terminal operations at HIT
- Systems Analyst (1991 - 1992)
 - Co-leader of a team of 4 software developers
 - Developed then state-of-the-art Ship Planning System (SHIPS) for round the clock real-time container loading/unloading operations at the HIT terminals

PROFESSIONAL MEMBERSHIPS

- 2008 - Current Senior Member, *Association for Computing Machinery* (ACM)
- 2010 - Current Senior Member, *Institute of Electrical and Electronics Engineers* (IEEE)
- 2014 - Current Member, *Australian Council of Deans of Information and Communications Technology* (ACDICT) representing UNE
- 2014 - Current Full Member, *The Network for Computational Modeling for SocioEcological Science* (CoMSES Net)
- 2014 - Current Member, *The International Multimedia Information Retrieval Society* (MIR)

RESEARCH FIELDS

Artificial Intelligence and Image Processing

Intelligent Agents

- Agent-based models and simulation for ecological and epidemiological applications
- Social and Multi-agents Computation

Computer Vision

- Biometrics Person Authentication (fingerprint and multimodal techniques)
- Visual Person Tracking for Smart Home applications

Image Processing

- Content-based Image Retrieval, Medical Image Analysis

Neural, Evolutionary and Fuzzy Computation

- Evolutionary Algorithms, Metaheuristics

Pattern Recognition and Machine Learning

- Features Selection, Dimensionality Reduction, Computational Genetics

PUBLICATIONS¹

Edited Books

1. Junbin Gao, **Paul Kwan**, Josiah Poon and Simon Poon (2009), Advances and Issues in Biomedical Data Mining, *Proceedings of Workshop on Advances and Issues in Biomedical Data Mining (AIBDM'09) at PAKDD 2009*, 27 April 2009, Bangkok, Thailand, Thammasat University Printing House, ISBN 978-974-446-382-5. (25%)
2. Hsing-Wei Chu, Michael Savoie, Kazuo Toraichi, and **Paul Kwan** (2004), *Proceedings of The 2004 International Conference on Computing, Communications and Control Technologies (CCCT'04)*, International Institute of Informatics and Systemics, ISBN 980-6560-17-5. (25%)

Book Chapters

3. Jacob Foley and **Paul Kwan** (2014), Feature Extraction in Content-Based Image Retrieval, *Encyclopedia of Information Science and Technology (3rd Edition)*, IGI Global, pp.5897-5905 (DOI: 10.4018/978-1-4666-5888-2) (35%)
4. Mitchell Welch and **Paul Kwan** (2014), Applying Graphics Processing Unit Technologies to Agent-Based Simulation, *Encyclopedia of Information Science and Technology (3rd Edition)*, IGI Global, pp. 1230-1241 (DOI: 10.4018/978-1-4666-5888-2) (35%)
5. Cedric Gondro and **Paul Kwan** (2013), Parallel Evolutionary Computation in R, *Bioinformatics: Concepts, Methodologies, Tools, and Applications (3 Volumes)* (Information Resources Management Association), IGI Global, pp.105-129 (DOI: 10.4018/978-1-4666-3604-0). (40%)
6. Joshua Abraham, **Paul Kwan**, Christophe Champod, Chris Lennard., Claude Roux (2012), An AFIS Candidate List Centric Fingerprint Likelihood Ratio Model based on Morphometric and Spatial Analyses (MSA), *New Trends and Developments in Biometrics* (Eds J Yang and S.J. Xie), InTech, pp.1-30, ISBN: 980-953-307-576-6 (DOI: 10.5772/51184). (15%)

¹ Publications in boldface are either accepted or published in 2014.

7. Ashoka Jayawardena and Paul Kwan (2012), Active Contour Texture Segmentation in Modulus Wavelet Feature Spaces, In ‘*Lecture Notes in Electrical Engineering*’ (Eds Elleithy, K. and Sobh, T.), vol. 152, pp.537-544, ISBN: 978-1-4614-3534-1. (30%)
8. Mitchell Welch, Paul Kwan, ASM Sajeev and Graeme Garner (2012), Improving the Efficiency of Large-Scale Agent-Based Models using Compression Techniques, *Multidisciplinary Computational Intelligence Techniques: Applications in Business, Engineering and Medicine* (Eds S Ali, N Abbadeni and M Batouche), IGI Global, pp.301-326, ISBN: 978-1-4666-1830-5. (30%)
9. Hajar Alharbi, Paul Kwan, Ashoka Jayawardena and ASM Sajeev (2012), Fuzzy Image Segmentation for Mass Detection in Digital Mammography: Recent Advances and Techniques, *Multidisciplinary Computational Intelligence Techniques: Applications in Business, Engineering and Medicine* (Eds S Ali, N Abbadeni and M Batouche), IGI Global, pp.378-402, ISBN: 978-1-4666-1830-5. (30%)
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93. Joshua Abraham and Paul Kwan, Fingerprint Matching using Orientation and Enhanced Shape Context Descriptors, Poster presented at *The 20th International Symposium on the Forensic Sciences* (ANZFSS 2010), 5-9 September 2010, Sydney Convention and Exhibition Centre, Australia. (20%)
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Manuscripts submitted and in review

Lizhi Cui, Josiah Poon, Simon K. Poon, Junbin Gao, Paul Kwan, Zhihao Ling, A separation model for 3D chromatogram based on reference curve and its solution by multi-target Particle Swarm Optimization, *IEEE Signal Processing Letters* (10%)

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