

# CURRICULUM VITAE

## PERSONAL PARTICULARS

Name: **Dr. King N. Ngan**

Current Appointment: Chair Professor of Electronic Engineering

Organisation: The Chinese University of Hong Kong

Address: Department of Electronic Engineering  
Rm 404, Ho Sin Hang Engineering Building  
Chinese University of Hong Kong  
Shatin, New Territories  
Hong Kong

Telephones: +852 3943 8255

Fax: +852 2603 5558

Email: knngan@ee.cuhk.edu.hk

Webpage: <http://www.ee.cuhk.edu.hk/~knngan/>

For my latest citation scores, please visit the webpage above.

## ACADEMIC QUALIFICATIONS

Ph.D. Loughborough University, U.K., 1982

B.Sc. (Honours) Loughborough University, U.K., 1978

## PROFESSIONAL QUALIFICATIONS

Fellow of I.E.E.E. (U.S.A.), 2000

Fellow of I.E.T. (U.K.), 1997

Fellow of Institution of Engineers, (Australia), 1998

Chartered Engineer (U.K.), 1988

Chartered Professional Engineer (Australia), 1998 - 2012

## EMPLOYMENT HISTORY

2004 - now Chair Professor, Department of Electronic Engineering, CUHK, Hong Kong

2007 - 2010 Chairman, Department of Electronic Engineering, CUHK, Hong Kong

2011 - 2014 Graduate Division Head, Department of Electronic Engineering, Chinese University of Hong Kong (CUHK), Hong Kong

2012 - now Chair Professor (National Thousand Talents Program 國家千人計劃), University of Electronic Science and Technology, Chengdu, China

2012 - now Director, Institute of Image Processing (2012-now) Concurrent appointment

2012 - now Chair Professor (Sichuan Province Hundred Talents Program 四川省百人計劃), University of Electronic Science and Technology, Chengdu, China

2011 Visiting Chair Professor, National Cheng Kung University, Taiwan

2011 RMIT Foundation International Visiting Fellow, RMIT University, Australia

2010 Visiting Scientist, Institute for Infocomm Research, Singapore

2010 Visiting Researcher, Microsoft Research Asia, Beijing, China  
2005 - 2007 Chair Professor (Joint appointment), Department of Electrical Engineering, National Sun Yat-sen University, Kaohsiung, Taiwan  
2001 - 2003 Full Professor, School of Computer Engineering (SCE), Nanyang Technological University (NTU), Singapore  
Assistant Director of Research, NTU (2001-2003) Concurrent appointment  
Vice-Dean (Research), SCE (2001-2003) Concurrent appointment  
Director, NTU SMA Affairs (2003) Concurrent appointment  
1994 - 2003 Professor (2000-2003), Associate Professor (1996-1999), Senior Lecturer (1994-1995), Department of Electrical and Electronic Engineering, University of Western Australia (UWA), Australia  
Associate Head of Department (2000)  
Founding Director, Visual Communication Research Group (1994-2003)  
Program Leader, Cooperative Research Centre on Broadband Telecommunications and Networking (CRC-BTN) (1995-1999)  
1991 - 1994 Senior Lecturer, Department of Electrical & Computer Systems Engineering, Monash University, Australia  
Deputy Principal Investigator, GIRD Project on Universal Video Codec.  
1982 - 1991 Lecturer (1982-1986), Senior Lecturer (1987-1991), National University of Singapore (NUS), Singapore  
1998 Visiting Professor, Department of Electronic Engineering, Chinese University of Hong Kong, Hong Kong  
1995 Visiting Professor, Department of Electrical and Electronic Engineering, Hong Kong University of Science and Technology, Hong Kong  
1990 Resident Consultant, AT&T Bell Laboratories, Murray Hill, New Jersey, U.S.A.  
1989 Resident Consultant, Bell Communications Research (Bellcore), Red Bank, New Jersey, U.S.A.

## **HONORARY APPOINTMENTS**

2014 - 2016 High Impact Research Icon, University of Malaya, Malaysia  
2013 Adjunct Professor, Yonsei University, Korea  
2011 Visiting Chair Professor, National Cheng Kung University, Taiwan  
2011 International Visiting Fellow, RMIT University, Australia  
2011 Visiting Scientist, Institute for Infocomm Research, Singapore  
2010 Visiting Researcher, Microsoft Research Asia, China  
2009 - 2016 Honorary Professor, Tunku Abdul Rahman University, Malaysia  
2008 - now Adjunct Professor, University of Electronic Science and Technology, Chengdu, China  
2008 - 2011 Adjunct Professor, Shanghai University, Shanghai, China  
2007 - now Visiting Professor, Zhejiang University, Hangzhou, China  
2007 - 2013 Adjunct Professor, RMIT University, Melbourne, Australia  
2005 - now Visiting Professor, Huaqiao University, Quanzhou, China  
2005 - 2008 Visiting Professor, Shanghai Jiaotong University, Shanghai, China  
2003 - 2006 Adjunct Professor, University of Western Australia, Australia  
2004 - 2006 Consultant Professor, Huazhong University of Science and Technology, Wuhan, China

2003 - 2007 External Examiner, Bachelor of Engineering (Honours) in Electronics degree programme, Multimedia University, Malaysia

## AWARDS & DISTINCTIONS

- 2012 Sichuan Province Hundred Talents Program (四川省百人计划) Award with the University of Electronic Science and Technology, Chengdu, China.
- 2012 National Thousand Talents Program (千人计划) Award with the University of Electronic Science and Technology, Chengdu, China.
- National Sun Yat-sen University Distinguished Scholar Scheme with a cash grant of NT\$150,000 per month to undertake academic exchange in 2005-2006.
- International Visiting Fellowship, RMIT University, Melbourne, Australia, with a cash grant of A\$24,600 to undertake academic research in 2011.
- I.E.E.E. Distinguished Lecturer, Circuits and Systems Society, 2006 - 2007.
- Best Student Paper Award -  
T. Meier and K.N. Ngan, "Extraction of moving objects for content-based video coding," *SPIE International Conference on Visual Communications and Image Processing*, San Jose, U.S.A., January 1999, pp. 1178-1189.
- Second most cited paper in IEEE Transactions on Circuits and Systems for Video Technology in 1999 -  
D. Chai and K.N. Ngan, "Face segmentation using skin color map in videophone applications," *IEEE Transactions on Circuits and Systems for Video Technology*, U.S.A., vol. 9, no. 4, June 1999, pp. 551-564.
- Fourth most cited paper in IEEE Transactions on Circuits and Systems for Video Technology in 1998 -  
(Invited paper) T. Meier and K.N. Ngan, "Automatic segmentation of moving objects for video objects plane generation," *IEEE Transactions on Circuits and Systems for Video Technology*, U.S.A., vol. 8, no. 5, September 1998, pp. 525-538.
- Second most cited paper in Signal Processing: Image Communication since 2007 -  
Z. Chen and K.N. Ngan, "Recent advances in rate control for video coding," *Signal Processing: Image Communications*, Europe, vol. 22, no. 1, January 2007, pp. 19-38.
- British Telecom Research Scholarship to undertake Ph.D. study in Loughborough University, 1978-1982.

## RESEARCH INTERESTS

Video coding and communications, digital image processing, digital signal processing, computer communications, and telecommunication networks

## TEACHING

Course coordinator of the following courses with the associated laboratory works:

Course Title	Level
Communication Systems	Undergraduate final year
Information Network Systems	Undergraduate final year
Analogue Communications	Undergraduate final year
Digital Communications	Undergraduate final year
Digital Signal Processing	Undergraduate final year
Digital Image Processing & Computer Vision	Undergraduate final year
Video Coding for Telecommunications	Undergraduate final year
Random Processes	Undergraduate final year
Circuit Theory	Undergraduate 2 <sup>nd</sup> & 3 <sup>rd</sup> year
Electromagnetics and Electromechanics	Undergraduate 2 <sup>nd</sup> year
Video Coding	Postgraduate Master
Digital Signal Processing	Postgraduate Master
Digital Image Processing	Postgraduate Master

Also involved in the teaching of undergraduate courses in physics, basic electrical engineering, digital systems and computing.

## POSTGRADUATE SUPERVISION

Completed postgraduate theses are:

Name	Thesis Title	Year	Degree
Wang Miaohui	Adaptive coding and rate control of video signals	2015	Ph.D.
Ma Lin	Perceptual quality assessment and processing for visual signals	2012	Ph.D.
Liu Qiang	Intelligent surveillance system employing object detection, recognition, segmentation, and object-based coding	2012	Ph.D.
Li Songnan	Full-reference objective visual quality assessment for images and videos	2012	Ph.D.
Zhang Qian	Depth-based object segmentation and tracking from multi-view videos	2011	Ph.D.
Cui Chunhui	Feature-based object rendering from sparse views	2010	Ph.D.
Dong Jie	Analysis, coding and processing for high-definition videos	2009	Ph.D.
Li Jie	Error resilient video coding over error prone networks	2009	Ph.D.
Wei Zhenyu	Efficient and perceptual picture coding techniques	2009	Ph.D.
Liu Yu	Object-based scalable wavelet image and video coding	2008	Ph.D.
Chen Zhenzhong	Rate distortion analysis, optimization, and control in video coding	2007	Ph.D.
Tang Kai Lam	Improvement and optimization of H.264 video	2007	M.Phil.

	codec		
Yang Wenxian	Multiview video coding scheme for 3D telepresence	2006	Ph.D.
Wei Wei	Video object segmentation	2006	M.Phil.
W.J. Heng	Shot boundary detection and analysis for digital video	2001	Ph.D.
K.T. Tan	Sequency majority multiplexing DS-CDMA for indoor wireless downlink channels	2000	Ph.D.
C.W. Yap	Error resilient combined source-channel coding of image and video for fading channels	2000	Ph.D.
D.K. Chai	Face segmentation and coding of videophone images	1999	Ph.D.
Thomas Meier	Segmentation for video object plane extraction and reduction of coding artifacts	1999	Ph.D.
H.J. Kim	Low bit rate video coding using object-based motion estimation and hierarchical shape estimation	1999	Ph.D.
K.K. Lau	Priority protection of scalable data over ATM	1998	M.Eng. Sc.
W.L. Chooi	Video coding using three-dimensional subband approach	1995	Ph.D.
L.H. Kieu	Video coding over ATM networks	1994	M.Eng. Sc.
S.H. Tan	Video coding based on human perceptual model	1994	M.Eng. Sc.
Y.S. Tan	Scalable video coder based on MPEG2	1994	M.Eng. Sc.
H.C. Koh	Date compression of colour images	1990	M.Eng.
S.B. Kang	Model-based 3-D vision	1989	M.Eng.
A.A. Mohd. Kassim	A fast parallel processor for robotic vision	1986	M.Eng.
K.S. Leong	Adaptive cosine transform image coding incorporating human visual system model	1986	M.Eng.

Current on-going postgraduate projects are:

<b>Name</b>	<b>Thesis Title</b>	<b>Degree</b>
Sheng Lv	3D video processing	Ph.D.
Shi Ran	Visual quality evaluation for segmented image/video	Ph.D.
Zhang Yichi	Visual quality evaluation for retargeted image/video	Ph.D.
Cheung Chi Ho	3D video rendering	Ph.D.
Zhang Yu	Segmentation for hyperspectral images	Ph.D.
Wu Fanzi	Facial expression modelling and reconstruction	Ph.D.
Zhao Tianhao	Human body modelling and reconstruction	Ph.D.

## RESEARCH STAFF SUPERVISION

<b>Name</b>	<b>Position</b>	<b>Duration</b>
Ranjith Liyanapathirana	Research Fellow, UWA	1997 - 1998
Alfred Mertins	Senior Research Fellow, UWA	1998 - 1999

Michael Lee	Research Fellow, UWA	1997 - 1999
Chenji Zhao	Research Fellow, UWA	2000 - 2001
Nariman Habili	Postdoctoral Fellow, UWA	2001 - 2002
Junwei Han	Postdoctoral Fellow, NTU/CUHK	2003 - 2004
Feng Cen	Postdoctoral Fellow, CUHK	2004 - 2005
Li Hongliang	Postdoctoral Fellow, CUHK	2005 - 2008
Yang Wengxian	Postdoctoral Fellow, CUHK	2006 - 2007
Shu Haiyan	Postdoctoral Fellow, CUHK	2006 - 2008
Jin Xin	Postdoctoral Fellow, CUHK	2006 - 2008
Zhang Dongdong	Postdoctoral Fellow, CUHK	2007 - 2008
Zhang Qian	Research Assistant, CUHK	2007 - 2008
Liu Qiang	Research Assistant, CUHK	2007 - 2008
Li Songnan	Research Assistant, CUHK	2007 - 2008
Mak Chun Man, Lawrence	Research Assistant, CUHK	2007 - 2008
Cheng Bangsheng	Postdoctoral Fellow, CUHK	2008 - 2009
Ma Lin	Research Assistant, CUHK	2008 - 2009
Zhang Fan	Postdoctoral Fellow, CUHK	2009 - 2010
Dong Jie	Postdoctoral Fellow, CUHK	2010 - 2011
Zhang Qian	Research Assistant, CUHK	2011
Xu Long	Postdoctoral Fellow, CUHK	2011 - 2012
Chen Jing	Visiting Scholar, CUHK	2011- 2012
Tew Yiqi	Visiting Scholar, CUHK	2012
Li Songnan	Postdoctoral Fellow, CUHK	2012 - 2013
Shi Ran	Research Assistant, CUHK	2012 - 2013
Zhang Baochang	Visiting Scholar, CUHK	2012
Zeng Huanqiang	Postdoctoral Fellow, CUHK	2012 - 2013
Hui Tak Wai, James	Postdoctoral Fellow, CUHK	2013 - 2014

## ADMINISTRATIVE EXPERIENCE

### Chinese University of Hong Kong

#### University Level

Period	Organisation/Committee	Position
2004 - 2006	Engineering Panel of University Research Committee	Member
2004 - now	Senate	Member
2006 - 2007	Early Admission Scheme Interview Panel	Member
2007	IRAE 2007 Engineering Panel	Member
2011 - 2014	Graduate Council	Member
2013 - now	Management Committee of Geoinformation and Earth Sciences	Member
2015 - 2016	Engineering Panel of University Research Committee	Member

#### College Level

Period	Organisation/Committee	Position
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2006 - 2007	United College	Departmental Coordinator
2011 - 2012	United College	Personal Tutor
2012 - now	CW Chu College/ Committee on External Links & Exchange	Member
2012	CW Chu College/ Committee on External Links & Exchange /Interview Panel	Member
2012 - now	CW Chu College/Committee on Student Discipline	Member
2012	CW Chu College/Committee on Student Discipline/ Interview Panel	Chairman
2012 - now	CW Chu College/Committee on Student Affairs	Member
2013	CW Chu College/ Committee on External Links & Exchange	Acting Chairman
2014 - now	CW Chu College/ Committee on External Links & Exchange	Chairman
2014 - now	CW Chu College/Assembly of Fellows	Fellow
2016	CW Chu College/ Committee for the Appointment of the Master	Member

#### Faculty Level

<b>Period</b>	<b>Organisation/Committee</b>	<b>Position</b>
2004 - now	Engineering Faculty Board	Member
2004 - 2006	CINTEC Management Committee	Member
2004 - 2010	Outstanding Thesis Award Panel	Member
2004 - 2010	Faculty Staff Selection Panel	Member
2005 - 2007	CUHK-MSRA Joint Lab Management Committee	Member
2005 - 2006	Part-Time M.Sc. in Biomedical Engineering Management Committee	Member
2007 - 2010	Task Force on Biomedical Engineering Program	Chairman
2011 - 2014	Biomedical Engineering Graduate Panel	Member
2011 - 2017	Faculty Academic and Promotion Committee	Member
2013 - 2016	MAE Department Board	Member
2014 - 2015	Selection Panel for Best Thesis Award	Member
2015 - 2016	Engineering Panel	Member

#### Departmental Level

<b>Period</b>	<b>Organisation/Committee</b>	<b>Position</b>
2004 - 2007	Department Executive Committee	Member
2004 - 2007	Recruitment Panel	Member
2004 - now	Department Board	Member
2005 - 2007	Part-time M.Sc. Management Committee	Chairman
2004 - 2007	Resources Planning Committee	Chairman
2004 - 2007	Research Committee	Chairman
2004 - now	Advisory Committee on Electronic Engineering	Member
2004 - 2010	Curriculum Committee	Member
2007 - 2010	Electronic Engineering Department	Chairman

2007 - 2010	Departmental Academic and Promotion Committee	Chairman
2007 - 2010	Department Executive Committee	Chairman
2007 - 2010	Recruitment Panel	Chairman
2007 - 2010	Departmental Board	Chairman
2007 - 2010	Computer Committee	Member
2007 - 2010	Teaching Lab/Project Panel	Member
2007 - 2010	Non-Teaching Staff Review Panel	Member
2007 - 2010	Teaching and Learning Committee	Member
2007 - 2010	Staff-Student Consultative Committee	Member
2007 - 2014	Research Committee	Member
2010 - now	Department Board	Member
2011 - 2014	Electronic Engineering Division	Head
2011 - 2014	Graduate Panel	Chairman
2011 - now	Department Executive Committee	Member
2011 - now	M.Sc. Committee	Member
2012 - now	Selection Committee for Distinguished Alumni	Member
2014 - now	Graduate Panel	Member
2014 - now	Non-Teaching Staff Review Panel	Member
2015 - 2016	Research Committee	Chairman
2015 - now	Energy Saving Committee	Member
2015	Selection Committee of Distinguished Alumni Awards	Member
2015	FYP Poster Award Judging Panel	Member

## Nanyang Technological University

### University Level

<b>Period</b>	<b>Organisation/Committee</b>	<b>Position</b>
2001 - 2003	Nanyang Technological University	Assistant Director of Research
2001 - 2003	School of Computer Engineering	IP Technology Officer
2001 - 2003	Academic Board	Member
2001 - 2003	Research Coordinating Committee	Member
2001 - 2003	Higher Degrees (Research) Committee	Member
2001 - 2003	Graduate Students' Consultative Group	Member
2001 - 2003	Selection Committee for OAP (Researcher Attachment)	Member
2001 - 2003	NTU-Mindef Temasek Laboratories Task Force	Member
2002 - 2003	Student Hall 4	Non-resident Counsellor
2003	NTU SMA Affairs	Director
2003	CoE Technology Exhibition Judging Panel	Member

### School Level

<b>Period</b>	<b>Organisation/Committee</b>	<b>Position</b>
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2001 - 2003	School of Computer Engineering	Vice-Dean (Research),
2001 - 2003	R & D Committee	Chairman
2001 - 2003	Research Directory & Research Newsletter Editorial Committee	Chairman
2001 - 2003	Staff-Postgraduate Student Liaison Committee	Chairman
2001 - 2003	Advisory Committee for School of Computer Engineering	Member
2001 - 2003	Course Management Committee	Member
2002 - 2003	CAMTech Executive Board	Member
2003	Encentuate Ph.D. Thesis Award Selection Panel	Chairman
2003	Encentuate Innovation Competition Judging Panel	Chairman
2003	School Review Committee	Member
2003	School Review Committee for Professorship	Member

## University of Western Australia

### University Level

Period	Organisation/Committee	Position
2000 - 2003	Academic Board	Member

### Faculty Level

Period	Organisation/Committee	Position
2000 - 2003	Faculty Board	Member
2000 - 2003	Academic Staff Selection Committee	Member

### Departmental Level

Period	Organisation/Committee	Position
2000	Department of Electrical and Electronic Engineering	Associate Head
2000	Teaching & Learning Committee	Chairman
1996 - 1998	Curriculum Review Committee	Chairman
1998 - 2000	Departmental Management Advisory Committee	Member
1995 - 2000	Department of Electrical and Electronic Engineering	4 <sup>th</sup> Year Course Coordinator
1995 - 1998	Department of Electrical and Electronic Engineering	4 <sup>th</sup> year Projects Coordinator
1995 - 2000	Research Committee	Member
1995 - 1995	Scholarship Ranking Committee	Member
1994	Honours Assessment Committee	Member

## National University of Singapore

### Departmental Level

Period	Organisation/Committee	Position
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1990 - 1992	Department of Electrical Engineering	2 <sup>nd</sup> Year Course Coordinator
1990 - 1992	Curriculum Review Committee	Member
1991	Protem Committee, Institute of Microelectronics	Member
1983 - 1989	Social Committee	Treasurer

## PUBLIC SERVICES

### International

Period	Organisation/Committee	Position
2002	IEEE ComSoc Asia-Pacific Young Investigator Award Selection Committee	Member
2009 - 2010	Zhejiang Integrated Information Network Technology Key Laboratory Academic Committee 浙江省综合信息网技术重点实验室学术委员会	Member

### Hong Kong

Period	Organisation/Committee/Event	Position
2004	Signal Processing Postgraduate Forum 2004	Chief Judge
2004	Occupational Safety & Health Computer-based Media Competition on Healthy Workplace	Judge
2004	IEEE Student Papers Contest	Reviewer
2004 - now	ASTRI Project Review Panel	Member
2005	IET Professional Review Interviewing Panel	Member
2005 - 2006	UGC Expert Panel on Electrical and Electronic Engineering, RAE 2006	Member
2006	HKIE Accreditation Visiting Team to City University	Member
2006 - 2008	Technology Advisory Panel, Business Incubation Programme (Incu-Tech), Hong Kong Science and Technology Parks Corporation	Member
2007 - 2010	Hong Kong Award for Industries	Judge
2007 - 2013	RGC Engineering Panel	Member
2007 - 2010	Hong Kong Federation of Educational Workers	Advisor
2009 - 2013	Accreditation Panel for Evaluation of B.Eng. (Electronic Engineering) Programme at UniSim, Singapore	Chairman
2010 - 2016	Advisory Peer Group for the Engineering Sciences (Electronics & Communications Technology), Open University of Hong Kong	Member

### Singapore

Period	Organisation/Committee	Position
2001	A*STAR National Technology Awards Selection Committee	Member

2002 - 2003	A*STAR National Science Scholarships Selection Committee	Member
2003	A*STAR-SERC Thematic Strategic Research Programme Review Panel	Member

## RESEARCH GRANTS

As Principal Investigator:

Granting Body	Project Title	Duration	Amount
RGC-GRF	Development of objective metrics of subjective visual quality for image object segmentation	2015-2017	HK\$329,377
ITF-ITSP Tier 3	3-D Model Based Head Tracking using a RGB-Depth Camera	2014-2015	HK\$981,099
RGC-GRF	Subjective and Objective Quality Assessment for Retargeted Images	2014-2015	HK\$645,500
RGC-GRF	Reduced-Reference Video Quality Metric for Perceptual Video Coding	2013-2014	HK\$704,000
CUHK	Research Fellowship Scheme	2012	HK\$70,782
Applied Science and Technology Research Institute (ASTRI)	Visual Signal Processing Technology for Emerging 3D Applications	2011-2012	HK\$800,000
RGC-GRF	Directional Transform for Hybrid Video Coding	2011-2013	HK\$1,098,966
ITF-ITSP Tier 3	Interesting Object Recognition System	2008-2009	HK\$967,472
RGC-CERG	Automatic Multiview Video Object Segmentation for Video-based Rendering	2007-2009	HK\$418,000
CUHK Focused Investment Scheme	High Definition Television Research Project	2007-2009	HK\$2,000,000
Applied Science and Technology Research Institute (ASTRI)	High Definition Technologies Applied Research Platform	2007-2008	HK\$2,000,000
RGC Direct Grant for Research	Highly Scalable Video Object Coding Using Wavelet Packet Transform	2007	HK\$105,000
ITF-ITSP Tier 3	Development of Automatic Segmentation and Tracking Tools for Real Time Video Services	2006-2007	HK\$990,748
Shun Hing Institute of Advanced Engineering	Automatic Video Segmentation and Tracking for Real Time	2006-2008	HK\$514,000

	Multimedia Services		
CUHK Research Committee Group Research Scheme	Universal Multimedia Processing for Heterogeneous Wireless Networks	2006-2008	HK\$490,000
RGC-CERG	Visual Attention Model for Image/Video Segmentation	2006-2008	HK\$564,804
RGC-CERG	Video Segmentation for Content-based Encoding	2005-2006	HK\$337,631
United College	Conference Sponsorship Scheme	2005	HK\$50,000
K.C. Wong Education Foundation	Conference Grant	2005	HK\$36,000
Academic Equipment Grant	High-definition Video System	2004-2005	HK\$633,000
RGC Direct Grant for Research	Unsupervised extraction of visual attention objects in color images	2004-2006	HK\$150,000
A*STAR	Universal multimedia access over 4G wireless networks	2003-2005	S\$611,139
AcRF URC Grant	Depth-based video segmentation	2003-2005	S\$210,880
ARC Large Grant	Multiple video object rate control for MPEG-4	2001-2003	A\$156,000
ARC SPIRT Grant	Real-time content-based video coding for multimedia communications	2000-2002	A\$417,772
Gledden Travel Grant	Conference attendance	1999	A\$2,760
ARC Small Grant	Implementation of wavelet coder	1999	A\$10,000
CRC-Broadband Telecommunications and Networking	Video processing systems	1996-2000	A\$700,000
ARC Small Grant	Multiview 3-D Video Communication Systems	1998-1999	A\$22,000
ARC Large Grant	Very low bit rate video coding	1995-1997	A\$150,000
Telecoms Research Fellowship	Video communications	1995-1997	A\$33,000
Gledden Travel Grant	Conference attendance	1996	A\$2,800
UWA Equipment Grant	VLBR video communications	1994	A\$30,000
UWA Research Launching Grant	Advanced video coding techniques	1994-1995	A\$16,786
GIRD	Universal Video Codec	1990-1993	A\$200,000 (estimated)
Monash New Staff Member Research Fund	Advanced Video Coding Techniques	1991-1992	A\$9,600
Singapore Telecom	Data compression for IPIS	1984-1985	S\$95,000
NUS Research Fund	Digital image processing	1982-1984	S\$89,000
Singapore Science Council	Microprocessor applications	1981-1986	S\$200,000 (estimated)

As Collaborator:

<b>Granting Body</b>	<b>Project Title</b>	<b>Duration</b>	<b>Amount</b>
RGC-GRF	A Robust Officiation System for Badminton Games	2015-2016	HK\$500,000
National Science Foundation of China	适用于移动视频分享的数据压缩与质量评价新方法	2014-2016	RMB240,000
Applied Science and Technology Research Institute (ASTRI)	Future Multimedia Standards	2008-2009	HK\$1,000,000
RGC-CERG	Order-16 integer transforms for coding of HDTV	2008-2009	HK\$470,800
AcRF URC Grant	PET-DEVICE++ (Push-pull Extraction tool for Distributed Audio Visual Content tErminAl)	2003-2005	S\$269,545
Hong Kong Government Areas of Excellence Research Program	3-D Model-based Video Coding	2000-2002	HK300,000
Hong Kong Government Areas of Excellence Research Program	Image restoration and enhancement of frame extracted from a video	2000-2002	HK300,000
Hong Kong Research Grant Council	3-D model-based video coding for videoconferencing applications	2000-2001	HK\$853,000

## CONSULTANCY

<b>Company</b>	<b>Project Title</b>	<b>Duration</b>	<b>Amount</b>
Applied Science and Technology Research Institute (ASTRI)	3DTV Technology	2011-2012	HK\$300,000

## PROFESSIONAL ACTIVITIES

### Journal Editing

1. Associate Editor, *IEEE Transactions on Circuits and Systems for Video Technology* (1992 - 2000)
2. Associate Editor, *Journal of Visual Communications and Image Representation*, Elsevier (1996 - 2011)
3. Area Editor, *EURASIP Journal on Signal Processing: Image Communication*, Elsevier (1998 - 2011)
4. Member of Editorial Board, *EURASIP Journal on Applied Signal Processing*, Elsevier (2001 - 2005)
5. Member of Editorial Board, *Journal of Virtual Technology and Multimedia*, Inderscience Publisher Ltd, U.K. (2004 - 2005)

## **Guest Editorials**

1. Guest Editor, Special Issue on AVS and Its Applications in *EURASIP Journal on Signal Processing: Image Communication*, Europe, 2009.
2. Guest Editor, Special Issue on Advances in Visual Content Analysis for Multimedia Communications in *IEEE Communications Magazine*, U.S.A., 2007.
3. Guest Editor, Special Issue on Recent Advances in Internet and Wireless Video in *Journal of Visual Communications and Image Representation*, Europe, 2005.
4. Guest Editor, Special Issue on Recent Advances in Wireless Video in *EURASIP Journal on Signal Processing: Image Communication*, Europe, 2003.
5. Guest Editor, Special Issue on Three Dimensional Video Technology in *IEEE Transactions on Circuits and Systems for Video Technology*, U.S.A., 1999.
6. Guest Editor, Special Issue on Representation and Coding of Images and Video II in *IEEE Transactions on Circuits and Systems for Video Technology*, U.S.A., 1999.
7. Guest Editor, Special Issue on Representation and Coding of Images and Video I in *IEEE Transactions on Circuits and Systems for Video Technology*, U.S.A., 1998.
8. Guest Editor, Special Issue on Segmentation, Description and Retrieval of Video Content in *IEEE Transactions on Circuits and Systems for Video Technology*, U.S.A., 1998.
9. Guest Editor-in-Chief, Special Issue on 3D Video Technology in *EURASIP Journal on Image Communications*, Europe, 1997.

## **Professional Courses**

1. "Digital TV/Video Technology", Professional Training Course for Electrical and Mechanical Services Department, Government of Hong Kong SAR, Hong Kong SAR, September 2005.
2. "Video coding for telecommunications", M.Sc. Course, Curtin University of Technology, 1997.
3. "Video coding standards", IEEE Short Course, Singapore, December 1993.
4. "Image and video coding standards", Professional Short Course, Singapore, April 1993.
5. "Machine vision", IEEE Short Courses, Singapore, 1984 - 1986.
6. "Digital Image Processing and Coding", Professional Short Course for Ministry of Defence, Singapore, 1985 – 1986.

## **IEEE Distinguished Lectures**

1. "Automatic Video segmentation and tracking", Nanyang Technological University, Singapore, October 2007.
2. "Automatic Video segmentation and tracking", Universiti Putra Malaysia, Kuala Lumpur, Malaysia, October 2007.
3. "Recent Advances in Rate Control for Video Coding", Taipei, Taiwan, July 2007.
4. "Automatic Video Segmentation and Tracking for Content-based Applications", Hsinchu, Taiwan, July 2007.

## **Invited Keynote Addresses**

1. "3D Morphable Model and Its Applications", *International Conference on Vision, Image and Signal Processing*, Osaka, Japan, September 2017.

2. "3D Morphable Model and Its Applications", *4th International Conference on Signal Processing and Integrated Networks*, Delhi, India, February 2017.
3. "Free-viewpoint Video using RGBD Camera", *Pacific Conference on Multimedia*, Gwangju, Korea, September 2015.
4. "Overview of Quality Assessment for Visual Signals and Newly Emerged Trends", *International Workshop on Video and Image Ground Truth in Computer Vision Applications*, St. Petersburg, Russia, July 2013.
5. "Visual Quality Assessment", *The IIEEJ 3<sup>rd</sup> Image Electronics and Visual Computing Workshop*, Kuching, Malaysia, November 2012.
6. "Visual Quality Evaluation for Images and Videos", *International Symposium on Communications and Information Technology*, Tokyo, Japan, October 2010.
7. "Development of AVS, the Chinese National Video Coding Standard", *International Workshop on Advanced Image Technology*, Kuala Lumpur, Malaysia, January 2010.
8. "Automatic Video Segmentation and Tracking", *The 2<sup>nd</sup> International Conference on Image and Signal Processing*, Tianjin, China, October 2009.
9. "Automatic Video Segmentation and Tracking for Content-based Applications", *International Symposium on Intelligent Signal Processing and Communication Systems*, Xiamen, China, November 2007.
10. "Development of Chinese National Video Coding Standard: From H.264 to AVS", in *IEEE Pacific-Rim Symposium on Image and Video Technology*, Taipei, Taiwan, December 2006.

#### **Invited Panel Discussions**

1. "Our Research Directions: Current and Future", in *International Symposium on Intelligent Multimedia, Video and Speech Processing*, Hong Kong, October 2004.
2. "Current Development and Trend of the Research in Multimedia Data Storage, Retrieval, Integration and Applications", in *International Workshop on Multimedia Data Storage, Retrieval, Integration and Applications*, Hong Kong, January 2000.

#### **Invited Tutorials**

1. "Very low bit rate video coding", *IEEE Singapore International Conference on Communication Systems*, Singapore, November 1994.
2. "Video coding: Principles, standards and future", *International Symposium on Speech, Image Processing and Neural Networks*, Hong Kong, April 1994.
3. "Digital signal processing techniques for HDTV", *IEEE International Symposium on Circuits and Systems*, Singapore, June 1991.

#### **Invited Lectures**

1. "3D Morphable Model and Its Applications", Sungkyunkwan University Seoul, Korea, December 2016.
2. "3D Morphable Model and Its Applications", Tunku Abdul Rahman University, Malaysia, July 2016.
3. "Recent Research in IVP Lab, CUHK", Tunku Abdul Rahman University, Malaysia, July 2014.
4. "Free-Viewpoint Video Communication using Multiple RGB-Depth Cameras", University of Electronic Science and Technology of China, Chengdu, China, August 2013.

5. "Multiview Video Segmentation and Tracking with Occlusion", University of Electronic Science and Technology of China, Chengdu, China, September 2012.
6. "Visual Quality Assessment", Institute of Image Processing, University of Electronic Science and Technology of China, Chengdu, China, July 2012.
7. "Advanced Coding Tools for HEVC (H.265)", National Dong Hwa University, Hualien, Taiwan, July 2011.
8. "Advanced Coding Tools for HEVC (H.265)", University of Electronic Science and Technology of China, Chengdu, China, July 2011.
9. "Visual Quality Evaluation for Images and Videos", National Cheng Kung University, Taiwan, June 2011.
10. "Advanced Coding Tools for HEVC (High Efficiency Video Coding)", National Cheng Kung University, Taiwan, June 2011.
11. "Multiview Video Segmentation and Tracking", National Cheng Kung University, Taiwan, May 2011.
12. "Multiview Video Segmentation and Tracking", RMIT University, Australia, April 2011.
13. "Visual Quality Evaluation for Images and Videos", Curtin University of Technology, Australia, March 2011.
14. "Advanced Coding Tools for HEVC (H.265 Video Compression)", IEEE Signal Processing Chapter, Victoria Section, Australia, March 2011.
15. "Advanced Coding Tools for H.265 HEVC", Huaqiao University, Xiamen, China, March 2011.
16. "Multiple Objects Segmentation and Tracking from Multiview Video", Institute for Infocomm Research (I<sup>2</sup>R), Singapore, January 2011.
17. "Advanced Coding Tools for HEVC", Institute for Infocomm Research (I<sup>2</sup>R), Singapore, December 2010.
18. "Visual Quality Evaluation for Images and Videos", Institute for Infocomm Research (I<sup>2</sup>R), Singapore, November 2010.
19. "Visual Quality Evaluation for Images and Videos", Wuhan University, Wuhan, China, October 2010.
20. "Multiview Video Segmentation and Tracking", Xidian University, Xian, China, August 2010.
21. "Multiple Objects Segmentation and Tracking from Multiview Video", Shanghai University, Shanghai, China, August 2010.
22. "Multiview Video Segmentation and Tracking", Tunku Abdul Rahman University, Malaysia, April 2010.
23. "Multiple Objects Segmentation and Tracking from Multiview Video", University of Electronic Science and Technology of China, Chengdu, China, March 2010.
24. "Perceptual Coding of Color Images and Videos", Huaqiao University, Quanzhou, China, August 2009.
25. "Perceptual Coding of Color Images", National Taipei University of Technology, Taipei, Taiwan, May 2009.
26. "The Perceptually Transparent Coding for Image", Shanghai University, Shanghai, China, April 2009.
27. "JND Based Perceptual Picture Coding", University of Electronic Science and Technology of China, Chengdu, China, December 2008.
28. "Automatic Video Segmentation and Tracking for Content-based Applications", Shanghai University, Shanghai, China, December 2007.
29. "视觉信号处理的研究进展", Zhejiang University, China, December 2007.



30. "Automatic Video segmentation and tracking", IEEE-CAS Distinguished Lecture, Nanyang Technological University, Singapore, October 2007.
31. "Automatic Video segmentation and tracking", IEEE-CAS Distinguished Lecture, Universiti Putra Malaysia, Kuala Lumpur, Malaysia, October 2007.
32. "Rate control for video coding", Zhejiang University, China, August 2007.
33. "Video segmentation and tracking", Zhejiang University, China, August 2007.
34. "Rate control for video coding", IEEE-CAS Distinguished Lecture, National Taiwan University, Taipei, Taiwan, July 2007.
35. "Video segmentation and tracking", IEEE-CAS Distinguished Lecture, National Tsinghua University, Hsinchu, Taiwan, July 2007.
36. "Automatic segmentation of video objects", IEEE Computer Society, Victorian Chapter, Melbourne, Australia, October 2006.
37. "Motion estimation in wavelet coding and rate distortion trade-off in real-time video coding", Microsoft Research Asia, Beijing, China, April 2006.
38. "Visual Signal Processing and Communications Research in CUHK", Huaqiao University, Quanzhou, China, November 2005.
39. "A Novel Redundant Macroblock Strategy for Robust Wireless Video Transmission", Nanyang Technological University, Singapore, August 2005.
40. "Embedded Wavelet Packet Object-based Image Coding Based on Context Classification and Quadtree Ordering", Multimedia University, Kuala Lumpur, Malaysia, July 2005.
41. "Visual Signal Processing and Communications Research in CUHK", Zhejiang University, Hangzhou, China, July 2005.
42. "Rate Control for MPEG-4 Video Coders", *Promotion of the University Technology Lecture Series*, National Cheng Kung University, Taiwan, February 2005.
43. "Automatic Segmentation of Video Objects", *Promotion of the University Technology Lecture Series*, National Sun Yat-Sen University, Taiwan, February 2005.
44. "Rate Control for MPEG-4 Video Coders", National Chiao Tung University, Taiwan, February 2005.
45. "Automatic Segmentation of Objects of Interest in Video: A Unified Framework", Shanghai Jiao Tong University, Shanghai, China, December 2004.
46. "An Overview of Video Coding Standards", Technical Seminar on AVS - the New Audio and Video Coding Standard in China: Its technology and business opportunity, IEE, Hong Kong, June 2004.
47. "Video Signal Processing Research in CUHK", Multimedia University, Kuala Lumpur, Malaysia, April 2004.
48. "Video Segmentation, Rate Control and Error Resilience Coding for MPEG-4", Department of Electronic and Information Engineering, Huazhong University of Science and Technology, Wuhan, China, February 2004.
49. "Rate Control Algorithm for MPEG-4", Department of Computer Engineering and Information Technology, City University of Hong Kong, Hong Kong, April 2002.
50. "Rate Control and Macroblock Intra Refresh Algorithms for MPEG-4", Department of Electronic Engineering, Chinese University of Hong Kong, Hong Kong, March 2002.
51. "Error Resilient Image/Video Coding Over Mobile Communication Channels", Department of Engineering, University of Cambridge, United Kingdom, April 2000.
52. "Unequal error protection of image/video over mobile fading channels", Department of Electronics and Computer Science, University of Southampton, United Kingdom, April 2000.

53. "Error Resilient Image/Video Coding Over Mobile Communication Channels", King's College, Centre for Telecommunications Research, King's College, University of London, United Kingdom, April 2000.
54. "Object-based detection employing edge object tracking", Department of Electronic Engineering, Chinese University of Hong Kong, Hong Kong, January 2000.
55. "Video segmentation and coding", Department of Radiology, University of Malaya, Malaysia, July 1999.
56. "Advanced video coding: A content-based approach", Centre for Signal Processing, Nanyang Technological University, Singapore, July 1999.
57. "Visual communications research", School of Applied Science, Nanyang Technological University, Singapore, July 1999.
58. "Error resilient video coding over synchronous DS-CDMA channels", Chinese University of Hong Kong, Hong Kong, December 1998.
59. "Video Communications Research", University of New South Wales, Australia, November 1998.
60. "Content-based video coding", Polytechnic University of Hong Kong, Hong Kong, October 1998.
61. "Foreground/background video coding", Department of Digital Systems, Monash University (Clayton Campus), Melbourne, Australia, October 1997.
62. "Video communications research in UWA", Chinese University of Hong Kong, Hong Kong, June 1997.
63. "Foreground/background video coding scheme", School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, June 1997.
64. "Model-based video coding", Department of Electrical and Electronic Engineering, Jiao Tung University, Shanghai, China, October 1996.
65. "Video communications research in Australia", Department of Electrical and Electronic Engineering, Tsinghua University, Beijing, China, October 1996.
66. "MPEG4 - A generic audiovisual coding standard", Department of Computer Science, University of Western Australia, Perth, Australia, March 1996.
67. "Automatic face tracking in model-based video coding", Hong Kong University of Science and Technology, Hong Kong, January 1996.
68. "Quality enhancement for H.263 coder", Hong Kong University of Science and Technology, Hong Kong, December 1995.
69. "MPEG4 - A generic audiovisual coding standard", Australian Telecommunication Research Institute, Curtin University of Technology, Perth, Australia, November 1995.
70. "Video communications research in Monash University", Korea Advanced Institute of Science and Technology, Taejon, Korea, August 1993.
71. "Cell loss performance of layered codec in ATM network", Nanyang Technological University, Singapore, April 1993.
72. "Layered coders for interworking of video services", National University of Singapore, September 1992.
73. "Image coding in perceptual domain", Bellcore, Red Bank, N.J., U.S.A., November 1988.
74. "Adaptive discrete cosine transform coding in perceptual domain", AT&T Bell Laboratories, Murray Hill, N.J., U.S.A., November 1988.

### **Media Interviews**

1. "Digital Terrestrial Television", on TVB, Hong Kong, 6 July 2005.

## Journal Refereeing

IEEE Proceedings  
IEEE Transactions on Communications  
IEEE Transactions on Signal Processing  
IEEE Transactions on Image Processing  
IEEE Transactions on Multimedia  
IEEE Transactions on Circuits and Systems for Video Technology  
IEEE Transactions on Pattern Analysis and Machine Intelligence  
IEE Proceedings-I, Communications, Speech and Vision  
SPIE Optical Engineering Journal  
EURASIP Signal Processing: Image Communication  
EURASIP Journal on Applied Signal Processing  
Journal of Visual Communication and Image Representation  
Australian Telecommunication Research

## Committee Work

- Member, Technical Committee on Human Perception in Multimedia Computing, IEEE Systems, Man and Cybernetics Society, U.S.A., since 2013.
- Member, Technical Committee on Image, Video, and Multimedia, Asia-Pacific Signal and Information Processing Association (APSIPA), since 2011.
- Member, Technical Committee on Multimedia Communications, IEEE Communications Society, U.S.A., 2008 - 2011.
- Member, Audio Video Coding Standard (AVS) Working Group of China, since 2004.
- Vice-Chairman, Technical Activities Committee, Asia-Pacific Board, IEEE Communications Society, U.S.A., 2000.
- Member, IEEE West Australian Section Committee, 1999.
- Deputy Chairman, IEEE West Australian Section, 1995.
- Chairman, Signal Processing Chapter, IEEE West Australian Section, 1995 - 1996.
- Member, Technical Committee on Visual Signal Processing and Communications, IEEE Circuits and Systems Society, U.S.A., since 1992.
- Member, Technical Committee IT/1/29 on Coded Representation of Picture, Audio and Multimedia/Hypermedia Information, Standards Australia, 1994 - 2003.
- Chairman, Circuits and Systems Chapter, IEEE Singapore Section, 1990 - 1991.
- Deputy Chairman, IEEE Singapore Section, 1985 - 1986.

## Conference Organising Committees

### Conference/Committee Chairman

1. Honorary Chairman, *IEEE International Conference on Visual Communications and Image Processing*, Chengdu, China, November 2016.
2. Forum Co-Chairman, *Asia Pacific Signal and Information Processing Association Summit and Conference (APSIPA)*, Hong Kong, December 2015.
3. Co-Chairman, *15<sup>th</sup> IEEE International Workshop on Hot Topics in 3D*, Torino, Italy, July 2015.
4. Honorary Chairman, *IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, Kuching, Malaysia, December 2014.

5. General Co-Chairman, *IEEE International Conference on Visual Communications and Image Processing*, Kuching, Malaysia, November 2013.
6. Tutorial Co-Chairman, *Asia Pacific Signal and Information Processing Association Summit and Conference (APSIPA)*, Singapore, December 2010.
7. General Co-Chairman, *IEEE International Conference on Image Processing*, Hong Kong, September 2010.
8. Chairman, International Steering Committee, *IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, 2008 - 2009.
9. Honorary Co-Chairman, *IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, Xiamen, China, December 2007.
10. Vice-Chairman, International Steering Committee, *IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, 2006 - 2008.
11. General Co-Chairman, *IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, Hong Kong, December 2005.
12. General Chairman, *IEEE International Workshop on Advanced Imaging Technology*, Singapore, January 2004.
13. Australian Liaison Chairman, *Sixth International Symposium on Signal Processing and its Applications (ISSPA'01)*, Kuala Lumpur, Malaysia, August 2001.
14. Local Liaison and Publicity Chairman, *IEEE International Symposium on Circuits and Systems (ISCAS)*, Sydney, Australia, June 2001.
15. General Co-Chairman, *SPIE International Conference on Visual Communications and Image Processing*, Perth, Australia, June 2000.
16. Technical Program Chairman, *Inter-University Postgraduate Electrical Engineering Symposium*, Perth, Australia, July 1999.
17. General Co-Chairman, *IEEE International Workshop on Intelligent Signal Processing and Communication Systems*, Melbourne, Australia, November 1998.
18. Technical Program Chairman, *ISSPR98 Workshop on Image Processing and Coding*, Hong Kong, September 1998.
19. Technical Program Chairman, *IEEE Region 10 Conference (TENCON)*, Perth, Australia, November 1996.
20. Technical Program Chairman, *IEEE Workshop on Visual Signal Processing and Communications*, Melbourne, Australia, September 1993.
21. Technical Program Co-chairman, *IEEE International Symposium on Circuits and Systems (ISCAS)*, Singapore, June 1991.
22. Founding General Chairman, *IEEE International Conference on Image Processing*, Singapore, September 1989.

#### Committee Member

1. Member, International Advisory Committee, *International Conference on Imaging, Vision and Pattern Recognition (ICIVPR 2016)*, Dhaka, Bangladesh, September 2016.
2. Member, Technical Program Committee, *13th International Conference on Signal Processing and Multimedia Applications (SIGMAP 2016)*, Lisbon, Portugal, July 2016.
3. Member, Technical Program Committee, *8th International Conference on Quality of Multimedia Experience (QoMEX 2016)*, Lisbon, Portugal, June 2016.
4. Member, Technical Program Committee, *IEEE International Workshop on Quality of Experience-based Management for Future Internet Applications and Services* (in conjunction with *ICC 2015*), London, U.K., June 2015.

5. Member, Technical Program Committee, *7th International Workshop on Quality of Multimedia Experience (QoMEX 2015)*, Costa Navarino, Messinia, Greece, May 2015.
6. Member, Technical Program Committee, *IEEE International Conference on Image Processing (ICIP 2015)*, Quebec City, Canada, October 2015.
7. Member, Technical Program Committee, *Workshop on Perception Inspired Video Processing (PIVP 2014) at ACM Multimedia 2014*, Orlando, Florida, U.S.A., November 2014.
8. Member, Technical Program Committee, *IEEE International Conference on Image Processing (ICIP 2014)*, Paris, France, October 2014.
9. Member, Technical Program Committee, *6th International Workshop on Quality of Multimedia Experience (QoMEX 2014)*, Singapore, September 2014.
10. Member, International Advisory Committee, *IEEE International Symposium on Intelligent Signal Processing and Communication Systems (ISPACS)*, since 2009.
11. Member, Technical Program Committee, *5th International Workshop on Quality of Multimedia Experience (QoMEX 2013)*, Klagenfurt am Wörthersee, Austria, July 2013.
12. Member, International Program Committee, *IASTED International Conference on Signal and Image Processing and Applications (SIP 2013)*, Banff, Canada, July 2013.
13. Member, International Liaison Committee, *IEEE International Conference on Image Processing (ICIP 2013)*, Melbourne, Australia, September 2013.
14. Member, International Program Committee, *IASTED International Conference on Signal and Image Processing and Applications (SIP 2012)*, Honolulu, U.S.A., August 2012.
15. Member, International Program Committee, *IASTED International Conference on Signal Processing, Pattern Recognition and Applications (SPPRA 2012)*, Crete, Greece, June 2012.
16. Member, International Advisory Committee, *International Conference on Information, Communications and Signal Processing (ICICS 2011)*, Singapore, December 2011.
17. Member, International Program Committee, *IASTED International Conference on Signal and Image Processing and Applications (SIP 2011)*, Crete, Greece, June 2011.
18. Member, Technical Program Committee, *International Conference on Visual Communications and Image Processing (VCIP 2011)*, Huang Shan, China, July 2010.
19. Member, Technical Program Committee, *Workshop on Emerging Technology in Multimedia Communication & Networking*, in *10<sup>th</sup> IEEE International Conference on Multimedia & Expo (ICME 2009)*, Cancun, Mexico, June-July 2009.
20. Member, Technical Program Committee, *5<sup>th</sup> International Conference on Visual Information Engineering (VIE 2008)*, Xian, China, July-August 2008.
21. Member, International Advisory Committee, *Regional Inter-University Graduate Conference on Electrical Engineering (RIUGCEE 2008)*, Xian, China, July 2008.
22. Member, Technical Program Committee, *6<sup>th</sup> International Conference on Communications, Circuits and Systems (ICCCAS 2008)*, May 2008, Xiamen, China.
23. Member, Organizing Committee, *IEEE Workshop on Scalable Video Coding & Transport (SVCT 2007)*, Taichung, Taiwan, December 2007.
24. Member, International Program Committee, *IASTED International Conference on Signal and Image Processing (SIP 2007)*, Honolulu, U.S.A., August 2007.
25. Member, International Advisory Committee, *Asia-Pacific Workshop on Visual Information Processing (VIP 2006)*, Beijing, China, December 2006.

26. Member, International Advisory Committee, *9<sup>th</sup> International Conference on Control, Automation, Robotics and Vision, (ICARCV 2006)*, Singapore, December 2006.
27. Member, International Program Committee, *International Symposium of Multimedia over Wireless (ISMW 2006)*, Vancouver, Canada, July 2006.
28. Member, International Advisory Committee, *Asia-Pacific Workshop on Visual Information Processing (VIP 2005)*, Hong Kong, December 2005.
29. Member, International Program Committee, *International Conference on Information, Communications, and Signal Processing (ICICS 2005)*, Bangkok, Thailand, December 2005.
30. Member, International Program Committee, *IASTED International Conference on Signal and Image Processing (SIP 2005)*, Honolulu, Hawaii, August 2005.
31. Member, International Advisory Committee, *MMU International Symposium on Information and Communications Technologies (M2USIC 2004)*, Putrajaya, Malaysia, October 2004.
32. Member, Technical Program Committee, *SPIE International Conference on Visual Communications and Image Processing*, Lugano, Switzerland, July 2003.
33. Member, International Steering Committee, *Picture Coding Symposium*, Saint-Malo, France, April 2003.
34. Member, Technical Program Committee, *IEEE International Conference on Multimedia and Expo*, Lausanne, Switzerland, August 2002.
35. Member, Advisory Panel, *International Workshop on 3D Digitization (IW3DD)*, Singapore, February 2002.
36. Member, Technical Program Committee, *SPIE International Conference on Visual Communications and Image Processing*, San Jose, U.S.A., January 2002.
37. Member, Technical Program Committee, *Conference on Digital Imaging Techniques and Applications (DICTA)*, Melbourne, Australia, January 2002.
38. Member, International Steering Committee, *Picture Coding Symposium*, Seoul, Korea, April 2001.
39. Member, Technical Program Committee, *SPIE International Conference on Visual Communications and Image Processing*, San Jose, U.S.A., January 2001.
40. Member, Technical Program Committee, *IEEE Workshop on Stereo Image and Video Processing (WSIVP)*, Sydney, Australia, December 2000.
41. Member, Technical Program Committee, *International Symposium on Multimedia Information Processing*, Sydney, Australia, December 2000.
42. Member, International Steering Committee, *IEEE International Workshop on Intelligent Signal Processing and Communication Systems*, Hawaii, U.S.A., November 2000.
43. Member, International Steering Committee, *IEEE International Workshop on Intelligent Signal Processing and Communication Systems*, Phuket, Thailand, December 1999.
44. Member, Programme Committee, *International Symposium on Signal Processing and Intelligent System (ISSPIS)*, Guangzhou, China, November 1999.
45. Member, Technical Program Committee, *IEEE Region 10 Conference (TENCON)*, Brisbane, Australia, December 1997.
46. Member, Technical Program Committee, *3<sup>rd</sup>. Asia-Pacific Conference on Communications*, Sydney, Australia, December 1997.
47. Member, International Steering Committee, *IEEE International Workshop on Intelligent Signal Processing and Communication Systems*, Kuala Lumpur, Malaysia, November 1997.

48. Organizer, Special Session on "Advanced VLBR Video Coding", *IEEE International Symposium on Circuits and Systems*, Hong Kong, June 1997.
49. Member, Technical Program Committee, *EURASIP Workshop on Vector Quantization*, Milan, Italy, May 1997.
50. Member, Technical Program Committee, *IEEE International Symposium on Circuits and Systems (ISCAS)*, Atlanta, U.S.A., May 1996.
51. Member, Organising Committee, *Picture Coding Symposium*, Melbourne, Australia, March 1996.
52. Member of Technical Program Committee, *IEEE Workshop on Image and Multidimensional Digital Signal Processing (IMDSP)*, Belize City, Belize, March 1996.
53. Member, Technical Program Committee, *SPIE/IS&T Digital Video Compression: Algorithms and Techniques Conference*, San Jose, U.S.A., January 1996.
54. Member of International Liaison Committee, *IEEE International Symposium on Circuits and Systems (ISCAS)*, Seattle, U.S.A., May 1995.
55. Member of Technical Program Committee, *SPIE International Conference on Visual Communications and Image Processing*, Taiwan, R.O.C., May 1995.
56. Member of Program Committee, *IS&T/SPIE International Symposium on Electronic Imaging: Science & Technology*, San Jose, U.S.A., February 1995.
57. Member of Technical Program Committee, *Asia-Pacific Conference on Circuits and Systems*, Taipei, Taiwan, December 1994.
58. Member of Technical Program Committee, *Australian Telecommunication Networks and Applications*, Melbourne, Australia, December 1994.
59. Member of International Advisory Committee, *International Symposium on Speech, Image Processing and Neural Networks*, Hong Kong, April 1994.
60. Member of Technical Program Committee, *SPIE International Conference on Visual Communications and Image Processing*, Boston, U.S.A., November 1993.
61. Member of Organising Committee, *Asia-Pacific Conference on Circuits and Systems*, Sydney, Australia, December 1992.
62. Member of Technical Program Committee, *International Workshop on Media Technology*, Taiwan, November 1992.
63. Member of Technical Program Committee, *IEEE Workshop on Visual Signal Processing and Communications*, Raleigh, U.S.A., September 1992.
64. Member of Organising Committee, *4th International Conference on Image Processing and Its Applications*, Maastricht, The Netherlands, April 1992.
65. Member of Technical Program Committee, *SPIE International Conference on Visual Communications and Image Processing*, Boston, U.S.A., November 1991.
66. Member of International Advisory Committee, *IEEE Workshop on Visual Signal Processing and Communications*, Taiwan, June 1991.
67. Member of Technical Program Committee, *IEEE International Symposium on Circuits and Systems (ISCAS)*, San Diego, U.S.A., May 1989.

### **Sessions Chaired at Conferences**

1. "Fast Algorithms and Implementations" in *IEEE Conference on Image Processing*, Phoenix, U.S.A., September 2016.
2. "HEVC, Standard Video Coding" in *IEEE International Symposium on Circuits and Systems*, Lisbon, Portugal, May 2015.
3. "Video Processing and Interaction" in *Advanced Concepts for Intelligent Vision Systems*, Poznan, Poland, October 2013.

4. "3D Image Processing and Camera Calibration" in *IEEE International Conference on Image Processing*, Melbourne, Australia, September 2013.
5. "Image, Video and Multimedia" in *IEEE China Summit & International Conference on Signal and Information Processing*, Beijing, July 2013.
6. "Visual Signal Processing and Analysis" in *IEEE International Symposium on Circuits and Systems*, Beijing, China, May 2013.
7. "Encoder Optimization" in *IEEE International Symposium on Circuits and Systems*, Rio de Janeiro, Brazil, May 2011.
8. "Image Processing and Video Technology II" in *International Symposium on Intelligent Signal Processing and Communications Systems*, Chengdu, China, December 2010.
9. "Image and Video Representation I" in *IEEE International Conference on Image Processing*, Hong Kong, China, September 2010.
10. "Segmentation II" in *IEEE Conference on Image Processing*, Hong Kong, China, September 2010.
11. "Perception and Quality Models for Images and Video" in *IEEE Conference on Image Processing*, Hong Kong, China, September 2010.
12. "Coding" in *IEEE Pacific-Rim Conference on Multimedia*, Bangkok, Thailand, December 2009.
13. "Object Detection and Tracking" in *International Symposium on Intelligent Signal Processing and Communications Systems*, Kanazawa, Japan, December 2009.
14. "Image/Video Modeling II" in *IEEE Conference on Image Processing*, San Diego, U.S.A., October 2008.
15. "H.264/Scalable Video Coding" in *IEEE International Conference on Multimedia and Expo*, Hannover, Germany, 23-26 June, 2008.
16. "H.264/AVC Coding, Prediction, Estimation and Assignment Issues" in *International Conference on Communications, Circuits and Systems*, Xiamen, China, 25-27 May, 2008.
17. "Coding Efficiency and Encoder Optimization Techniques" in *Picture Coding Symposium*, Beijing, China, 24-26 April 2006.
18. "Image Processing I" in *International Symposium on Intelligent Signal Processing and Communications Systems*, Hong Kong SAR, China, December 2005.
19. "Error Resilient Video Coding" in *SPIE International Conference on Visual Communications and Image Processing*, Beijing, China, July 2005.
20. "Multimedia Communication Systems and Applications" in *International Symposium on Multimedia over Wireless*, Maui, Hawaii, U.S.A., June 2005.
21. "Multimedia Technology and Coding" in *International Symposium on Intelligent Signal Processing and Communication Systems*, Seoul, Korea, November 2004.
22. "Video Processing and Coding I" in *International Symposium on Intelligent Multimedia, Video and Speech Processing*, Hong Kong, October 2004.
23. "Rate Control I" in *SPIE International Conference on Visual Communications and Image Processing*, Laguno, Switzerland, July 2003.
24. "Stereo Vision" in *Seventh International Conference on Control, Automation, Robotics and Vision (ICARCV'02)*, Singapore, December 2002.
25. "Video Processing and Coding II" in *Second International Symposium on Communications and Information Theory (ISCITS'02)*, Bangkok, Thailand, October 2002.
26. "Cameras, Motion and Watermarks" in *IEEE International Symposium on Circuits and Systems (ISCAS'01)*, Sydney, Australia, May 2001.



27. "Multimedia Data Compression" in *2000 International Workshop on Multimedia Data Storage, Retrieval, Integration and Applications*, Hong Kong, January 2000.
28. "Human Observer" in *Picture Coding Symposium*, Portland, U.S.A., April 1999.
29. "Image and Video Coding" in *SPIE International Conference on Visual Communications and Image Processing*, San Jose, U.S.A., January 1999.
30. "Advanced VLBR Video Coding" in *IEEE International Symposium on Circuits and Systems*, Hong Kong, June 1997.
31. "Array Processing" in *IEEE Region 10 Conference (TENCON)*, Perth, Australia, November 1996.
32. "Character Recognition" in *IEEE Region 10 Conference (TENCON)*, Perth, Australia, November 1996.
33. "Image Processing and Video" in *Third International Conference on Signal Processing*, Beijing, China, October 1996.
34. "Coding Systems" in *International Workshop on Coding Techniques for Very Low Bit Rate Video*, Tokyo, Japan, November 1995.
35. "Video Coding 2" in *Australian Telecommunication Networks and Applications*, Melbourne, Australia, December 1994.
36. "Video Coding" in *IEEE Singapore International Conference on Communication Systems*, Singapore, November 1994.
37. "Filtering and Conversion" in *SPIE International Conference on Visual Communications and Image Processing*, Boston, U.S.A., November 1993.
38. "Video Coding II" in *Asia-Pacific Conference on Communications*, Taejon, South Korea, September 1993.
39. "Video Compression" in *Asia-Pacific Conference on Circuits and Systems*, Sydney, Australia, December 1992.
40. "Video Coding" in *Singapore International Conference on Image Processing*, Singapore, September 1992.
41. "Interframe Coding Techniques" in *Australian Broadband Switching and Services Symposium*, Melbourne, Australia, July 1992.
42. "Image Processing & Applications" in *IEEE International Workshop on Industrial Applications of Machine Vision and Machine Intelligence*, Tokyo, Japan, February 1987.

### **Courses Attended**

1. "Academic Staff Selection Skills", 2-day workshop, Centre for Staff Development, UWA, 1 & 27 November 1996.
2. "Staff Development Review (SDR) Workshop", 1-day workshop, Centre for Staff Development, UWA, 26 September 1996.

### **Grants Assessor for:**

National Science Foundation, U.S.A., 1997  
 Hong Kong Research Grants Council, since 1995  
 Australian Research Council, 1992 - 2003  
 Qatar National Research Fund, since 2007

**External Assessor for:**

1. Crossing of Efficiency Bar for Assistant Professors, Hong Kong Polytechnic University, 2003
2. Academic Staff Promotion to Associate Professor and Professor, Multimedia University, Malaysia, 2006 - 2008
3. Academic Staff Promotion to Associate Professor and Professor, Philadelphia University, Jordan, 2007

**Thesis Examiner for:**

1. Suhuai Luo, Ph.D., 1995, "Speech-enhanced model-based video facial image coding", University of Sydney, Australia.
2. Mark Pickering, Ph.D., 1995, "A VBR rate control algorithm for video coders incorporating perceptually adaptive quantisation and traffic shaping", Australian Armed Forces Academy, University of New South Wales, Australia.
3. Lachlan Andrew, Ph.D., 1996, "Image coding using vector quantization with neural networks", University of Melbourne, Australia.
4. Tse Fu Wing, M.Phil., 1996, "DC coefficient restoration for transform image coding", Chinese University, Hong Kong.
5. Wong Kwok Wai, M.Phil., 2000, "Techniques for low bit-rate video coding", Hong Kong Polytechnic University, Hong Kong.
6. Hui Ko Cheung, Ph.D., January 2005, "Analysis and motion estimation strategies for frame and video object coding", Hong Kong Polytechnic University, Hong Kong.
7. Zheng Jinghong, Ph.D., November 2005, "Efficient error concealment and error control schemes for H.264 video", Nanyang Technological University, Singapore.
8. Xie Jun, Ph.D., December 2006, "Rate-distortion analysis and control in DCT-based scalable video coding", Nanyang Technological University, Singapore.
9. Cheung Hoi Kin, M.Phil., February 2007, "Error resilient support in video proxy over wireless channels", Hong Kong Polytechnic University, Hong Kong.
10. David Wu, Ph.D., April 2007, "Perceptually lossless coding of medical images - From abstraction to reality", Royal Melbourne Institute of Technology, Australia.
11. Low Yi Qian, M.Eng.Sc., 2012, "New SIFT-based Calibration Methods for Hybrid Camera System", Tunku Abdul Rahman University, Malaysia.
12. Manish Narwaria, Ph.D., May 2012, "Signal Quality Assessment for Multimedia Communications", Nanyang Technological University, Singapore.
13. Sun Chensheng, Ph.D., April 2013, "Machine Learning Approaches for Visual Object Detection", Hong Kong Polytechnic University, Hong Kong.
14. Hung Kwok Wai, Ph.D., February 2014, "Super-resolution Study via Interpolation Techniques", Hong Kong Polytechnic University, Hong Kong.
15. Wu Hao, M.Phil., November 2015, "On Storage, Search and Object Identification of Video Sequence", Hong Kong Polytechnic University, Hong Kong.

**Thesis Committee (Chairman)**

1. Mak Chun Man, Lawrence, M.Phil., 2004, "Video Object Segmentation", Chinese University of Hong Kong, Hong Kong.
2. Lee Sum-Wai, M.Phil., 2004, "Assemblage of three-dimensional broken objects using a multi-objective genetic algorithm", Chinese University of Hong Kong, Hong Kong.
3. Tao Suyi, M.Phil., 2005, "AML Algorithm and NLOS localization by AoA measurements", Chinese University of Hong Kong, Hong Kong.

4. Zhang Zhijun, Ph.D., 2005, "Variational and spline based multi-modal non-rigid medical image registration and applications", Chinese University of Hong Kong, Hong Kong.
5. Li Ngai, M.Phil., 2006, "Fast pattern matching in Walsh-Hadamard transform domain and its applications in video processing", Chinese University of Hong Kong, Hong Kong.
6. Chen Qinran, Ph.D., 2006, "Face recognition using structural approach", Chinese University of Hong Kong, Hong Kong.
7. Yao Jian, Ph.D., 2006, "Modeling and rendering from multiple views", Chinese University of Hong Kong, Hong Kong.
8. Sun Deqing, M.Phil., 2007, "Post-processing of images coded using block DCT at low bit rates", Chinese University of Hong Kong, Hong Kong.
9. Mak Chun Man, Lawrence, Ph.D., 2008, "Motion estimation and segmentation", Chinese University of Hong Kong, Hong Kong.
10. Wang Meng, M.Phil., 2012, "Transferring a Generic Pedestrian Detector Towards Specific Scenes", Chinese University of Hong Kong, Hong Kong.
11. Pan Hanjie, Ph.D., 2013, "Two Approaches to Sparsity for Image Restoration", Chinese University of Hong Kong, Hong Kong.
12. Zhou Rui, Ph.D., 2015, "Saliency Learning and Person Re-Identification", Chinese University of Hong Kong, Hong Kong.
13. Han Qinglong, Ph.D., 2015, "Coding and Processing of High-Definition Video Signal", Chinese University of Hong Kong, Hong Kong.

#### **Thesis Proposal Committee**

1. Pan Hanjie, Ph.D., March 2012, "Sparse Image Restoration", Chinese University of Hong Kong, Hong Kong.
2. Wang Meng, M.Phil., March 2012, "Transferring a Generic Pedestrian Detector Towards Specific Scenes", Chinese University of Hong Kong, Hong Kong.
3. Han Qinglong, Ph.D., March 2013, "High Performance Coding Tools for Hybrid Video Coding", Chinese University of Hong Kong, Hong Kong.

#### **Community Services**

1. Deputy Principal, Chinese Association of Victoria Ethnic Chinese School, Melbourne, Victoria, 1992 - 1994.
2. Member of Parent Management Committee, Chung Wah Chinese School, Leeming, Perth, 1994 - 1996.
3. Member, Kingswood College Council, UWA, 1998 - 1999.

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