

## Curriculum Vitae

### Chia-Wen Lin

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## Education

- Ph.D. National Tsing Hua University (NTHU), Electrical Engineering, Taiwan, January 2000. Thesis title: "Video Transcoding Techniques for Multipoint Video Conferencing" Advisors: Profs. Yung-Chang Chen and Ming-Ting Sun (University of Washington).
- M.S. National Tsing Hua University (NTHU), Taiwan, Electrical Engineering, June 1992. Thesis topic: "Efficient VLSI Architectures for Filter Banks in Subband Coding". Advisors: Profs. Yung-Chang Chen and Chin-Liang Wang (GPA: 90.9/100, ranked 2nd out of 40 graduates of the signal processing, computer, and communication group, Dept. EE)
- Diploma National Kaohsiung Institute of Technology (NKIT), Electrical Engineering, Taiwan, June 1987. (with highest distinction, GPA: 86.5/100, ranked 2nd out of about 100 graduates of Dept. of EE)

## Research Interests

- Video Adaptation in Heterogeneous Environments
- Internet Video Streaming
- Error Control for Wireless Video
- Video Content Analysis
- Intelligent Video Processing

## Experiences

### A. Academic Employment

2005.08~present: **Associate Professor**, Dept. Computer Science & Information Engineering, National Chung Cheng University, Taiwan

2000.08~2005.07: **Assistant Professor**, Dept. Computer Science & Information Engineering, National Chung Cheng University, Taiwan

2004.01~2004.02: **Visiting Professor**, Academia Sinica, Taiwan

Worked on a video retrieval project with Dr. Mark Liao's group

2002.07~2002.08: **Visiting Professor**, Wireless Networking Group, Microsoft Research Asia (MSRA), Beijing, China

Gave three invited talks to MSRA and one talk to Dept. Computer Engineering, Tsinghua Univ., Beijing. Discussed research ideas with Drs. Wenwu Zhu, Qian Zhang and their colleagues

2000.04~2000.08: **Visiting Scholar**, Information Processing Lab., Dept. EE, University of Washington.

Worked on MPEG-4 streaming video, wireless video, and video surveillance technologies

1993.09~2000.01: **Research Assistant** at EE, National Tsing Hua University, Hsinchu, Taiwan

Worked on video codecs (MPEG, H.26x) and wired network system/protocols necessary to implement a functional real-time video applications under Profs. Yung-Chang Chen and Ming-Ting Sun (Univ. of Washington)

1990.09~1992.06: **Research Assistant** at EE, National Tsing Hua University, Hsinchu, Taiwan

Studied on realizations of efficient systolic VLSI architectures of various 1-D and 2-D QMF and perfect reconstruction filter banks for subband coding

1990.02~1990.08: **Research Assistant** for Prof. Wen-Liang Hwang, at EE, National Kaohsiung Institute of Technology, Kaohsiung, Taiwan

Studied on short-term electrical power load forecasting with ARMA model

1989.06~1990.02: **Teaching Assistant** at EE, National Kaohsiung Institute of Technology, Kaohsiung, Taiwan

Gave courses on: Industrial Instruments Experiments, Microprocessor Design Experiments, Electrical Wiring Experiments

## B. Industrial Employment

10/97 ~ 4/2000: **Section Manager and Project Manager** with the Customer Premises Equipment & Access Technology Dept., Computer and Communication Research Labs, ITRI, Hsinchu, Taiwan

Led a section with 11 engineers to develop H.32x standard compliant video CPE (videophone, and video conference terminal) and server system (MCU, gateway, gatekeeper)

4/97 ~ 10/97: **Project Manager** at Digital Transmission Dept., Computer and Communication Research Labs, ITRI, , Hsinchu, Taiwan

Led a 12-people team to develop SDH Fiber Optics Loop Access System

3/94 ~ 3/97: **Hardware Team Leader** at Digital Transmission Dept., Computer and Communication Research Labs, ITRI, , Hsinchu, Taiwan

Served as system architect and led a 6-people hardware team to develop the hardware platform of Synchronous Digital Hierarchy (SDH) Add/Drop Multiplexer

7/92 ~ 2/94: **R&D Engineer** at Digital Transmission Department, Computer and Communication Research Labs, ITRI, , Hsinchu, Taiwan

Designed hardware circuits the Synchronous Optical Network (SONET) OC-3 (155.52 Mb/s) Terminal Multiplexer

7/87 ~ 5/89: **Full-time Military Service**, Taiwan, , Hsinchu, Taiwan

Served as a navy communication officer (second lieutenant) at Chinese Marine Corp. (CMC) for wired and wireless communication systems operation and maintenance

## Research Projects

### AT CCU (2000~present):

- Video Adaptation for Heterogeneous Environments, Principle Investigator, NSC, Taiwan (2006.08~2009.07)
- Client/Server System Design and Software Library Development for Video Surveillance and Video Retrieval on the CAMCI Platform, Principle Investigator, NSC, Taiwan (2004.08 ~ 2007.07)
- Semantics-based Compressed Video Indexing and Networking, Principle Investigator, ITRI South, Taiwan (2006.01~2006.12).
- Multiple Objects Tracking, Principle Investigator, ICL/ITRI, Taiwan (2006.04~2006.12)
- Fast Video Transcoder Software, Principle Investigator, Sunplus, Taiwan (2005.10~2006.04)
- Spatial Downscaling Transcoder for Digital Home, Principle Investigator, Taiwan Imaging Tek Corporation, Taiwan (2005.11~2006.10)
- Content-Aware QOS Control for Video Streaming over Heterogeneous Networks, Principle Investigator, NSC, Taiwan (2003.08~2006.07)

- MPEG-7/21 Semantic Video Transcoding & Streaming, Principle Investigator, MOEA, Taiwan (2003.10~2006.09)
- Error Analysis for MPEG-21 SVC, Principle Investigator, ICL/ITRI, Taiwan (2005.01~2005.12)
- H.264 Optimized Streaming Platform Technology, Principle Investigator, ICL/ITRI, Taiwan (2004.10~2004.12)
- An MPEG-4 AVC-based Error-Resilience Video streaming System, Principle Investigator, ICL/ITRI, Taiwan (2004.01~2004.12)
- An MPEG-4 FGS based WLAN Streaming System, Principle Investigator, ICL/ITRI, Taiwan (2003.01~2003.12)
- MPEG-4 AVC Codec Optimization, Principle Investigator, ICL/ITRI, Taiwan (2003.01~2003.12)
- Video streaming and Conversion for Home Networking, Principle Investigator, NSC, Taiwan (2002.08~2003.07)
- Performance Enhancement on FGS Coding for Video Streaming, Principle Investigator, ICL/ITRI, Taiwan (2002.01~2002.12)
- Error Resilience Coding for Video Streaming with Heterogeneous Multicasting, Principle Investigator, ICL/ITRI, Taiwan (2002.01~2002.12)
- Fast Algorithms for Compressed-Domain Video Content Conversion, Principle Investigator, NSC, Taiwan (2001.08~2002.07)
- Multimedia applications with Guaranteed QOS over Cable Networks, Principle Investigator, ICL/ITRI, Taiwan (2001.07~2001.12)
- Research & Development on Infrared Image Tracker, Principle Investigator, ICL/ITRI, Taiwan (2001.01~2002.12)
- Video Streaming with Digital VCR Functionality, Principle Investigator, NSC, Taiwan (2000.11~2001.7)

#### **AT CCL/ITRI (1992~2000):**

- xDSL and Cable Modem CPE National Standard Definition (1999.11~2000.6) (Project Manager)
- H.32x Personal Presence Multipoint Control Unit (1998.07~2000.04) (Project Manager)
- H.32x Multipoint Video Interworking Unit (1997.10~1998.06) (Project Coordinator)
- SDH STM-1 Fiber Optics Loop Access System (1996.01~1997.09) (Project Manager)
- SDH STM-1 Add/Drop Multiplexer (1994.07~1995.02) (Hardware Task Leader)
- SONET OC-3 Terminal Multiplexer. (1992.07~1994.06) (Hardware Design Engineer)
- “Lip synchronization for multipoint video conferencing” with Carnegie Mellon University (2000.01~2000.12) (USD 124,710, Project Manager)
- “Scalable video transcoder for personal presence systems” with University of Washington (1998.04~1999.06) (USD230,000, Coordinator)
- “Software video coder and transcoder” with University of Washington (1997.10~1998.03) (USD 230,000, Coordinator)
- “Object-based video processing and transcoding” with University of Washington (1999.07-2000.06) (USD 227,001, Project Manager)
- “Real-time H.263+ rate and frame rate control” with III and University of Southern California (1998.11~1998.10) (USD 787,500, Program Manager)
- “Fast motion-compensated frame interpolation on H.263 video decoder” with University of Southern California (1998.01~1998.06) (USD 100,000, Coordinator)

#### **Honors & Awards**

- **2006: Young Investigator Awards (Wu-Da-You Memorial Awards)**, National Science Council (NSC), Taiwan: one of the most prestigious awards for young researchers in Taiwan. Only 25 assistant/associate professors under age 40 selected nationwide from all research areas were awarded)
- **2006: Young Faculty Awards**, National Chung Cheng University (CCU), Taiwan (the most prestigious award for young researchers in CCU. 3 associate/assistant professors of CCU under age 40 were awarded in 2006)

- **2005: Young Investigator Award**, SPIE VCIP 2005 (Advisor of the awardee): the most prestigious award of SPIE VCIP. Only 1 out of 241 accepted papers was awarded  
Yu-Hsuan Ho, Chia-Wen Lin, Jing-Fung Chen, and Hong-Yuan Mark Liao “Fast coarse-to-fine video retrieval via shot-level statistics,” in *Proc. SPIE Conf. Visual Commun. Image Processing (VCIP 2005)*, July 2005, Beijing, China.
- **2004: Coauthor of the paper nominated for the IBM Student Paper Awards of IEEE ICIP 2004:** the paper ranked 6th among the 12 nominated papers (selected from 154 applicants)  
Yu-Hsuan Ho, Wei-Ren Chen, and Chia-Wen Lin, “A rate-constrained key-frame extraction scheme for channel-aware video streaming,” in *Proc. IEEE Int. Conf. Image Processing*, Oct. 2004, Singapore.
- **2005: Best Student Paper Awards, Workshop on Consumer Electronics and Signal Processing (WCEsp)**, Taiwan (Co-advisor of the awardee): 4 out of 217 accepted papers were awarded  
Chih-Ming Chen, Yuh-Ruey Lee, Chia-Wen Lin, and Yung-Chang Chen “Adaptive error resilience transcoding for video multicast over wireless networks,” *Workshop Consumer Electronics and Signal Processing (WCEsp)*, Yunlin, Taiwan, Oct. 2005.
- **2005: Best Paper Awards, IPPR Conference on Computer Vision, Graphics, and Image Processing:** 12 out of 200+ papers were awarded  
Yuh-Ruey Lee and Chia-Wen Lin, “DCT-domain downscaling transcoding using generalized DCT decimation,” in *Proc. IPPR Conference on Computer Vision, Graphics, and Image Processing*, Aug. 2005, Taipei, Taiwan..
- **2004: Best Paper Awards, IPPR Conference on Computer Vision, Graphics, and Image Processing:** 12 out of 200+ papers were awarded  
Yuh-Chou Tsai and Chia-Wen Lin, “H.264 error resilience coding based on multi-hypothesis motion compensated prediction,” in *Proc. IPPR Conference on Computer Vision, Graphics, and Image Processing*, Aug. 2004, Hualien.
- **2004: Advisor of the Master Thesis Awards, Institute of Information & Computing Machinery (IICM)**, Taiwan  
Yuh-Chou Tsai, *H.264 Error Resilience Coding based on Multi-hypothesis Motion Compensated Prediction*, Master Thesis, Dept. Computer Science & Information Engineering, National Chung Cheng University, July 2004.
- **2004: Advisor of the Acer Dragon Thesis Awards, Acer**, Taiwan (Advisor of the awardee)  
Yu-Hsuan Ho, *Key-Frames Extraction for Video Summarization and Shot-based Retrieval*, Master Thesis, Dept. Computer Science & Information Engineering, National Chung Cheng University, July 2004.
- **2002: Third-Place Prize** (Prize amount: NTD 100K), **National Wireless Communication Software Contest, the Ministry of Economic Affairs (MOEA)**, Taiwan (supervise a team of five students to develop a wireless LAN multimedia streaming system)
- **2001: Research Awards**, National Science Council, Taiwan, R.O.C.
- **2000: Distinguished Ph.D. Thesis Awards for Contributions to the Industry**, the Ministry of Education, Taiwan, R.O.C. (only four theses were awarded nationwide, with NTD 150K cash prize for each recipient)
- **2000: Acer Dragon Ph.D. Thesis Awards** (A nationwide thesis award presented by the Acer Group)
- **2000: ITRI Research Achievement Awards - Bronze Medal** (the annual highest honor in ITRI)

## **Professional Activities:**

### **Journal Editorship**

**Guest Editor, *Special Issue on Video Adaptation for Heterogeneous Environments*, EURASIP Journal on Applied Signal Processing (to appear in May 2007)**

### **Committee & Conference**

Senior Member, IEEE (since 2004)  
Member, Visual Signal Processing & Communications TC, IEEE CAS Society (since 2002)  
Member, Multimedia Systems and Applications TC, IEEE CAS Society (since 2001)  
Student Paper Award Committee Member, IEEE ICME 2006  
Student Paper Award Committee Member, SPIE VCIP 2000  
Technical Committee Member, IEEE ICME 2002, 2004, 2006, and 2007  
Paper Review Committee Member & Session Chair, IEEE ISCAS 2003~2007  
Track Chair & Session Chair, IEEE PCM 2003 (Singapore)  
Program Committee Member, International Conference on Information Technology: Research & Education (ITRE) 2003-2004  
Session Chair and Technical Committee Member, IEEE PCM 2002, 2003, and 2005  
Program Committee Member, IEEE ISM 2005-2006  
Program Committee Member, IEEE IWCMC 2005-2006  
Area Chair, MultiMedia Modeling Conference (MMM) 2007

### **Referee**

Proceedings of the IEEE (2004)  
IEEE Transactions on Circuits and Systems for Video Technology (2001~2007)  
IEEE Transactions on Circuits and Systems I (2004) and II (2005)  
IEEE Transactions on Very Large Integrated Systems (2005)  
IEEE Transactions on Multimedia (2001,2003~2006)  
IEEE Transactions on Broadcasting (2007)  
IEEE Transactions on Signal Processing Letter (2002,2003)  
IEEE Wireless Communications Magazine (special issue on Advances in Wireless Video, 2005)  
Journal of Visual Communication & Image Representation (2005~2006)  
EURASIP Signal Processing: Image Communication (2005~2006)  
IEE Proceedings (2003)  
Journal of VLSI Signal Processing (2003)  
EURASIP Journal on Applied Signal Processing (2003~2006)  
International Journal of Wireless Networks and Mobile Computing (2004~2006)  
ETRI Journal (2005)  
Journal of Information Science and Engineering (2004~2006)  
International Journal of Imaging Systems and Technology (2002)  
Fuzzy Sets and Systems (2004)  
The Internet Encyclopedia (published by John Wiley & Sons, 2003)  
Journal of Chinese Electrical Engineering (2001~2005)  
SPIE Conference on Visual Comm. & Image Proc. 2000 Student Best Paper Award  
IEEE ISCAS 2001~2007, IEEE Globecom 2003, IEEE ICC (2003), IEEE ICIP 2004~2005, IEEE ICME 2002~2007, IEEE PCM 2002~2003 and 2005, IEEE ITRE 2003~2005, SPIE Conf. VCIP 2001, 2005, ACM Multimedia Conference 2001~2002, IEEE ICCAS 2004~2006

## Publications

(most papers can be downloaded from <http://www.cs.ccu.edu.tw/~cwlin/pub.htm>)

### Refereed Journal Papers:

#### Published or Accepted

- [J1] Chih-Ming Chen, Chia-Wen Lin, Hsiao-Cheng Wei, and Yung-Chang Chen, "Multiple description transcoding and prioritized retransmission for robust video streaming over wireless LANs," accepted and to appear in *Journal of Visual Communication and Image Representation*.
- [J2] Chih-Ming Chen, Chien-Min Chen, Chia-Wen Lin, and Yung-Chang Chen, "Error resilient video streaming over wireless networks using combined scalable coding and multiple-description coding," accepted and to appear in *Signal Processing: Image Communication*.
- [J3] Chih-Ming Chen, Chia-Wen Lin, and Yung-Chang Chen, "Adaptive error resilience transcoding for video multicast over wireless networks," accepted and to appear in *Signal Processing: Image Communication* (Special Issue on Mobile Video), 2Q, 2007.
- [J4] Yu-Hsuan Ho, Chia-Wen Lin, Jing-Fung Chen, and Hong-Yuan Mark Liao "Fast coarse-to-fine video retrieval using shot-level statistics," *IEEE Trans. Circuits and Systems for Video Technology*, vol. 16, no. 5, pp. 642-648, May 2006.
- [J5] Chia-Wen Lin, Zhi-Hong Ling, Yuan-Cheng Chang, and Chung J. Kuo, "Compressed-domain fall incident detection for intelligent homecare," accepted and to appear in *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology* (Special Issue on Audio-Visual Signal Processing for Intelligent Security Systems)
- [J6] Wen-Nung Lie, C.-I. Tom Lin, and Chia-Wen Lin, "Enhancing video error resilience by using data embedding techniques," *IEEE Trans. Circuits and Systems for Video Technology*, vol. 16, no. 2, pp. 300-308, Feb. 2006.
- [J7] Hung-Jyh Chiou, Yuh-Ruey Lee, and Chia-Wen Lin, "Content-aware error resilient transcoding using prioritized intra-refresh for video streaming," *Journal of Visual Communication and Image Representation* (Special Issue on Visual Communications in the Ubiquitous Era), vol. 16, no. 4-5, pp. 563-588, Aug.-Oct. 2005. (SCI: 1 citations; Google Scholar: 2 citations)
- [J8] Jun Xin, Chia-Wen Lin, and Ming-Ting Sun, "Digital video transcoding," *Proceedings of the IEEE*, vol. 93, no. 1, pp. 84-97, Jan. 2005. (SCI: 8 citations; Google Scholar: 32 citations)
- [J9] Chia-Wen Lin, Yung-Chang Chen, and Ming-Ting Sun, "Dynamic region of interest transcoding for multipoint video conferencing," *IEEE Trans. Circuits and Systems for Video Technology*, vol. 13, no. 10, pp. 982-992, Oct. 2003. (SCI: 4 citations (9 citations including its conference version); Google Scholar: 12 citations (19 citations including its conference version))
- [J10] Chia-Wen Lin, Yao-Jen Chang, and Yung-Chang Chen, "A low-complexity face detection scheme for low-bit-rate videophone coding," *IEICE Trans. Information and Systems*, vol. E86-D, no.1, pp.101-108, Jan. 2003. (SCI: 1 citations (5 citations including its conference version); Google Scholar: 7 citations (22 citations including its conference version))
- [J11] Supavadee Aramvith, Chia-Wen Lin, Sumit Roy, and Ming-Ting Sun, "Wireless video transport using conditional retransmission and low-delay interleaving," *IEEE Trans. Circuits and Systems for Video Technology* (Special Issue on Wireless Video), vol. 12, no. 6, pp. 558-565, Jun. 2002. (SCI: 9 citations; Google Scholar: 29 citations)
- [J12] Chia-Wen Lin, Yao-Jen Chang, Chih-Ming Wang, Yung-Chang Chen, and Ming-Ting Sun, "A standard compliant virtual meeting system with active video object tracking," *EURASIP Journal on Applied Signal Processing*, vol. 6, pp. 622-634, Jun. 2002.
- [J13] Chia-Wen Lin, Jian Zhou, Jeongnam Youn, and Ming-Ting Sun, "MPEG video streaming with VCR functionality," *IEEE Trans. Circuits and Systems for Video Technology* (Special Issue on Internet Video Streaming), vol. 11, no. 3, pp. 415-425, Mar. 2001. (SCI: 8 citations; Google Scholar: 43 citations)

- [J14] Jeongnam Youn, Ming-Ting Sun, and Chia-Wen Lin, "Motion vector refinement for high performance transcoding," *IEEE Trans. Multimedia*, vol. 1, pp. 30-40, Mar. 1999. (SCI: **40** citations; Google Scholar: **112** citations)
- [J15] Chia-Wen Lin, Eryin Fei, and Yung-Chang Chen, "Hierarchical disparity estimation using spatial correlation," *IEEE Trans. Consumer Electronics*, vol. 44, pp. 630-637, Aug. 1998. (SCI: **5** citations; Google Scholar: **14** citations)
- [J16] Jeongnam Youn, Ming-Ting Sun, and Chia-Wen Lin, "Motion estimation for high performance transcoding," *IEEE Trans. Consumer Electronics*, vol. 44, pp. 649-658, Aug. 1998. (SCI: **10** citations; Google Scholar: **25** citations)

### **Submitted or in Revision**

- [J17] Yuh-Ruey Lee and Chia-Wen Lin, "Visual quality enhancement for DCT-domain spatial downscaling transcoding using generalized DCT decimation," *IEEE Trans. Circuits and Systems for Video Technology*. (in minor revision)
- [J18] Yu-Lun Lai, Yu-Yuan Tseng, Chia-Wen Lin, Zhi Zhou, and Ming-Ting Sun, "H.264/AVC encoder speed-up using joint algorithm/code-level optimization," *Journal of Visual Communication and Image Representation*. (revised, May 2006)
- [J19] Chih-Wen Su, Hong-Yuan Mark Liao, Hsiao-Rong Tyan, Chia-Wen Lin, Duan-Yu Chen, and Kuo-Chin Fan, "Motion flow-based video retrieval," *IEEE Trans. Multimedia*. (revised, June 2006)
- [J20] Yuh-Chou Tsai, Chia-Wen Lin, and Chia-Ming Tsai, "H.264 error resilience coding based on multihypothesis motion-compensated prediction," *EURASIP Signal Processing: Image Communication*. (revised, January 2007)
- [J21] Chih-Ming Chen, Chia-Wen Lin, and Yung-Chang Chen, "Cross-layer error protection for video streaming over wireless LANs using content-aware packet retry limit adaptation," *IEEE Journal of Selected Topics in Signal Processing* (Special Issue on Network-Aware Multimedia Processing and Communications). (submitted, November 2006)

### ***Refereed International Conference Papers:***

- [C1] Chih-Ming Chen, Chia-Wen Lin, and Yung-Chang Chen, "Adaptive error resilience transcoding and fairness grouping for video multicast over wireless networks," *IEEE Int. Conf. Commun.*, June 2007, Glasgow, Scotland. (accepted)
- [C2] Chih-Wei Chiou, Chia-Ming Tsai, and Chia-Wen Lin, "Fast mode decision algorithms for adaptive GOP structure in H.264 scalable extension," *IEEE Int. Symp. Circuits and Systems*, May 2007, New Orleans, USA. (accepted)
- [C3] Yuh-Chou Tsai, Chia-Ming Tsai, and Chia-Wen Lin, "H.264 error resilience coding based on multihypothesis motion-compensated prediction and adaptive intra refresh," in *Proc. IEEE Int. Conf. Intelligent Information Hiding and Multimedia Signal Processing*, Dec 2006, Pasadena, CA, USA. (invited paper)
- [C4] Chih-Ming Chen, Chia-Wen Lin, and Yung-Chang Chen, "Packet scheduling for video streaming over wireless with content-aware packet retry limit," in *Proc. IEEE Workshop Multimedia Signal Processing (MMSP)*, Oct. 2006, Victoria, Canada.
- [C5] Shih-Ming Hsu, Chia-Wen Lin, and I-Hsien Lee, "A new seamless bitstream switching scheme for H.264 video adaptation with enhanced coding performance," in *Proc. IEEE Int. Conf. Image Processing*, Oct. 2006, Atlanta, GA, USA.
- [C6] Chih-Ming Chen, Chia-Wen Lin, and Yung-Chang Chen, "Unequal error protection of video streaming over wires LANs using content-aware packet retry limit," in *Proc. IEEE Int. Conf.*

*Multimedia and Expo*, July 2006, Toronto, Canada.

- [C7] Ke-Zhao Chen, Yao-Jen Chang, and Chia-Wen Lin, “Video-based authentication using appearance models and HMMs,” in *Proc. IEEE Int. Symp. Circuits and Systems*, May 2006, Island of Kos, Greece.
- [C8] Chih-Ming Chen, Yung-Chang Chen, and Chia-Wen Lin, “Error resilience transcoding using content-aware intra-refresh based on profit tracing,” in *Proc. IEEE Int. Symp. Circuits and Systems*, May 2006, Island of Kos, Greece.
- [C9] Chih-Wen Su, Hong-Yuan Mark Liao, Kuo-Chin Fan, Chia-Wen Lin and Hsiao-Rong Tyan, “A motion-flow-based fast video retrieval system,” in *Proc. 7th ACM SIGMM International Workshop on Multimedia Information Retrieval*, Nov. 2005, Singapore.
- [C10] Duan-Yu Chen, Hong-Yuan Mark Liao, Hsiao-Rong Tyan, and Chia-Wen Lin, “Automatic key posture selection for human behavior analysis,” in *Proc. IEEE Int. Workshop on Multimedia Signal Processing*, Oct. 2005, Shanghai, China.
- [C11] Yuh-Ruey Lee and Chia-Wen Lin, “DCT-domain downscaling transcoding using generalized DCT decimation,” in *Proc. IEEE Int. Conf. Image Processing*, Sept. 2005, Genoa, Italy.
- [C12] Yuh-Chou Tsai and Chia-Wen Lin, “H.264 error resilience coding based on multihypothesis motion-compensated prediction,” in *Proc. IEEE Int. Conf. Multimedia and Expo*, July 2005, Amsterdam, the Netherlands.
- [C13] Chih-Ming Chen, Yuh-Ruey Lee, Chia-Wen Lin, and Yung-Chang Chen “Adaptive error resilience transcoding for video multicast over wireless networks,” in *Proc. IEEE Int. Conf. Multimedia and Expo*, July 2005, Amsterdam, the Netherlands.
- [C14] Yu-Hsuan Ho, Chia-Wen Lin, Jing-Fung Chen, and Hong-Yuan Mark Liao “Fast coarse-to-fine video retrieval via shot-level statistics,” in *Proc. SPIE Conf. Visual Communication and Image Processing*, July 2005, Beijing, China. (**won the Young Investigator Award**)
- [C15] Yu-Lun Lai, Yu-Yuan Tseng, Chia-Wen Lin, Zhi Zhou, and Ming-Ting Sun, “H.264 encoder speed-up via joint algorithm/code-level optimization,” in *Proc. SPIE Conf. Visual Communication and Image Processing*, July 2005, Beijing, China.
- [C16] Chih-Ming Chen, Yung-Chang Chen, and Chia-Wen Lin, “Seamless roaming in wireless networks for video streaming,” in *Proc. IEEE Int. Symp. Circuits and Systems*, May 2005, Kobe, Japan.
- [C17] Chia-Wen Lin, Zhi-Hong Ling, Yuan-Cheng Chang, and Chung J. Kuo, “Compressed-domain fall incident detection for intelligent home surveillance,” in *Proc. IEEE Int. Symp. Circuits and Systems*, May 2005, Kobe, Japan.
- [C18] Chen-Po Chang and Chia-Wen Lin, “R-D optimized quantization of H.264 SP-frame for bitstream switching with storage constraints,” in *Proc. IEEE Int. Symp. Circuits and Systems*, May 2005, Kobe, Japan. (invited paper for Special Session on Video Adaptation & Abstraction)
- [C19] Jing-Fung Chen, Hong-Yuan Mark Liao, and Chia-Wen Lin, “Fast video retrieval via the statistics of motion,” in *Proc. IEEE Int. Conf. Acoustics, Speech & Signal Processing*, Mar. 2005, Philadelphia, PA, USA.
- [C20] Yuh-Ruey Lee, Chia-Wen Lin, Sung-Hung Yeh, and Yung-Chang Chen, “Low-complexity DCT-domain video transcoder for arbitrary-size downscaling,” in *Proc. IEEE Int. Workshop on Multimedia Signal Processing*, Sept. 2004, Siena, Italy.
- [C21] Yu-Hsuan Ho, Wei-Ren Chen, and Chia-Wen Lin, “A rate-constrained key-frame extraction scheme for channel-aware video streaming,” in *Proc. IEEE Int. Conf. Image Processing*, Oct. 2004, Singapore. (**top 10% paper, ranked 6th (out of 154) in Student Paper Awards Contest**)
- [C22] Po-Liang Shih, Yuan-Chen Chang, Chung J. Kuo, and Chia-Wen Lin, “Intelligent Eyes for Home Surveillance Systems over Wireless LAN,” in *Proc. World Multiconference on Systematics, Cybernetics and Informatics (SCI 2004)*, July 2004, Orlando, USA. (invited paper)



- [C23] Su-Ren Chen, Chen-Po Chang, and Chia-Wen Lin, "MPEG-4 FGS performance improvement using adaptive inter-layer prediction," in *Proc. IEEE Int. Conf. Acoustics, Speech, Signal Processing*, vol. 3, pp. 265-268, May 2004, Montreal, Canada.
- [C24] Hsiao-Cheng Wei, Yuh-Chou Tsai, and Chia-Wen Lin, "Prioritized retransmission for error protection of video streaming over WLAN," in *Proc. IEEE Int. Symp. Circuits and Systems*, vol. 2, pp. 65-68, May 2004, Vancouver, Canada.
- [C25] Hong-Jyh Chiou, Yuh-Ruey Lee, and Chia-Wen Lin, "Error-resilient transcoding using adaptive intra-refresh for video streaming," in *Proc. IEEE Int. Symp. Circuits and Systems*, vol. 3, pp. 777-780, May 2004, Vancouver, Canada.
- [C26] Yuh-Ruey Lee, Chia-Wen Lin, and Yen-Wen Chen, "Computation reduction in cascaded DCT-domain video downscaling transcoding," in *Proc. IEEE Int. Symp. Circuits and Systems*, vol. 2, pp. 860-863, May 2003, Bangkok, Thailand.
- [C27] Chia-Wen Lin, Chih-Ming Wang, Yao-Jen Chang, and Yung-Chang Chen, "Realtime object extraction and tracking using an active camera with image mosaics," in *Proc. IEEE Int. Workshop on Multimedia Signal Processing*, Dec. 2002, Virgin Islands, USA.
- [C28] Yeh-Kai Chou, Li-Chao Jian, and Chia-Wen Lin, "MPEG-4 video streaming with drift-compensated bit-stream switching," in *Proc. IEEE Pacific-Rim Conf. Multimedia*, Dec. 2002, Hsinchu, Taiwan. (invited paper; also published in *Lecture Notes in Computer Science: Advances in Multimedia Information Processing*, pp. 847-855, Dec. 2002, Springer)
- [C29] Yuh-Ruey Lee, Chia-Wen Lin, and Cheng-Chien Kao, "A DCT-domain video transcoder for spatial resolution downconversion," in *Proc. Visual Information System*, Mar. 2002, Hsinchu, Taiwan. (invited paper; also published in *Lecture Notes in Computer Science: Recent Advances in Visual Information Systems*, pp. 207-218, Mar. 2002, Springer)
- [C30] Jinhui Pan, Chia-Wen Lin, Chung Gu, and Ming-Ting Sun, "A robust spatio-temporal video object segmentation scheme with prestored background information," in *Proc. IEEE Int. Symp. Circuits and Systems*, pp. 803-806, May 2002, Arizona, USA. (SCI: 4 citations; Google Scholar: 18 citations)
- [C31] Chia-Wen Lin and Yuh-Ruey Lee, "Fast algorithms for DCT-domain transcoding," in *Proc. IEEE Int. Conf. Image Processing*, pp. 421-424, Oct. 2001, Thessaloniki, Greece. (SCI: 6 citations; Google Scholar: 14 citations)
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**Patents:**

**(5 USA and 10 Taiwan patents awarded; 5 USA and 4 Taiwan patents pending)**

**List of USA Patents**

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