

## 高文忠 (Wen-Chung Kao)



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**Wen-Chung Kao** received the M.S. and Ph.D. degrees in electrical engineering from National Taiwan University, Taiwan, in 1992 and 1996, respectively. From 1996 to 2000, he was a Department Manager at SoC Technology Center, ERSO, ITRI, Taiwan. From 2000 to 2004, he was an Assistant Vice President at NuCam Corporation in Foxlink Group, Taiwan, where he was responsible for leading embedded software team to develop digital still/video cameras. In 2002, he was also invited to form SiPix Technology Inc., Taipei, Taiwan, where he was in charge of setting up the research team of the company and studying flexible electrophoretic display. Since 2004, he has been with National Taiwan Normal University (NTNU), Taipei, Taiwan, where he is currently a Professor at Department of Electrical Engineering and the Dean of School of Continuing Education. His current research interests include system-on-a-chip (SoC) as well as embedded software design, flexible electrophoretic display, machine vision system, digital camera system, and color imaging science.

He received the Best Paper Awards at the IEEE 2006 International Symposium on Consumer Electronics, IEEE 2006 Asia-Pacific Conference on Circuits and Systems, IEEE 2011 International Symposium on Consumer Electronics, and IEEE 2014 International Conference on Consumer Electronics. He currently serves as an Associate Editor of IEEE Transactions on Consumer Electronics and IEEE Consumer Electronics Magazine. He is the Founding General Chair of IEEE International Conference on Consumer Electronics – Taiwan and the General Chair of The 17-th IEEE International Symposium on Consumer Electronics. He is a Regional Distinguished Lecturer of IEEE Consumer Electronics Society. He is a Senior Member of IEEE.

### **Education**

1. Ph.D. degree: Department of Electrical Engineering in National Taiwan University (NTU) in 1996. (Advisor: Dr. Tai-Ming Parn, Retired Professor at NTU/EE, Currently the CTO at ASUS).

## **Experiences:**

1. 1996 – 2000: He was an Engineer and then promoted as a Section Manager (1999) and Department Manager (2000) at SoC Technology Center (STC), ERSO, ITRI, Taiwan. During this period, his research interests include mixed-signal integrated circuit design, system integration for consumer products, and display driver chip design.
2. 2000 – 2004: He was a Department Manager and then promoted as a Director (2001) and Assistant Vice President (2002) at NuCam Corporation in Foxlink Group, Taiwan. During this period, He led an embedded software team to develop successfully several middle-end and high-end cameras. The research topics include embedded software architecture design, digital still/video camera system integration, driver system design of flexible electrophoretic display, and color image science.
3. In 2002, He was invited to form SiPix Technology Inc., Taiwan, where he was in charge of setting up the research team of the company and studying flexible electrophoretic display.
4. 2004~2007: Assistant Professor, Department of Applied Electronics Technology and Industrial Education, NTNU.
5. 2007~2010: Associate Professor, Department of Applied Electronics Technology and Industrial Education, NTNU.
6. 2008: Director, Division of Research and Industry Liaison, Office of Research and Development, NTNU.
7. 2010 ~: Full Professor, Department of Applied Electronics Technology, NTNU.
8. 2010 ~ 2013: Chair, Department of Applied Electronics Technology, NTNU.
9. 2013 ~: Dean, School of Continuing Education, NTNU.

## **Editorial Board of IEEE Transactions/Magazine**

1. Associate Editor, IEEE Transactions on Consumer Electronics (SCI), since 2006.
2. Associate Editor, IEEE Consumer Electronics Magazine, since 2012.

## **Technical Program Committee of IEEE Conferences**

1. General Chair, IEEE International Conference on Consumer Electronics – Taiwan, 2014, 2015.
2. Taipei Chapter Chair, IEEE Consumer Electronics Society, since 2015
3. General Chair, The 17-th IEEE International Symposium on Consumer Electronics, 2013.
4. Technical Program Committee Chair, IEEE Global Conference on Consumer Electronics, Japan 2013, 2014.
5. International Advisor, IEEE International Symposium on Consumer Electronics, Korea, 2014.
6. Technical Program Committee Vice Chair, IEEE Global Conference on Consumer Electronics, Japan 2012.

7. International Advisor, IEEE International Symposium on Consumer Electronics, USA, 2012.
8. International Advisor, IEEE International Symposium on Consumer Electronics, Singapore, 2011.
9. Publication Chair, The Third IEEE International Games Innovation Conference, California, US, 2011.
10. Technical Program Committee Co-chair, IEEE International Conference on System Science and Engineering, Taiwan, 2010.
11. Technical Program Committee & Session Chair, IEEE International Symposium on Consumer Electronics, Kyoto, Japan, 2009.

## Other Services

1. Associate Editor, Section E: Consumer Electronics, FTRA Journal of Convergence, since 2010.

## Major Research Areas

1. System-on-a-chip (SoC) & embedded system
2. Digital camera system & 3-D imaging system
3. Flexible electrophoretic display
4. Color imaging sciences
5. Medical Imaging system

## Paper Publications (Since 2005):

### **Part A: Invited Book Chapters**

1. **Wen-Chung Kao**, Hung-Hsin Wu, and Sheng-Yuan Lin, “Reusable embedded software platform for versatile single-sensor digital cameras,” in *Single-Sensor Imaging: Methods and Applications for Digital Cameras*, Edited by Rastislav Lukac, CRC Press, 2008.
2. **Wen-Chung Kao** and Sheng-Yuan Lin, “An overview of image/video stabilization techniques,” in *Single-Sensor Imaging: Methods and Applications for Digital Cameras*, Edited by Rastislav Lukac, CRC Press, 2008.

### **Part B: International SCI Journals**

1. **Wen-Chung Kao**, Chien-Hui Liu, Shu-Cheng Liou, Jui-Che Tsai, and Guan-Hao Hou, “Towards video display on electronic papers,” *IEEE/OSA Journal of Display Technology*, accepted 2015 (SCIE)
2. **Wen-Chung Kao**, Hsing-Yu Chen, Ying-Hao Liu, and Shu-Cheng Liou, “Hardware engine for supporting gray-tone paintbrush function on electrophoretic papers,” *IEEE/OSA Journal of Display Technology*, vol. 10, no. 2, pp. 138 – 145, Feb. 2014 (SCIE)
3. G. M. Megson, J. O. Cadenas, R. S. Sherratt, P. Huerta, and **Wen-Chung Kao**, “A parallel quantum

- histogram architecture,” *IEEE Trans. Circuits and Systems II: Express Briefs*, vol. 60, no. 7, pp. 437 – 441, July 2013, (SCI)
4. Oswaldo Cadenas, R. Simon Sherratt, Pablo Huerta, and **Wen-Chung Kao**, and Graham M. Megson, “C-slow retimed parallel histogram architectures for consumer imaging devices,” *IEEE Trans. Consumer Electronics*, vol. 59, no. 2, pp. 291 – 295, May 2013, (SCI)
  5. **Wen-Chung Kao**, Yi-Chen Kang, Chien-Hui Liu, Wei-Te Chang, and Jia-An Ye, “Hardware engine for real-time pen tracking on electrophoretic displays,” *IEEE/OSA Journal of Display Technology*, vol. 9, no. 3, pp. 139 - 145, Mar. 2013. (SCIE)
  6. **Wen-Chung Kao**, Wei-Te Chang, and Jia-An Ye, “Driving waveform design based on response latency analysis of electrophoretic displays,” *IEEE/OSA Journal of Display Technology*, vol. 8, no. 10, pp. 596 - 601, Oct. 2012. (SCIE)
  7. Chia-Ping Shen, **Wen-Chung Kao\***, Yueh-Yiing Yang, Ming-Chai Hsu, Yuan-Ting Wu, and Feipei Lai, “Detection of cardiac arrhythmia in electrocardiograms using adaptive feature extraction and modified support vector machines,” *Expert Systems With Applications*, vol. 39, no. 9, pp. 7845 – 7852, July 2012. (\*Corresponding author) (SCI)
  8. Oswaldo Cadenas, R. Simon Sherratt, Pablo Huerta, and **Wen-Chung Kao**, “Parallel pipelined array architectures for high performance histogram analysis in consumer devices,” *IEEE Trans. Consumer Electronics*, vol. 57, no. 4, pp. 1460 – 1464, Nov. 2011. (SCI)
  9. **Wen-Chung Kao**, Guan-Fan Wu, Yi-Liang Shih, Fong-Shou Lin, and Yao-Jen Hsieh, “Design of real-time image processing engine for electrophoretic displays,” *IEEE/OSA Journal of Display Technology*, vol. 7, no. 10, pp. 556 - 561, Oct. 2011. (SCIE)
  10. **Wen-Chung Kao** and Chih-Chao Wei, “Phonocardiograph signal analysis for detecting heart valve disorders,” *Expert Systems With Applications*, vol. 38, no. 6, pp. 6458 – 6468, June 2011. (SCI)
  11. **Wen-Chung Kao**, Li-Wei Cheng, Chen-Yu Chien, and Wen-Kuo Lin, “Robust brightness measurement and exposure control in real-time video recording,” *IEEE Trans. Instrument & Measurement*, vol. 60, no. 4, pp. 1206 - 1216, Apr. 2011. (SCI)
  12. **Wen-Chung Kao**, Jen-Jui Liu, Ming-I Chu, “Integrating photometric calibration with adaptive image halftoning for electrophoretic displays,” *IEEE/OSA Journal of Display Technology*, vol. 6, no. 12, pp. 625 - 632, Dec. 2010. (SCIE)
  13. Zhi-Wei Gao, Wen-Kuo Lin, Yu-Shian Shen, Chia-Yen Lin, and **Wen-Chung Kao\***, “Design of signal processing pipeline for stereoscopic cameras,” *IEEE Trans. Consumer Electronics*, vol. 56, no. 2, pp. 324 – 331, May 2010. (\*Corresponding author) (SCI)
  14. **Wen-Chung Kao**, Ming-Chai Hsu, and Yueh-Yiing Yang, “Local contrast enhancement and adaptive feature extraction for illumination-invariant face recognition,” *Pattern Recognition*, vol. 43, Issue 5, pp. 1736 - 1747, May 2010. (SCI)
  15. **Wen-Chung Kao**, “Electrophoretic display controller integrated with real-time halftoning and partial region update,” *IEEE/OSA Journal of Display Technology*, vol. 6, no. 1, pp. 36 - 44, Jan. 2010. (SCIE/EI)

16. **Wen-Chung Kao**, Jia-An Ye, Feng-Shou Lin, Ping-Yueh Cheng, and Robert Sprague, "Configurable timing controller design for active matrix electrophoretic display," *IEEE Trans. Consumer Electronics*, vol. 55, no. 1, pp. 1 - 5, Feb. 2009. (SCI)
17. **Wen-Chung Kao**, Jia-An Ye, Ming-I Chu, and Chung-Yen Su, "Image quality improvement for electrophoretic displays by combining contrast enhancement and halftoning techniques," *IEEE Trans. Consumer Electronics*, vol. 55, no. 1, pp. 15 - 19, Feb. 2009. (SCI)
18. Chung-Yen Su, **Wen-Chung Kao**, "Effective demosaicing using subband correlation," *IEEE Trans. Consumer Electronics*, vol. 55, no. 1, pp. 199 - 204, Feb. 2009. (SCI)
19. **Wen-Chung Kao**, "High dynamic range imaging by fusing multiple raw images and tone reproduction," *IEEE Trans. Consumer Electronics*, vol. 54, no. 1, pp. 10 - 15, Feb. 2008. (SCI)
20. **Wen-Chung Kao**, "Real-time image fusion and adaptive exposure control for smart surveillance systems," *Electronics Letters*, vol. 43, issue 10, pp. 975 - 976, Aug. 2007. (SCI)
21. **Wen-Chung Kao**, Sheng-Hong Wang, Lien-Yang Chen, and Sheng-Yuan Lin, "Design considerations of color image processing pipeline for digital cameras," *IEEE Trans. Consumer Electronics*, vol. 52, no. 4, pp. 1144-1152, Nov. 2006. (SCI)
22. **Wen-Chung Kao**, Chien-Chih Hsu, Lien-Yang Chen, Chih-Chung Kao, and Shou-Hung Chen, "Integrating image fusion and motion stabilization for capturing still images in high dynamic range scenes," *IEEE Trans. Consumer Electronics*, vol. 52, no. 3, pp. 735-741, Aug. 2006. (SCI)
23. **Wen-Chung Kao**, Lien-Yang Chen, and Sheng-Hong Wang, "Tone reproduction in color imaging systems by histogram equalization of macro edges," *IEEE Trans. Consumer Electronics*, vol. 52, no. 2, pp. 682-688, May 2006. (SCI)
24. **Wen-Chung Kao**, Chih-Chung Kao, Ching-Kai Lin, Tai-Hua Sun, and Sheng-Yuan Lin, "Reusable embedded software platform for versatile camera systems," *IEEE Trans. Consumer Electronics*, vol. 51, no. 4, pp. 1379-1385, Nov. 2005.(SCI)
25. **Wen-Chung Kao**, Wei-Hsin Chen, Chun-Kuo Yu, Chin-Ming Hong, and Sheng-Yuan Lin, "Portable real-time homecare system design with digital camera platform," *IEEE Trans. Consumer Electronics*, vol. 51, no. 4, pp. 1035-1041, Nov. 2005.(SCI)
26. **Wen-Chung Kao**, Chin-Ming Hong, and Sheng-Yuan Lin, "Automatic sensor and mechanical shutter calibration for digital still cameras," *IEEE Trans. Consumer Electronics*, vol. 51, no. 4, pp. 1060-1066, Nov. 2005.(SCI)
27. **Wen-Chung Kao** and Ying-Ju Chen, "Multistage bilateral noise filtering and edge detection for color image enhancement," *IEEE Trans. Consumer Electronics*, vol. 51, no. 4, pp. 1346-1350, Nov. 2005.(SCI)
28. **Wen-Chung Kao**, Shou-Hung Chen, Tai-Hua Sun, Tai-Yi Chiang, and Sheng-Yuan Lin, "An integrated software architecture for real-time video and audio recording systems," *IEEE Trans. Consumer Electronics*, vol. 51, no. 3, pp. 879-884, Aug. 2005.(SCI)

## Part C: IEEE International Conferences (EI)

1. Nobuo Funabiki, Shin Sasaki, Tana, and **Wen-Chung Kao**, "An operator fill-in-blank problem for algorithm understanding in Java programming learning assistant system," in *Proc. IEEE Global Conference Consumer Electronics (GCCE)*, Osaka, Japan, October 2015.
2. Nobuo Funabiki, Nobuya Ishihara, and **Wen-Chung Kao**, "Correlation analysis of fill-in-blank problem solutions to final programming results in Java programming course," in *Proc. IEEE Global Conference Consumer Electronics (GCCE)*, Osaka, Japan, October 2015.
3. Chen-Chien Hsu, Ru-Yu Hou, **Wen-Chung Kao**, and Shih-An Li, "FPGA-Based path planning using improved ant colony optimization algorithm," in *Proc. IEEE International Conference Consumer Electronics - Berlin (ICCE-Berlin)*, Berlin, Germany, Sept. 2015.
4. Chiang-Heng Chien, Chen-Chien Hsu, Wei-Yen Wang, and **Wen-Chung Kao**, "Mechanism for preventing premature convergence in robot localization," in *Proc. IEEE International Conference Consumer Electronics - Berlin (ICCE-Berlin)*, Berlin, Germany, Sept. 2015.
5. **Wen-Chung Kao**, Chia-Yi Lee, Chun-Yi Lin, Ting-Yi Su, Bai-Yueh Ke, and Chung-Yu Liao, "Gaze tracking with particle swarm optimization," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Spain, June 2015.
6. **Wen-Chung Kao** and Chien-Hui Liu, "Driving waveform design for playing animations on electronic papers," in *Proc. IEEE International Conference Consumer Electronics*, Las Vegas, US, January 2015.
7. Nobuo Funabiki, Takuya Nakamura, and **Wen-Chung Kao**, "A Proposal of Javadoc Hint Function for Java Programming Learning Assistant System," in *Proc. IEEE Global Conference Consumer Electronics (GCCE)*, Tokyo, Japan, October 2014.
8. Chen-Chien Hsu and **Wen-Chung Kao**, "Robotic Map Building by Fusing ICP and PSO Algorithms," in *Proc. IEEE International Conference Consumer Electronics - Berlin (ICCE-Berlin)*, Berlin, Germany, Sept. 2014.
9. Chen-Chien Hsu and **Wen-Chung Kao**, "Object Tracking Based on Hardware/Software Co-design of Particle Filter and Particle Swarm Optimization," in *Proc. IEEE International Conference Consumer Electronics - Berlin (ICCE-Berlin)*, Berlin, Germany, Sept. 2014.
10. **Wen-Chung Kao** and Chien-Hui Liu, "Real-time video signal processor for electrophoretic displays," in *Proc. IEEE International Conference Consumer Electronics - Taiwan (ICCE-TW)*, May 2014.
11. **Wen-Chung Kao**, Sheng-Ju Wu, and Wei-Te Chang, "Gaze tracking for smart consumer electronics," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2014. (EI) (\* Best Paper Award)
12. Chen-Chien Hsu, Chia-Jui Kuo, and **Wen-Chung Kao**, "Improved Monte Carlo localization with robust orientation estimation for mobile robots," in *Proc. IEEE International Conference on Systems, Man and Cybernetics*, UK, Oct. 2013. (EI)
13. **Wen-Chung Kao**, Wei-Te Chang, Sheng-Ju Wu, Chien-Hui Liu, and Shih-Yao Yin, "High Speed Gaze Tracking with Visible Light," in *Proc. IEEE International Conference of System Science and Engineering (ICSSE)*, Budapest, July, 2013. (EI)

14. **Wen-Chung Kao** and Shao-Kang Huang, "Digital image stabilization based on panning motion velocity analysis" in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Taiwan, June 2013.(EI)
15. **Wen-Chung Kao** and Hong-Chun Wang , "Tone mapping operator for high dynamic range imaging" in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Taiwan, June 2013.(EI)
16. José O. Cadenas, R. Simon Sherratt, Pablo Huerta, **Wen-Chung Kao**, and Graham Megson, "Parallel pipelined histogram architecture via C-slow retiming," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2013. (EI)
17. **Wen-Chung Kao**, Yi-Chen Kang, Chien-Hui Liu, Wei-Te Chang, and Jia-An Ye, " Real-time engine for paintbrush function on electronic papers," in *Proc. IEEE Global Conference Consumer Electronics (GCCE)*, Tokyo, Japan, October 2012.
18. **Wen-Chung Kao**, Shu-Cheng Liu , and Wei-Te Chang, " Signal processing for playing videos on electrophoretic displays," in *Proc. IEEE International Midwest Symposium on Circuits and Systems*, Boise, US, Aug. 2012. (EI)
19. **Wen-Chung Kao**, Xiang-Ting Huang, Hung-Chun Wang, Chih-Chen Pan, and Feng-Che Yang, " Real-time tone reproduction for video recording," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Harrisburg, US, June 2012.
20. **Wen-Chung Kao**, Yi-Chen Kang, Chien-Hui Liu, Wei-Te Chang, and Jia-An Ye, "Hardware engine for real-time pen tracking on electrophoretic displays," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2012. (EI)
21. Pei-Yung Hsiao, Kuo-Chen Hung, Shih-Shinh Huang, \***Wen-Chung Kao**, Chia-Chen Hsu, Yao-Ming Yu, "An embedded lane detection warning system," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Singapore, June 2011. (\*Corresponding author) (EI) (\* **Best Paper Award**)
22. **Wen-Chung Kao**, Bai-Cheng Jeng, Tzu-Hung Chen, and Zhi-Wei Gao, "Real-time depth map estimation for stereoscopic displays with GPU," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Singapore, June 2011. (EI)
23. **Wen-Chung Kao**, Guan-Fan Wu, and Yi-Liang Shih, "Design of real-time image processing engine for electrophoretic displays," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2011. (EI)
24. Zhi-Wei Gao, Tzu-Hung Chen, Wen-Kuo Lin, Houngh-Jyh Wang, and **Wen-Chung Kao\***, "Rendering multiple views for autostereoscopic video displays," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2011. (\*Corresponding author) (EI)
25. **Wen-Chung Kao**, Chih-Hsiang Huang, Guan-Fan Wu, and Pei-Yung Hsiao, "Video recording in high dynamic range scenes," in *Proc. IEEE International Conference Green Circuits and Systems (ICGCS)*, Shanghai, China, June 2010. (EI)
26. **Wen-Chung Kao**, Jen-Jui Liu, Ming-I Chu, Yi-Kai Wang, and Tsung-Hua Yang, "Photometric calibration for image enhancement of electrophoretic displays," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Braunschweig, Germany, June 2010. (EI)
27. **Wen-Chung Kao**, Ming-I Chu, Jia-An Ye, Jen-Jui Liu, and Pei-Yung Hsiao, "Design of flexible

- electrophoretic display controller with reduced waveform lookup tables," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2010, pp. 49 – 50. (EI)
28. **Wen-Chung Kao**, Chih-Chao Wei, and Jen-Jui Liu, "Automatic heart sound analysis with short-time Fourier transform and support vector machines," in *Proc. IEEE International Midwest Symposium on Circuits and Systems*, Cancun, Mexico, Aug., 2009, pp. 188-191. (EI)
  29. **Wen-Chung Kao**, Chih-Hsiang Chiu, and Yueh-Yiing Yang, "Automatic ringing artifact detection in restoring blurred face image," in *Proc. IEEE International Midwest Symposium on Circuits and Systems*, Cancun, Mexico, Aug., 2009, pp. 770-773.(EI)
  30. **Wen-Chung Kao**, Jia-An Ye, Fong-Shou Lin, Craig Lin, and Robert Sprague, "Configurable timing controller design for active matrix electrophoretic display with 16 gray levels," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2009. (EI)
  31. **Wen-Chung Kao**, Jia-An Ye, and Craig Lin, "Image quality improvement for electrophoretic displays by combining contrast enhancement and halftoning techniques," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2009. (EI)
  32. **Wen-Chung Kao**, Ming-Chai Hsu, "Local contrast enhancement for human face recognition in poor lighting conditions," in *Proc. IEEE International Conference on Systems, Man and Cybernetics*, Singapore, Oct. 2008. (EI)
  33. **Wen-Chung Kao**, Wei-Chi Huang, Lien-Yang Chen, Hong-Shuo Tai, and Hung-Hsin Wu, "Taking images in extremely high dynamic range scenes by fusing multiple exposed images and tone reproduction," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2008. (EI)
  34. **Wen-Chung Kao**, Chao-Yi Fang, Ying-Yung Chen, Ming-Hung Shen, and Jialock Wong, "Integrating flexible electrophoretic display and one-time password generator in smart cards," in *Proc. IEEE International Conference Consumer Electronics (ICCE)*, Las Vegas, US, January 2008. (EI)
  35. **Wen-Chung Kao**, Chia-Ping Shen, Chih-Chung Kao, Ming-Chai Hsu, and Hung-Hsin Wu, "Adaptive feature selection for real-Time face recognition in portable surveillance systems," in *Proc. IEEE International Conference on Systems, Man and Cybernetics*, Canada, Oct. 2007, pp. 1083 – 1088 (EI)
  36. **Wen-Chung Kao**, Hong-Shuo Tai, Chia-Pin Shen, Jia-An Ye, and Hong-Fa Ho, "A pipelined architecture design for trilateral noise filtering," in *Proc. IEEE International Symposium Circuits and Systems (ISCAS)*, United States, May 2007, pp. 3415 - 3418 (EI)
  37. **Wen-Chung Kao**, Chun-Kuo Yu, Chia-Ping Shen, and Pei-Yung Hsiao, "Electrocardiogram analysis with adaptive feature selection and support vector machines," in *Proc. IEEE Asia Pacific Conference on Circuits and Systems*, Singapore, Dec. 2006, pp. 1680-1683. (\* **Best Paper Award**) (EI)
  38. **Wen-Chung Kao** and Shou-Hung Chen, "Real-time image stabilization for digital video cameras," in *Proc. IEEE Asia Pacific Conference on Circuits and Systems*, Singapore, Dec. 2006, pp. 1684-1687. (EI)
  39. **Wen-Chung Kao**, Chien-Chih Hsu, Lien-Yang Chen, Chih-Chung Kao, and Shou-Hung Chen, "Integrating image fusion and motion stabilization for capturing still image in high dynamic range scenes," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Russia, June 2006, pp.



86-91. (\* **Best Paper Award**). (EI)

40. **Wen-Chung Kao**, Yen-Wei Hung, Chien-Chih Hsu, Chih-Chung Kao, and Shou-Hung Chen, "Adaptive fixed pattern audio noise cancellation for digital camera applications," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Russia, June 2006, pp. 173-177. (EI)
41. **Wen-Chung Kao**, Lien-Yang Chen, and Sheng-Hong Wang, "Tone reproduction in color imaging system by histogram equalization of macro edges," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Russia, June 2006, pp. 105-110. (EI)
42. **Wen-Chung Kao**, Chien-Chih Hsu, Chih-Chung Kao, and Shou-Hung Chen, "Adaptive exposure control and real-time image fusion for surveillance systems," in *Proc. IEEE International Symposium Circuits and Systems (ISCAS)*, Greece, May 2006, pp. 935 - 938 (EI)
43. **Wen-Chung Kao**, Sheng-Hong Wang, Chih-Chung Kao, Chi-Wu Huang, and Sheng-Yuan Lin, "Color reproduction for digital imaging systems," in *Proc. IEEE International Symposium Circuits and Systems (ISCAS)*, Greece, May 2006, pp. 4599 - 4602 (EI)
44. **Wen-Chung Kao**, Ying-Ju Chen, Chia-Ping Shen, Chi-Wu Huang, and Sheng-Yuan Lin, "Integrating edge detector and bilateral noise filter for enhancing color images," in *Proc. IEEE International Symposium Circuits and Systems (ISCAS)*, Greece, May 2006, pp. 4675 - 4678 (EI)
45. **Wen-Chung Kao**, Sheng-Hong Wang, Wei-Hsin Chen, Lien-Yang Chen, and Sheng-Yuan Lin, "Designing image processing pipeline for color imaging systems," in *Proc. IEEE International Symposium Circuits and Systems (ISCAS)*, Greece, May 2006, pp. 4679 - 4682 (EI)
46. **Wen-Chung Kao**, Chin-Ming Hong, and Sheng-Yuan Lin, "An automatic calibration system for digital still cameras," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Macau, June 2005, pp. 301-306.(EI)
47. **Wen-Chung Kao**, Wei-Hsin Chen, Chun-Kuo Yu, Chin-Ming Hong, and Sheng-Yuan Lin, "A real-time system for portable homecare applications," in *Proc. IEEE International Symposium Consumer Electronics (ISCE)*, Macau, June 2005, pp. 369-374.(EI)
48. **Wen-Chung Kao**, Tai-Hua Sun and Sheng-Yuan Lin, "A robust embedded software platform for versatile camera systems," in *Proc. IEEE International Symposium Circuits and Systems (ISCAS)*, May Japan, 2005, pp. 5015-5018. (EI)

#### **Part D: Other Invited Tutorial Papers**

1. **高文忠**, 王怡凱, "軟性電泳式電子紙系統設計," 工業材料, pp. 109 - 114, vol. 280, Apr. 2010.
2. **高文忠**, "電泳式軟性電子紙系統設計—為永續地球盡一份心力," 台大校友雙月刊, pp. 45 - 49, no. 64, July 2009.
3. **高文忠**, 葉嘉安, 王怡凱, "軟性主動式背板驅動之電子紙顯示技術," 電光先鋒, pp. 20 - 25, Jan. 2009.

## Patents (專利):

1. 具有影像狀態記憶特性之顯示器驅動電路以及方法，中華民國發明專利 I-404035，專利權期間 2013 - 2029 年
2. 參考影像停留時間之電泳顯示器的驅動系統及方法，中華民國發明專利 I-460701，專利權期間 2014 - 2032 年

## Honors (榮譽):

1. Regional Distinguished Lecture, IEEE Consumer Electronics Society 2015-2016.
2. Best Paper Award (最佳論文獎), The 32-th IEEE International Conference Consumer Electronics, Las Vegas, US, 2014. (EI)
3. 台師大優聘教師, 2012 -2013.
4. Invited Keynote Speaker, IEEE International Conference Consumer Electronics, Las Vegas, US, 2012.
5. 銅牌獎, Altera 亞洲創新設計大賽, 2011.
6. Best Paper Award (最佳論文獎), The 15-th IEEE International Symposium Consumer Electronics, Singapore, 2011. (EI)
7. 產學合作績優獎, 國立台灣師範大學, 2010.
8. Senior Member of IEEE, 2008.
9. Marquis Who's Who in the World (世界名人錄), 2008 ~.
10. 優等獎, 指導葉嘉安、魏志兆、邱志祥同學參加「北北區影像顯示光電科技」專題實作競賽, 2008.
11. Excellent Teacher Award (優良教師獎), National Taiwan Normal University, 2007.
12. Marquis Who's Who in Asia (亞洲名人錄), 2007.
13. Best Paper Award (最佳論文獎), The IEEE Asia Pacific Conference Circuits and Systems (APCCAS 2006), Singapore, 2006. (EI)
14. Best Paper Award (最佳論文獎), The 10-th IEEE International Symposium Consumer Electronics, Russia, 2006. (EI)
15. Award of Excellence (佳作), 指導王盛弘與陳聯暘同學參加 Asia DSP Application Contest, Texas Instruments, Taiwan, 2006.
16. 佳作, 指導大五實習教師伍嘉崎同學參加台灣師範大學「實習教師心得寫作金筆獎比賽」, 2005.
17. Job Web Done Award, SiPix Imaging Inc., CA, USA, 2002.

## Running Projects (執行中計畫):

1. 彩色電泳顯示器控制晶片設計(I) , 科技部, 主持人, 2014/8-2015/7, 執行中。
2. 三維視覺系統晶片平台開發, 國科會, 主持人, 2011/8-2014/10, 執行中。
3. 多人即時眼動儀系統設計, 台師大頂尖計畫分項計畫, 主持人, 2011/4 – 2015/12, 執行中。

## Finished Projects (已結案計畫):

1. 彩色軟性電子紙關鍵技術開發計畫 (3/3), 國科會與矽詮科技(SiPix)股份有限公司, 先導型產學合作計畫, 主持人, 2011/8-2013/7, 已結案(NT\$ 1,254,000)。
2. 有機薄膜電晶體陣列之電泳顯示器驅動系統設計, 國科會, 主持人, 2011/8-2013/7, 已結案(NT\$ 1,637,000)。
3. iSafety 智慧行車安全關鍵技術整合開發計畫之 HDR 高動態範圍攝影技術, 台灣瑞薩電子股份有限公司, 主持人, 2011/6-2012/6, 已結案。
4. 面板系統設計與 layout 設計, 工研院, 主持人, 2011/1-2011/12, 已結案。
5. 應用於口腔癌早期診斷之新型繼光鏡掃描式超頻譜生醫影像擷取與快速分析系統(1/3), (2/3), (3/3) 國科會, 共同主持人, NSC 98-2218-E-039-001, 99-2218-E-039-001, 2009/11-2012/10, 已結案。
6. 多人即時眼動儀系統設計, 台師大頂尖計畫分項計畫, 主持人, since 2011/9 – 2012/3, 已結案。
7. 彩色軟性電子紙關鍵技術開發計畫 (2/3), 國科會與矽詮科技(SiPix)股份有限公司, 先導型—整合型產學合作計畫, 總主持人 (共同主持人: 台大電機李嗣涔校長、台大電機劉致為教授、台師大應用電子蘇崇彥教授、台師大光電所李敏鴻教授), NSC 98-2622-E-003 -001 -CC1 (NT\$ 1,428,840), 2009/8-2011/07. 已結案。
8. 有機薄膜電晶體陣列之電泳顯示器驅動系統設計(I), 國科會, 主持人, NSC 99-2221-E-003 -028, 2010/8-2011/07, (NT\$ 718,000), 已結案。
9. 10.7 吋 OTFT-EPD 驅動系統製作, 工研院, 主持人, 2010/1-2010/12, 已結案。
10. 三維立體視覺之物件距離估計與影像重建技術開發, 東元電機, 主持人, 2010/1-2010/12, 已結案。
11. 居家型護理機器人系統設計 - 智慧型即時診斷系統晶片平台設計, 國科會, 主持人, 96-2221-E-003-013-MY3, 2007/8-2010/07, 已結案. (NT\$ 1,546,000)。
12. 彩色軟性電子紙關鍵技術開發計畫 (1/3), 國科會與矽詮科技(SiPix)股份有限公司, 先導型—整合型產學合作計畫總主持人 (共同主持人: 台大電機李嗣涔校長、台大電機劉致為教授、台師大應用電子蘇崇彥教授、台師大光電所李敏鴻教授), NSC 97-2622-E-003 -003 -CC1 (NT\$ 2,585,000)。
13. OTFT Driving System Power Board 設計, 工研院電光所, 主持人, 2009/9 - 2009/12, 已結案。
14. 國科會高瞻計畫(大安高工)—子計畫三:新興科技融入高職電機技術領域課程研究發展實驗計畫, 共同主持人. 95-2514-S-586-003-GJ, 2006/8/1 – 2009/7/31. 已結案。
15. 電子紙驅動系統製作, 工研院電光所, 主持人, 2009/03 - 2009/06, 已結案。
16. 智慧型機器人視覺系統晶片平台設計, 國科會, 主持人, NSC 95-2221-E-003 -018 -MY2, 2006/8-2008/07, 已結案. (NT\$ 1,226,000)
17. 電泳式軟性顯示器之電子系統應用研究, 矽詮科技(SiPix)股份有限公司, 主持人, 2008/04-2008/09. 已結案
18. OTFT-EPD 系統建立與圖案顯示-, 工研院電光所, 主持人, 2008/06-2008/11 已結案。
19. 以系統晶片平台實現行動機器人模糊影像辨識系統之研究, 台灣師大新進教師計畫, 主持人 2007/02-2008/01 已結案. (NT \$190,000)

20. 智慧型居家機器人系統，國立臺灣師範大學九十六年度添購大項儀器設備申請案，主持人，已結案.
21. 智慧型居家環境系統，國立臺灣師範大學九十五年度添購大項儀器設備申請案，主持人，已結案.  
(NT \$3,500,000)
22. 掌上型居家照護系統之整合實作，指導張善婷同學執行國科會大專學生參與專題研究計畫，已結案.  
(NT 37,000)
23. 遠距居家照護系統設計-子計劃四隨身照護系統晶片平台設計 (III)，國科會，主持人，  
95-2218-E-003-005, 2006/10-2007/09, 已結案. (NT\$ 675,000)
24. 遠距居家照護系統設計-子計劃四隨身照護系統晶片平台設計 (II)，國科會，主持人，  
NSC94-2218-E-003-002, 2005/10-2006/09, 已結案. (NT\$ 568,000)
25. 以系統晶片平台實現可攜式心電圖與心音圖診斷系統，台灣師大新進教師計畫，主持人  
2006/02-2006/7, 已結案. (NT \$180,000)
26. 晶片系統架構技術及開發平台研究之推動(3/3)計畫之附屬計畫九-數位相機之影像辨認系統，國科會，主持人 NSC93-2215-E-002-010/009, 2004/08-2005/07, 已結案. (NT \$ 246,000)
27. 遠距居家照護系統設計-子計劃四隨身照護系統晶片平台設計 (I)，國科會，主持人，  
NSC93-2218-E-003-003, 2004/10-2005/09, 已結案. (NT \$513,000)
28. 數位相機內嵌式軟體系統平台，台灣師大新進教師計畫，主持人 2004/08-2005/7, 已結案. (NT \$146,000)
29. 數位相機與動態影像相關技術開發計畫，矽峰光電科技公司，主持人，已結案. (NT 363,000)

## Services (校內外服務):

### **Part A. 校外服務**

1. 複審委員，國科會工程處微電子學門，2011-2013.
2. 高職評鑑訪評委員 2008, 2009, 2012, 2013, 2014.
3. 審查委員，MG+4C 垂直整合推動專案計畫，科技部科學園區管理局
4. 審查委員，主導性新產品開發計畫，經濟部工業局
5. 審查委員，科技研究發展專案，經濟部技術處
6. 面試委員，教育部公費留學考試，2010.
7. 召集人，全國高級中等學校工業類科學生技藝競賽電腦修護職種，2006-2009, 2011.
8. 工程處計畫評審委員，行政院國家科學委員會.
9. 科教處計畫評審委員，行政院國家科學委員會.
10. 兼任特聘研究員，財團法人工業技術研究院，2010.

### **Part B. 校內服務 (兼行政主管)**

1. 院長，國立台灣師範大學進修推廣學院，2013.8 ~
2. 系主任，國立台灣師範大學應用電子科技學系，2010.8 ~ 2013.7.
3. 組長，國立台灣師範大學 - 研究發展處 - 產學合作組，2008.1 ~ 2009.1.