國立宜蘭大學教師個人基本資料表

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胡 懷 祖

Hwai-Tsu Hu

最高學歷/起迄：美國佛羅里達大學電機博士(1990-1993)

現職/起迄：國立宜蘭大學電子工程學系教授 (1998.8~)

到任年月份：1993.8

研究領域：

1. 語音、音訊、影像信號處理
2. 雛形晶片設計
3. 通訊工程

■研究

研究成果（近六年）

一、期刊論文：

(若期刊屬於 SCI、EI、SSCI、TSSCI、EconLit 或 A&HCI 等時，請註明)

1. Hwai-Tsu Hu, Jieh-Ren Chang and Ling-Yuan Hsu (2016), "Robust blind image watermarking by modulating the mean of partly sign-altered DCT coefficients guided by human visual perception," accepted for publication in *Circuits Syst. AEU - International Journal of Electronics and Communications*, [SCI: MOST 104-2221-E-197-023].

2. Hwai-Tsu Hu and Ling-Yuan Hsu (2016), "Supplementary schemes to enhance the performance of DWT-RDM-based blind audio watermarking," accepted for publication in *Circuits Syst. Signal Process*, [SCI: MOST 104-2221-E-197-023].

3. Hwai-Tsu Hu and Ling-Yuan Hsu (2016), "Incorporating Spectral Shaping Filtering into DWT-Based Vector Modulation to Improve Blind Audio Watermarking," *Wireless Personal Communication*, DOI 10.1007/s11277-016 -3178-z, [SCI: MOST 103-2221-E-197-020].

4. Hwai-Tsu Hu and Ling-Yuan Hsu (2016), "Collective blind image watermarking in DWT-DCT domain with adaptive embedding strength governed by quality metrics," *Multimedia Tools Application*, DOI 10.1007/s11042-016-3332-3, [SCI: MOST 103-2221-E-197-020].

5. Hwai-Tsu Hu and Ling-Yuan Hsu (2016), "A mixed modulation scheme for blind image watermarking," *AEU - International Journal of Electronics and Communications*, Vol. 70, pp. 172–178. [SCI: MOST 103-2221-E-197-020].

6. Hwai-Tsu Hu and Ling-Yuan Hsu (2016), "A DWT-Based Rational Dither Modulation Scheme for Effective Blind Audio Watermarking," *Circuits Syst. Signal Process*, Vol. 32,

No. 2, pp. 553-572. [SCI: NSC 103-2221-E-197-020.]

7. Hwai-Tsu Hu and Ling-Yuan Hsu (2015), "Robust glottal closure instant detection by jointly exploiting stationary wavelet transform and harmonic superposition," *International Journal of Speech Technology,* Vol. 18, No. 4, pp 685-695. [EI: MOST 102-2221-E-197-020.]

8. Ling-Yuan Hsu and Hwai-Tsu Hu[*] (2015), "Blind image watermarking via exploitation of inter-block prediction and visibility threshold in DCT domain," *J. Vis. Commun. Image R.*, Vol. 32, pp. 130–143. [SCI: MOST 103-2221-E-197-020.]

9. Hsien-Hsin Chou, Ling-Yuan Hsu and Hwai-Tsu Hu (2015), "Multi-level adaptive switching filters for highly corrupted images," Journal of Visual Communication and Image Representation, Vol. 30, pp. 363–375.

10. Hwai-Tsu Hu and Ling-Yuan Hsu (2015), "Robust, transparent and high-capacity audio watermarking in DCT domain," *Signal Processing*, Vol. 109, pp. 226–235. [SCI: NSC 103-2221-E-197-020.]

11. Hwai-Tsu Hu and Ling-Yuan Hsu (2015) "Exploring DWT-SVD-DCT feature parameters for robust multiple watermarking against JPEG and JPEG2000 compression," *Computers & Electrical Engineering*, Vol. 41, pp. 52-63. [SCI: NSC 103-2221-E-197-020.]

12. Hwai-Tsu Hu, Hsien-Hsin Chou and Ling-Yuan Hsu (2014) "Perceptual-based DWPT-DCT framework for selective blind audio watermarking," *Signal Processing*, Vol. 105, pp. 316–327. [SCI: NSC 101-2221-E-197-033]

13. Hwai-Tsu Hu, Hsien-Hsin Chou and Ling-Yuan Hsu (2014) "The Use of Highpass Filtered Time-Spread Echo for Pitch Scaling Detection," *IEICE Trans. Fundamentals*, Vol. E97–A, No. 7, pp. 1623-1626. [SCI: NSC101-2221-E-197 -033 and NSC102-2221-E-197-020]

14. Ching-Hsuan Ku, Hwai-Tsu Hu[*] and Ling-Yuan Hsu (2014) "An image watermarking technique developed on the DWT-SVD-DCT domain," *International Journal of Advanced Information Technology*, Vol. 8, No. 1, pp. 86–91. [SCI: NSC 101-2221-E-197-033]

15. Hwai-Tsu Hu, Ling-Yuan Hsu and Hsien-Hsin Chou (2014) "Variable-dimensional vector modulation for perceptual-based DWT blind audio watermarking with adjustable payload capacity," *Digital Signal Processing*, Vol. 31, pp. 115–123. [SCI: NSC 101-2221-E-197-033]

16. Hwai-Tsu Hu, Hsien-Hsin Chou, Chu Yu and Ling-Yuan Hsu (2014) "Incorporation of perceptually adaptive QIM with singular value decomposition for blind audio watermarking," *EURASIP Journal on Advances in Signal Processing*, Vol. 2014, No. 12, pp. 1-12. (doi:10.1186/1687-6180-2014-12) [**SCI**: NSC 101-2221-E-197-033]

17. Hsien-Hsin Chou, Ling-Yuan Hsu, and Hwai-Tsu Hu (2013) "Turbulent-PSO Based Fuzzy Image Filter With No-Reference Measures for High-Density Impulse Noise," *IEEE Trans. Systems, Man, and Cybernetics―Part B: Cybernetics*, Vol. 43, No. 1, pp. 296-307.

18. Hwai-Tsu Hu and Chu Yu (2012) "A Perceptually Adaptive QIM Scheme for Efficient Watermark Synchronization," *IEICE Trans. Inf. and Syst.*, Vol. E95- D, No. 12, pp. 3097-3100. [**SCI**: NSC 101-2221-E-197-033]

19. Hwai-Tsu Hu and Wei-Hsi Chen (2012) "A dual cepstrum-based watermarking scheme with self-synchronization", *Signal Processing*, Vol. 92, pp. 1109-1116. [**SCI**: NSC 98–2221-E-197-019]

20. Hwai-Tsu Hu and Chu Yu (2012) "A HMM-WDLT framework for HNM-based voice conversion with parametric adjustment in formant bandwidth, duration and excitation" *International Journal of Speech Technology*, Vol. 15, No. 2, pp. 215-225, pp. 31-44. [**EI**: NSC96-2221-E-197-020-MY2 & NSC98-2221-E-197 -019]

21. Hu, H. T. and Yu, C. (2010) "Narrowband-to-wideband expansion of telephony speech using piecewise deviation linear transformation", *International Journal of Electrical Engineering*, Vol. 17, No. 1, pp. 7-17. [**EI**: NSC96-2622-E-197- 005-CC3]

☐

二、研討會論文：

1. Ling-Yuan Hsu, Hwai-Tsu Hu and Hsien-Hsin Chou, "An effective blind image watermarking based on inter-blocks estimation and quantization index modulation" in 12th International Conference on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD 2016), 13-15 August, 2016.
2. 張育榮、胡懷祖 "結合類神經網路之跨區塊預測能力以及人眼視覺特性改進影像盲浮水印效能", WCE2015 民生電子研討會，28 Nov, pp. CC-014, 2015.
3. Hwai-Tsu Hu, Ling-Yuan Hsu, Sheng-Yu Lai and Yu-Jung Chang, "The use of spectral shaping to extend the capacity for DWT-based blind audio watermarking" in 5th Int. Conf. on IT Convergence and Security (ICITCS), 24-27 August, 2015.
4. 徐鈴淵、胡懷祖、張育榮 "利用類神經網路之跨區塊預測能力改進影像盲浮水印效能", WCE2013 民生電子研討會，29 Nov, pp. 423-426, 2014.
5. Hwai-Tsu Hu, Szu-Hong Chen and Ling-Yuan Hsu, "Incorporation of Perceptually Energy-Compensated QIM into DWT-DCT Based Blind Audio Watermarking", in 10th Int. Conf. on Intelligent Information Hiding and Multimedia Signal Processing (IIH-MSP), 27-29 August, pp. 748-752, 2014.
6. Hwai-Tsu Hu, Yu-Jung Chang, Szu-Hong Chen, "A Progressive QIM to Cope With SVD-based Blind Image Watermarking in DWT Domain," in 2nd IEEE China Summit & International Conference on Signal and Information Processing (ChinaSIP), 9-13 Jul, pp. 421-425, 2014.
7. 陳思宏、胡懷祖 "於低訊噪比環境下之雙參數語音活動偵測及自適應式背景噪音消除", ETS2014 第七屆電子工程技術研討會論文集， 23 May, pp. 570-573, 2014.
8. Hwai-Tsu Hu, Ching-Hsuan Ku, Szu-Hong Chen, "Exploiting Psychoacoustic Properties to Achieve Transparent and Robust Audio Watermarking", in International Conference on Information Science and Applications (ICISA), 24-26 June, pp. 305-309, 2013.
9. 胡懷祖、黎萬群、陳思宏 "結合自適應量化索引調變與支持向量機篩選功能之音訊浮水印", WCE2013 民生電子研討會，22-23 Nov, G_010_A, 2013.
10. 辜慶軒、胡懷祖、張育榮 "基於 DWT-SVD-DCT 轉換的浮水印嵌入技術", WCE2013 民生電子研討會， 22-23 Nov, B_181_A, 2013.
11. 范景超、胡懷祖、陳思宏、辜慶軒 "運用類神經網路分析眼瞼上結膜圖譜以預估貧血狀況", ITAMC2013 資訊技術應用及管理研討會, 31 May, C3-3, 2013.
12. Hwai-Tsu Hu and Wan-Cyun Li, "A Perceptually Adaptive and Retrievable QIM Scheme for Efficient Blind Audio Watermarking", in International Conference on Information Science and Applications (ICISA), 23-25 May, pp. 51-55, 2012.
13. 陳威錫、胡懷祖、辜慶軒, "結合 SIFT 與顯著區域參數之影像浮水印嵌入法", WCE2011 民生電子研討會，11 November, pp. 196-201, 2011.

14. 黎萬群、張詠筌、胡懷祖, "依憑心理聲響模型之小波包裹自調性數位浮水印技術",
    2010NST 全國電信研討會, 3-4 December, No. 452, 2010.

三、其他著作或專利:

四、五年內之研究計畫（2011.8～2016.7）:

起迄年月	研究計畫名稱	主持人/共同主持人	計畫經費	補助單位
2011/08/01～2012/10/31	依循心理聲響特性之自調性複域音訊浮水印技術	主持人	497,000 元	科技部
2012/08/01～2013/10/31	具對抗時間縮放攻擊之離散小波域自調適音訊浮水印技術	主持人	618,000 元	科技部
2013/08/01～2014/10/31	以定態小波與諧波重疊之技術從語音信號中測定聲門關閉瞬間	主持人	647,000 元	科技部
2014/08/01～2015/10/31	以可變酬載之全方位架構實現盲音訊浮水印	主持人	529,000 元	科技部
2015/08/01～2016/10/31	以「激源－濾波」複合嵌入策略達成高效能之語音盲浮水印	主持人	699,000 元	科技部

■ 教學

五、三年內（2013~16）開授課程:

學年度	課程名稱(必/選)	選修人數
104 上	數位信號處理（選）	5
104 下	信號與系統（必）	50
103 上	信號與系統（必）	41
103 下	信號與系統（必）	44
103 下	類神經網路（選）	14
102 上	信號與系統（必）	45
102 下	語音信號處理（選）	20

六、三年內指導研究生狀況:

學年度	碩士班(人)	博士班(人)	畢業人數	
			碩士	博士
102	2	0	1	0
103	2	0	1	0
104	2	0	1	0

■ 服務

七、三年內校內校、院、系(所、科及中心)各級公共事務參與：

年月	校/院/系級	項目
89. 8 ~ 93. 1	系級	系主任
96. 8 ~ 99. 7	校級	研發長
99. 12 ~ 106	院級	電機資訊學院 院長

八、三年內專業學術服務工作項目：

年月	校內/校外	項目
2015/08	校外	5th International Conference on IT Convergence and Security (August 24-27 , 2015)/ Session Chair
2015/10	校外	2015 跨領域「提升台灣人才競爭力」高峰論壇 (2015/10/2) / 大會主席/ Website➔ http://ttc2015.niu.edu.tw/
2014/07	校外	2nd IEEE China Summit & International Conference on Signal and Information Processing (July 9-13, 2014) / Session Chair/
2014/11	校外	2014 民生電子研討會(2014/11/29)/ 特別議程主持人/ Website➔ http://wce2014.thu.edu.tw/
2013/11	校外	2013 民生電子研討會(2014/11/22~23)/ 大會主席/ Website➔ http://wce2013.niu.edu.tw/
2014/08	校外	International Conference on Communications and Robotics 2014 (CARE'14) (August 27-29, 2014) / Conference Chair/ Website➔ http://care2014.niu.edu.tw/
2013~2018	校外	「華人資訊語文競技與創意設計大賞 各項競賽之台灣全國賽暨兩岸賽」大會組織委員會 工作委員
2013~2016	校外	中原大學電子工程學系「工程科技教育認證」諮詢委員
2013~2016	校外	淡江大學新設課程外審委員

■ 教學與研究獎勵

九、教學與研究獎勵事蹟：

學年度	校內/校外	項目
2013 年	校內	教學卓越計畫績優獎-特優
2016 年	校內	延攬及留住特殊優秀人才獎勵
2016 年	校外	宜蘭市教育會頒特殊優秀教師