

國立宜蘭大學教師個人基本資料表

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C.W. Tao

最高學歷/起迄：美國新墨西哥州立大學電機博士(1989-1992)

現職/起迄：國立宜蘭大學電機工程學系教授 (2002.8~)

到任年月份：1993.8

研究領域：Fuzzy Control, Fuzzy Image Processing, Robust Control



研究

近五年研究成果 (1999.8~2004.7)

一、期刊論文：

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

[1] C.W. Tao, J.S. Taur, and M.L. Chan, "Adaptive Fuzzy Terminal Sliding Mode Controller for Bilinear Systems with Mismatched Time-Varying Uncertainties", *IEEE Trans. on Man, Systems, and Cybernetics (B)*, Vol. 34(1), pp. 255-262, February 2004 (SCI)

[2] C.W. Tao, W.Y. Wang, and M.L. Chan, "Design of Sliding Mode Controllers for Bilinear Systems with Time-Varying Uncertainties", *IEEE Trans. on Man, Systems, and Cybernetics (B)*. (SCI)

[3] C.W. Tao, and J.S. Taur, "An Approach for The Robustness Comparison Between Piecewise Linear PID-Like Fuzzy and Classical PID Controllers", *Soft Computing (Springer-Verlag)*, Vol.9, No. 6, pp.430-438, June 2005. (SCI)

[4] V. Kreinovich, and C.W. Tao, "Checking Identities is Computationally Intractable (Nondeterministic Polynomial-Hard) and Therefore Human Provers will Always Be Needed", *International Journal of Intelligent Systems*. (SCI)

[5] C.W. Tao, M.L. Chan, and T.T. Lee, "Adaptive Fuzzy Sliding Mode Controller for Linear Systems with Mismatched Time-Varying Uncertainties", *IEEE Trans. on Man, Systems, and Cybernetics (B)*, vol. 33(2), 2003. (SCI)

[6] C.W. Tao, "Robust Control of Systems with Fuzzy Representation of Uncertainties", *Soft Computing (Springer-Verlag)*. (SCI)

[7] H.T. Nguyen, V. Kreinovich, G. Solopchenko, and C.W. Tao, "Why Two Sigma? A

Theoretical Justification", *Soft Computing in Measurement and Information Acquisition*, 10-22, Springer-Verlag, 2003.

[8] **C.W. Tao**, "A Reduction Approach for Fuzzy Rule Bases of Fuzzy Controllers", *IEEE Trans. on Man, Systems, and Cybernetics (B)*, Vol. 32(5), 2002. (SCI)

[9] **C.W. Tao**, "Adaptive Fuzzy PIMD Controller for Systems with Uncertain Deadzones", *IEEE Trans. on Man, Systems, and Cybernetics (A)*, vol. 32(5) (SCI).

[10] **C.W. Tao**, "Fuzzy Control for Linear Plants with Uncertain Output Backlashes", *IEEE Trans. on Systems, Man, and Cybernetics*, part B, Vol. 32, No. 3, June 2002. (SCI).

[11] **C.W. Tao**, "Unsupervised Fuzzy Clustering with Multi-Center Clusters", *Fuzzy Sets and Systems*, Vol. 128, 305-332, 2002. (SCI).

[12] **C.W. Tao**, "Designs and Analyses of Various Fuzzy Controllers with Region-Wise Linear PID Subcontrollers", *International Journal of Intelligent Systems*, Vol. 16, No. 12, 1393-1417, 2001. (SCI)

[13] **C.W. Tao** and J.S. Taur, "Fuzzy Adaptive Approach to Fuzzy Controllers with Spatial Model", *Fuzzy Sets and Systems*, Vol. 125, No. 1, 61-77, 2002. (SCI)

[14] **C.W. Tao**, "Comments on "Reduction of Fuzzy Rule Base Via Singular Value Decomposition", *IEEE Trans. on Fuzzy Systems*, Vol 9, No. 4, 675-676, August 2001. (SCI)

[15] **C.W. Tao**, "Simplification of A Fuzzy Mechanism with Rule Combination", *Soft Computing, Springer Verlag*, Vol. 5, No. 6, 418-425, December, 2001. (SCI)

[16] J.S. Taur and **C.W. Tao**, "Nested Design of Fuzzy Controllers with Partial Fuzzy Rule Base", *Fuzzy Sets and Systems*, Vol. 120, 1-15, 2001. (SCI)

[17] **C.W. Tao**, "Redundant Fuzzy Sets of The Easy-T Type Fuzzy Controllers", *Journal of National IILan Institute of Technology*, No. 6, 57-67, 2001.

[18] R. Osegueda, S. Seelam, A. Holguin, V. Kreinovich, **C.W. Tao**, and H.T. Nguyen, "Statistical and Dempster-Shafer Techniques in Testing Structural Integrity of Aerospace Structures", *International Journal of Uncertainty, Fuzziness, and Knowledge-Based Systems*, Vol. 9, No. 6, 749-758, 2001. (SCI)

[19] **C.W. Tao** and J.S. Taur, "Flexible Complexity Reduced PID-Like Fuzzy Controllers", *IEEE Trans. on Systems, Man, and Cybernetics*, Part B, Vol. 30, No. 4, pp. 510-516, August 2000. (SCI)

[20] **C.W. Tao** and J.S. Taur, "On the Robustness of Stability of Fuzzy Control Systems", *Journal of Intelligent and Fuzzy Systems*, 9(2000), 159-168. (SCI)

[21] **C.W. Tao** and J.S. Taur, "A New Design Approach for Fuzzy-Learning Fuzzy Controller", *Asian Journal of Control*, Vol. 2, No. 3, pp. 212-218, Sept., 2000. (SCI)

[22] J.S. Taur and **C.W. Tao**, "A New Neuro-Fuzzy Classifier with Application to

On-Line Face Detection and Recognition", *Journal of VLSI Signal Processing Systems*, Vol. 26, No. 3, November 2000. (SCI)

[23] M.L. Chan, **C.W. Tao**, and T.T. Lee, "Sliding Mode Controller for Linear Systems with Mismatched Time-Varying Uncertainties", *Journal of The Franklin Institute*, 337(2000), pp. 105-115. (SCI)

[24] **C.W. Tao** and J.S. Taur, "Design of Fuzzy Controllers with Adaptive Rule Insertion", *IEEE Trans. on Systems, Man, and Cybernetics*, Part B, Vol. 29, No. 3, pp. 389-397, June 1999. (SCI)

[25] **C.W. Tao** and J.S. Taur, "A Decomposition-Based Design Approach of Fuzzy Controllers", *Journal of National IILan Institute of Technology*, No. 3, pp. 87-94, December 1999.

[26] J.S. Taur and **C.W. Tao**, "Fuzzy Model Based Approach to the Design of PID Controllers for Temperature Control Systems", *International Journal of Intelligent Control and Systems*, Vol. 3, No. 1, pp. 93-104, March 1999.

[27] R. Mamlook, **C.W. Tao**, and W.E. Thompson, "An advanced fuzzy controller", *Fuzzy Sets and Systems*, 103(1999), pp. 541-545. (SCI).

[28] J.S. Taur and **C.W. Tao**, "Texture Classification Using a Fuzzy Texture Spectrum and Neural Networks", *Journal of Electronic Imaging*, Vol. 7, No. 1, pp. 29-35, January 1998. (SCI)

[29] J.S. Taur and **C.W. Tao**, "Design and Analysis of Region-Wise Linear Fuzzy Controllers", *IEEE Trans. on Systems, Man, and Cybernetics*, Part B, Vol. 27, No. 3, pp. 526-532, June 1997.(SCI)

[30] **C.W. Tao** and J.S. Taur, "Design and Analysis of a New PID Fuzzy Controller", *Journal of the Chinese Institute of Engineers*, Vol. 19, No. 2, pp. 193-204, March 1996. (SCI)

二、研討會論文：

[1] **C.W. Tao**, W.E. Thompson, and J.S. Taur, "A fuzzy if-then approach to edge detection," *Proc. of IEEE International Conference on Fuzzy Systems*, San Francisco, March 1993.

[2] **C.W. Tao**, W.E. Thompson, and J.S. Taur, "A fuzzy logic approach to multidimensional target tracking," *Proc. of IEEE International Conference on Fuzzy Systems*, San Francisco, March 1993.

[3] **C.W. Tao**, J.S. Taur, H.C. Kuo, J.C. Wu, and W.E. Thompson, "An estimator based on fuzzy if-then rules for the multisensor multidimensional multitarget tracking problem," *Proc. of IEEE International conference on Fuzzy Systems (FUZZ 94)*, 1994.

[4] **C.W. Tao**, J.S. Taur, H.C. Kuo, J.C. Wu, and W.E. Thompson, "An estimator based on fuzzy if-then rules for phasor tracking," *Proc. of IEEE International conference on*

Fuzzy Systems (FUZZ 94), 1994.

[5] **C.W. Tao** and J.S. Taur, "Fuzzy proximate time-optimal control," *Proc. of The 2nd National Conference on Fuzzy Theory and Applications*, pages 140--144, 1994.

[6] J.S. Taur, D.S. Lin, E.F. Wood, and **C.W. Tao**, "Multispectral land cover classification of spot imagery using neural networks," *Proc. of International Symposium on Artificial Neural Networks*, 440--445, Tainan, Taiwan, Dec. 1994.

[7] **C.W. Tao** and J.S. Taur, "A robust fuzzy control of a nonlinear magnetic ball suspension system," *Proc. of International IEEE/IAS Conference on Industrial Automation and Control*, pages 365--369, May 1995.

[8] **C.W. Tao** and J.S. Taur, "Temperature control of a plastic extrusion barrel using PID fuzzy controllers," *Proc. of International IEEE/IAS Conference on Industrial Automation and Control*, pages 370--375, May 1995.

[9] J.S. Taur, **C.W. Tao**, and M.C. Jiang, "A region-wise linear fuzzy controller," *Proc. of The R.O.C. Automatic Control Conference*, pages 228--232, 1995.

[10] J.S. Taur and **C.W. Tao**, "Digit recognition using fuzzy decision neural networks," *Proc. of The International Symposium on Artificial Neural Networks*, pages D3.01 - D3.06, Tainan, Taiwan. December 1995.

[11] **C.W. Tao** and J.S. Taur, "Alternative equivalent designs of fuzzy controllers," *Proc. of IEEE International conference on Fuzzy Systems (Fuzz96)*, September 1996.

[12] J.S. Taur and **C.W. Tao**, "Medical image compression using principal component analysis," *Proc. of International Conference on Image Processing*, September 1996.

[13] J.S. Taur and **C.W. Tao**, "Temperature control using adaptive fuzzy controllers", *Proc. of International Symposium on Multi-Technology Information Processing*, pg. 309--314, Hsinchu, Taiwan December 1996.

[14] J.S. Taur and **C.W. Tao**, "Design of parameters for PID controllers based on the fuzzy techniques", *Proc. of 10th National Automation Technology*, pp. 599-606, 1997.

[15] J.S. Taur and **C.W. Tao**, "Fuzzy Texture Spectrum for Texture Classification", *Proc. of International Symposium on Multimedia Information Processing*, pp. 50-55, December 1997.

[16] **C.W. Tao** and J.S. Taur, "Design of Fuzzy-Learning Fuzzy Controllers", *Proc. of The Fifth National Conference in Fuzzy Theory and Applications*, pp.428-433, Tainan Taiwan, December 1997.

[17] **C.W. Tao** and J.S. Taur, "Nested Design of Fuzzy Controllers with Partial Fuzzy Rule Base", *Proc. of IEEE International conference on Fuzzy Systems (Fuzz98)*, Alaska, May 1998.

[18] J.S. Taur and **C.W. Tao**, "Neuro-Fuzzy Classifiers with Adjustable Rule Importance", *Proc. of The Sixth National conference on fuzzy theory and its applications*, 1998.

- [19] J.S. Taur and **C.W. Tao**, “Face Detection Using Neuro-Fuzzy Classifier,” *Proc. of International Symposium on Multimedia Information Processing*, pp.309-314, December 1998.
- [20] **C.W. Tao** and J.S. Taur, “A Decomposition Design Approach of Fuzzy Controllers,” *Proc. of R.O.C. Automatic Control Conference*, pp. 87-92, 1999.
- [21] M.C. Chan, **C.W. Tao**, and T.T. Lee, “Design of A Sliding Mode Controller for Linear Systems with Mismatched Time Varying Uncertainties,” *Proc. of R.O.C. Automatic Control Conference*, 1999.
- [22] J.S. Taur and **C.W. Tao**, “An On-line Face Detection and Recognition System Using Neuro-Fuzzy Classifier,” *Proc. of International Symposium on Multimedia Information Processing*, pp.297-302, December 1999.
- [23] **C.W. Tao** and J.S. Taur, “Simplification of A Fuzzy Mechanism with the Vector Representation of Fuzzy Rules,” *Proc. of the Eighth International Fuzzy Systems Association World Congress*, pp. 1077-1081, 1999.
- [24] J.S. Taur, **C.W. Tao**, C.C. Chen, and C.W. Yang, “Automatic Segmentation of Psoriasis Images Using Neuro-Fuzzy Techniques,” *Proc. of 2000 International Computer Symposium*, pp. 163-170, National Chung Cheng University, Taiwan, Dec. 6-8, 2000.
- [25] **C.W. Tao** and J.S. Taur, “Design and Analysis of Various Fuzzy Controllers with Region-wise Linear PID Subcontrollers,” *Proc. of International Conference on Intelligent Technologies (InTech'2000)*, Bangkok, Thailand, pp. 405-408, Dec. 13-15, 2000.
- [26] **C.W. Tao** and J.S. Taur, “Fuzzy Control for Systems with Uncertain Deadzones,” *Proc. of International Workshop on Intelligent Systems Resolutions 8th Bellman Continuum*, pp. 250-254, National Tsing Hua University, Taiwan, Dec. 11-12, 2000.
- [27] H.T. Nguyen, V. Kreinovich, and **C.W. Tao**, “Why 95 Percent and Two Sigma? A Theoretical Justification for An Empirical Measurement Practice,” *Proc. of the International Workshop on Intelligent Systems Resolutions*, National Tsing Hua University, Taiwan, Dec. 11-12, 2000.
- [28] V. Kreinovich, and **C.W. Tao**, “Checking Identities Is Computationally Intractable (NP-Hard),” *Proc. of International Conference on Intelligent Technologies (InTech'2000)*, Bangkok, Thailand, pp. 24-27, Dec. 13-15, 2000.
- [29] **C.W. Tao**, and J.S. Taur, “A Reduction Approach for Fuzzy Rule Bases of Fuzzy Controllers,” *Proc. of The Eighth National Conference on Fuzzy Theory and its Applications*, 2000.
- [30] **C.W. Tao**, “Robust Control of A Fuzzy Uncertain Plant,” *Proc. of The Second Vietnam-Japan Bilateral Symposium on Fuzzy Systems and Applications*, 2001.
- [31] **C.W. Tao**, “Adaptive Fuzzy PSMD Controller for Linear Systems with Uncertain Backlash,” *Proc. of R.O.C. Automatic Control Conference*, 2002.

- [32] **C.W. Tao**, J.S. Taur, M.L. Chan, “Fuzzy Terminal Sliding Mode Controller for Linear Mismatched Systems,” *Proc. of The Tenth National Conference on Fuzzy Theory and Its Applications*, 2002.
- [33] Wei-Yen Wang, C.C. Hsu, and **C.W. Tao**, Y.H. Li, “A GA-Based Indirect Adaptive Fuzzy Neural Controller for Uncertain Nonlinear Systems,” *Proc. of The Tenth National Conference on Fuzzy Theory and Its Applications*, 2002.
- [34] **C.W. Tao**, M.L. Chan, Wei-Yen Wang, ”Robust Control of The Mismatched Uncertain Linear Systems with The Integral Sliding Mode Controller,” *Proc. of R.O.C. Automatic Control Conference*, 2003.
- [35] **C.W. Tao**, M.L. Chan, and W.Y. Wang, “Sliding Control for Linear Uncertain Systems,” *Proc. of IEEE Conference on Robotics and Automation*, 2003.
- [36] **C.W. Tao**, M.L. Chan, and Wei-Yen Wang, ”Robust Control of The Mismatched Systems with The Fuzzy Integral Sliding Controller,” *Proc. of The IEEE International conference on Systems, Man, and Cybernetics*, 2003.
- [37] H.C. Chen, J.S. Taur, and **C.W. Tao**, “Design of Fuzzy Controllers for An Unmanned Vehicle System,” *Prof. of The 12th National Conference on Fuzzy Theory and Its Applications*, 2004.
- [38] C.C. Tsai, J.S. Taur, and **C.W. Tao**, “Stroke Extraction of Chinese Characters Using Contour Analysis,” *Prof. of The 12th National Conference on Fuzzy Theory and Its Applications*, 2004.
- [39] J.S. Taur, C.M. Yang, and **C.W. Tao**, “Face Recognition with Random Sampling and Gabor Filter”, *Prof. of The 2002 Symposium on Digital Life and Internet Technologies*, National Cheng Kung University, June 27-28, 2002.
- [40] J.S. Taur, **C.W. Tao**, C.C. Chen, and C.W. Yang, “Segmentation of Psoriasis Vulgaris Images Using Orthogonal Subspace Techniques”, *Prof. of The Seventh National Conference on Artificial Intelligence and Applications*, pp. 667-671, Nov. 15, 2002.
- [41] P.W. Chu, J.S. Taur, and **C.W. Tao**, “Rail Environment Analysis of An Unmanned Vehicle with Visual Guidance”, *Prof. of The Ninth National Conference on Artificial Intelligence and Applications*, National Cheng-Chi University, Nov. 5-6, 2004.
- [42] Chung-Chih Tsai, J.S. Taur, and **C.W. Tao**, “Iris Recognition Using Gabor Filters And The Fractal Dimension”, *The 18th IPPR Conference on Computer Vision, Graphics and Image Processing*, Taipei, Aug. 21-23, 2005.
- [43] G.H. Lee, J.S. Taur, and **C.W. Tao**, “A Robust Fuzzy Support Vector Machine for Pattern Classification”, *The 10th National Conference on Artificial Intelligence and Applications*, Dec. 2-3, 2005.

三、其他著作或專利：

- [1] C.W. Tao, and J.S. Taur, "Analyses of Electrical Circuits (in Chinese)", Vol. 1.
 [2] C.W. Tao, and J.S. Taur, "Analyses of Electrical Circuits (in Chinese)", Vol. 2.
 [3] C.W. Tao, and J.S. Taur, "Automatic Control Experiments with VisSim"
 (in Chinese)

四、研究計畫：

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
95年8月~ 96年7月	適應性並行分散式模糊LQR控制器的設計	主持人	NT\$403,000	國科會
94年8月~ 95年7月	適應性並行分散式模糊滑動控制器的設計	主持人	NT\$443,000	國科會
93年8月~ 94年7月	模糊非線性不確定系統之強健性模糊滑動控制器的設計(I)	主持人	NT\$225,600	國科會
92年8月~ 93年7月	模糊系統之強健性模糊控制器的設計(III)	主持人	NT\$251,600	國科會
91年8月~ 92年7月	模糊系統之強健性模糊控制器的設計(II)	主持人	NT\$344,600	國科會
90年8月~ 91年7月	模糊系統之強健性模糊控制器的設計	主持人	NT\$245,700	國科會



■ 教學

五、三年內開授課程：

學年度	課程名稱(必/選)	選修人數
95	基礎矩陣分析、線性代數、影像處理、自動控制	共約 120
94	基礎矩陣分析、線性代數、模糊控制、類神經網路、自動控制	共約 200
93	基礎矩陣分析、線性代數、電路學(一)(二)	共約 200

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
95	2			
94	3			



■ 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
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2003.8~2006.7	校級	電算中心主任
2005.8~	校級	進修推廣部主任

八、三年內專業學術服務工作項目：

年月	校內/校外	項目
2006.10	校外	Financial Co-Chair of The IEEE International Conference on Systems, Man, and Cybernetics
2006.10	校外	Special Track Organizer of The IEEE International Conference on Systems, Man, and Cybernetics
2006.07	校外	Special Session Organizer of The IEEE International Conference on Fuzzy Systems (WCCI 2006)
2006.11	校外	Best Student Paper Award Committee of CACS 2006
2002.10	校外	Be the Program Chair and Host The 12 th National Conference on Fuzzy Systems and Its Applications at National ILan University



■ 教學與研究獎勵

九、三年內之教學與研究獎勵事蹟：

學年度	校內/校外	項目