教師簡介 Profile

姓名 Name	黃正自 Jeng-Tze Huang
職稱 Title	專任教授 Professor
教研室 Office	大義館 624-9 室
電話 Phone	02-28610511 ext 33324
傳真 Fax	02-28615241
電子郵件 E-mail	hzz4@ulive.pccu.edu.tw
個人網頁 Homepage	建構中
實驗室 Lab.	機電控制實驗室

主要學歷 Educations	國立交通大學電機與控制研究所博士
學界經歷 Experiences of academy	萬能科技大學電子工程系 教授 萬能科技大學電子工程系 副教授
業界經歷 Experiences of industry	華隆微電子 產品副工程師 工研院材料所感測材料組 副研究員
研究領域 Research interests	自動控制（Automatic control） 機電整合（Mechatronics） 智慧型機器人（Intelligent Robots）
教學課程 Teaching courses	自動化工程（Automation Engineering）
	機器人原理與實務（Robotics: Principle and Practice）
	機電整合概論（Introduction to Mechatronics）
	自動控制（Automatic Control）

研究計畫 (Research projects)

國科會/科技部 專題研究計畫案

19	112-2221-E-034 -002 – 計畫主持人：黃正自	四旋翼機之輸入受限適應性類神經控制設計與實踐
18	111-2221-E-034 -005 – 計畫主持人：黃正自	四旋翼機暫態限縮組合式適應性控制設計與實踐
17	110-2221-E-034 -014 – 計畫主持人：黃正自	四旋翼機之沉浸式強健適應性控制設計與實踐
16	109-2221-E-034 -003 – 計畫主持人：黃正自	非嚴格反饋系統適應性類神經控制與線上辨識設計
15	108-2221-E-034 -016 – 計畫主持人：黃正自	純反饋延遲系統之間接適應性類神經控制與應用
14	107-2221-E-034 -012 –	非嚴格反饋系統間接型適應性模糊狀態及輸出回授控制設計

	計畫主持人：黃正自	與應用
13	105-2221-E-034 -009 – 計畫主持人：黃正自	自走車之軌跡規劃與運動控制
12	104-2221-E-034 -002 – 計畫主持人：黃正自	全向輪型機器人之全域動態曲面 控制設計及可程式邏輯陣列實踐
11	102-2221-E-034-014- 計畫主持人：黃正自	嚴格回受系統之動態曲面類神經全域控制
10	101-2221-E-034-008- 計畫主持人：黃正自	嚴格回授系統全域適應性類神經控制設計及其在輪型機 器人防滑控制應用
9	100-2221-E-034-003- 計畫主持人：黃正自	機械手臂之連續及非連續切換控制設計
8	99-2218-E-009-004- 計畫共同主持人：黃正自	車用線傳電子煞車機制支研發（2/2）
7	99-2221-E-034-014- 計畫主持人：黃正自	系統參數未知下之全向輪型機器人路徑規劃與控制整合 設計
6	97-2221-E-034-019- 計畫主持人：黃正自	輪型機器人之指數收斂穩定器設計及實踐
5	97-2221-E-034-019- 計畫主持人：黃正自	可移動式機器人混模控制設計
4	96-2221-E-238-019- 計畫主持人：黃正自	結合類神經網路於可線性化系統之切換式強健適應性控 制及其在可移動式機器人之應用
3	95-2221-E-238-002- 計畫主持人：黃正自	結合系統參數預知範圍於機械手臂低速摩擦補償設計
2	93-2218-E-238-003- 計畫主持人：黃正自	伺服系統之高效率適應性控制設計
1	92-2213-E-238-003- 計畫主持人：黃正自	強恆跡方式下之低速摩擦適應性辨識設計

研究著作 (Publications)

一、期刊論文

[25] J.-T. Huang* and Y.-W. Jiang 2023. Composite adaptive neural tracking control of uncertain strict-feedback systems. *International Journal of Robust and Nonlinear Control*, vol. 33, Iss. 2, pp. 850-871 (SCI, IF:3.897).

[24] J.-T. Huang* and Y.-W. Jiang 2023. Composite adaptive neural tracking control of uncertain strict-feedback systems. *International Journal of Robust and Nonlinear Control*, vol. 33, pp. 850-871 (SCI, IF:3.897).

[23] J.-T. Huang* and C.-K. Chiu 2021. Adaptive fuzzy sliding mode control of omnidirectional mobile robots with prescribed performance. Processes, vol. 9(12), 2211. (SCI, IF:3.352).

[22] J.-T. Huang* and Y.-W. Jiang 2021. Robust composite adaptive control of linearisable systems with

improved performance, *IEEE Access*, vol. 9, pp. 88037-88047. (SCI, IF:3.367).

[21] J.-T. Huang* 2021. Global neuro-adaptive control of nonstrict-feedback systems with unknown control directions and multiple time delays. *Journal of the Franklin Institute*, vol. 358, pp. 533-554.

[20] J.-T. Huang* and Y.-C. Law, 2020, Adaptive fuzzy linearizing control of delayed MIMO nonstrict-feedback systems." *IEEE Transactions on Fuzzy Systems*, 49(6), 1-1.

[19] J.-T. Huang*, 2019, Adaptive fuzzy state/output feedback control of nonstrict-feedback systems: a direct compensation approach, IEEE Transactions on Cybernetics, 49(6), 2046-2058, Jun, 2019.

[18] J.-T. Huang* and Thanh-Phong Pham, 2017, Differentiation-free multi-switching neuroadaptive control of strict-feedback systems, IEEE Transactions on Neural Networks and Learning Systems, vol. 29, no. 4, pp. 1095-1107, Apr. 2018.

[17] J.-T. Huang*, T.-V. Hung, and M.-L. Tseng, 2015, Smooth switching robust adaptive control for omnidirectional mobile robots," IEEE Transactions on Control Systems Technology V. 23, p. 1986-1993. (SCI, 2015/10)

[16] J.-T. Huang*, 2015, Global adaptive neural dynamic surface control of strict-feedback systems, Neurocomputing, V. 165, p. 403-413. (SCI, 2015/09)

[15] J.-T. Huang*, 2012, Global tracking control of strict-feedback systems using neural networks, IEEE Transactions on Neural Networks and Learning Systems, V. 23, p. 1714-1725. (SCI, 2012/11)

[14] J.-T. Huang*, 2009, Hybrid-Based Adaptive NN backstepping control of strict-feedback systems, Automatica, V. 45, p. 1497-1503. (SCI, 2009/06)

[13] J.-T. Huang*, 2009, Adaptive tracking control of high-order nonholonomic mobile robot systems, IET Control Theory and Applications, V. 3, p. 681-690. (SCI, 2009/06)

[12] J.-T. Huang*, 2007, Parameter convergence for adaptive input-output linearizable systems: with applications to Chua's circuits, IET Control Theory and Applications, V. 1, p. 572-577. (SCI, 2007/03)

[11] J.-T. Huang*, 2007, Persistent excitation in a shunt DC motor under adaptive control, Asian Journal of Control, V. 9, p. 37-44. (SCI, 2007/01)

[10] J.-T. Huang* and Y. M. Chen , 2006, A smooth switching adaptive controller for linearizable systems with improved transient performance, International Journal of adaptive control and signal processing, V. 20, no. 9, p. 431-446. (SCI, 2006/09)

[9] J.-T. Huang*, 2006, Parametric identification for second-order nonlinear systems in closed-loop operations, ASME Journal of Dynamic Systems, Measurement, and Control, V. 128, no. 3, p. 686-690. (SCI, 2006/03)

[8] D.-C. Liaw*, C.-C. Song, and J.-T, Huang, 2004, Robust control of a centrifugal compressor with spool

dynamics, IEEE Transactions on Control Systems Technology, V. 12, pp. 966-972 . (SCI, 2004/12)

[7] J.-T. Huang*, 2003, A new approach to parametric identification of a single-link flexible-joint manipulator, Journal of Intelligent and Robotic Systems, V. 37, p. 273-284. (SCI, 2003/3)

[6] J.-T. Huang*, 2003, Sufficient conditions for parameter convergence in linearizable systems, IEEE Transactions on Automatic Control, V. 48, p. 878-880. (SCI, 2003/5)

[5] J.-T. Huang*, 2002, An adaptive compensator for a class of linearly parameterized systems, IEEE Transactions on Automatic Control, V. 37, p. 483-486. (SCI, 2002/3)

[4] D.-C. Liaw* and J.-T. Huang, 2001, Robust stabilization of axial flow compressor dynamics via sliding mode designs, ASME Journal of Dynamic Systems, Measurement, and Control, V. 123, p. 488-495. (SCI, 2001/3)

[3] D.-C. Liaw* and J.-T. Huang, 1998, Global stabilization of axial compressors using nonlinear cancellation and backstepping designs, International Journal of Systems Science, V. 29, p. 1345-1361. (SCI, 1998/12)

[2] D.-C. Liaw* and J.-T. Huang, 1998, Contact friction compensation for robots using genetic learning algorithms, Journal of Intelligent and Robotic Systems, V. 23, p. 331-349. (SCI, 1998/10)

[1] D.-C. Liaw* and J.-T. Huang, 1998, Fuzzy control for stall recovery of axial-flow compressor dynamics, Journal of Control Systems and Technology, V. 6, p. 231-241. (SCI, 1998/04)

二、研討會論文

[24] J.-T. Huang* and M-Q Zhuang 2023. Adaptive attitude control of quadrotors with deferred state constraints. Presented in 2023 International Automatic Control Conference, National Penghu University of Science and Technology, Penghu, Taiwan.

[23] J.-T. Huang* and Y-W Jiang 2023. Adaptive attitude control of quadrotors with saturated inputs and deferred state constraints. International Conference on Mechanical, Automotive and Mechatronics Engineering (ICMAME 2023) 29-30 April 2023, Dubai, UAE.

[22] Jeng-Tze Huang*, Y.-W. Jiang, 2021. Composite adaptive attitude control of quadrotors, SICE Annual Conference, September 8-10, Tokyo, Japan.

[21] Jeng-Tze Huang*, P.-S. Shih, 2020. Robust adaptive control of robots with multiple time-varying delays, the 46'th Annual Conference of the IEEE Industrial Electronics Society, October 2020, Singapore.

[20] Jeng-Tze Huang*, Yu-Chang Law, 2019. Dynamic scaling adaptive fuzzy output feedback control of nonstrict-feedback systems, The 6'th IEEE Fuzzy Conference, June 23nd – 26th, New Orleans, USA.

[19] Jeng-Tze Huang* 2018. Fuzzy control and implementation of a mobile robot. The 3'rd Annual International Conference on Mechanical Engineering and Control Automation, June 22nd – 24th, Suzhou, China. (Keynote Speaker)

[18] Yu-Chia Chang, Jeng-Tze Huang*, Der-Cherng Liaw 2017. Adaptive control of nonholonomic mobile robots using fuzzy approximation. 2017 IEEE International Conference on Applied System Innovation, Sapporo, Japan.

[17] Jeng-Tze Huang*, Thanh-Phong Pham 2016. Global adaptive fuzzy dynamic surface control of strict-feedback systems. 2016 International Conference on System Science and Engineering (ICSSE), Nantou, Taiwan.

［16］ Jeng-Tze Huang*, Ying-Liang, Sung 2016. Adaptive backstepping dynamic surface tracking control of nonholonomic mobile robots. 2016 11th IEEE Conference on Industrial Electronics and Applications, Hefei, China.

[15] J.-T. Huang*, 2014, Global dynamic neuroadaptive tracking control of strict-feedback systems, 2014 14th International Conference on Control, Automation and Systems (ICCAS), p. 1496-1500, October 22-25, Korea. \

[14] J.-T. Huang* and T.-V. Hung, 2013, Singularity-free adaptive control for uncertain omnidirectional mobile robots, 9'th Asian Control Conference (ASCC), p. 1-5, June 23-26, Turkey.

[13] J.-T. Huang* and M.-L Tseng, 2012, Global adaptive neural tracking control of strict-feedback systems with bounded uncertainties, the 7'th IEEE Conference on Industrial Electronics and Applications, p. 175-180, July 18-20, Singapore.

[12] J.-T. Huang* and C.-H. Chang, 2011, A composite controller for uncertain omnidirectional mobile robots, the 8'th Asian Control Conference, p. 777-781, May 15-18, Kaohsiung, Taiwan.

[11] 郭俐吾 陳義陽 黃正自*, 2010, 機械手臂模糊控制設計暨其 MATLAB/SIMULINK 平台之實踐, 第十八 屆全國自動化科技研討會, p. 50-55, June 25-26, 台灣中壢.

[10] 林顯鴻 黃正自*,"線傳剎車動力分析及控制設計," 2010 第十八屆全國自動化科技研討會, June 25-26, 2010, 台灣中壢, pp. 277-281.

[9] J.-T. Huang*, 2009, Tracking Control of uncertain nonholonomic mobile robots: smooth switching approach, the ASME 2009 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE Aug. 30 – Sep. 2, San Diego, California, USA.

[8] J.-T. Huang*, 2008, Adaptive tracking control of high-order nonholonomic mobile robot systems, International Conference on Machine Learning and Cybernetics, p. 1866-1871, July 12-15, Kunming, China.

[7] J.-T. Huang*, 2007, Singularity-free adaptive backstepping design for strict-feedback systems using neural networks, International Conference on Machine Learning and Cybernetics, p. 2755-2760, Aug. 19-22, Hong Kong.

[6] J.-T. Huang*, 2007, Smooth switching adaptive model reference control of robots using neural networks, European Control Conference, p. 1246-1243, July 2-5, Kos, Greece.

[5] J.-T. Huang* and Y. H. Chou, 2005, Adaptive control of a shunt DC motor with persistent excitation, the 16th IFAC World Congress July 4-8, Prague.

[4] J.-T. Huang*, 2004, On parameter convergence of adaptive fully linearizable systems, American Control Conference, p. 1929-1934, June 30-July 2, Boston.

[3] J.-T. Huang*, 2001, An adaptive compensator for a servo system with Coulomb and viscous friction, IEEE International Conference on Control Applications, p. 196-199, September 5-7, Mexico City, Mexico.

[2] D.-C. Liaw* , J.-T. Huang, and C.-C, Song, 2000, Robust stabilization of a centrifugal compressor with spool dynamics, National Symposium on Automatic Control, p. 348-353, March 9-10, Hsin-Chu, Taiwan.

[1] D.-C. Liaw* and **J.-T. Huang***, 1998, Robust stabilization of axial flow compressor dynamics, presented at Fourth SIAM Conference on Control & Its Applications, Jacksonville, FL, USA, May, 7-9, 1998.