

Tsu-Tian Lee (李祖添)

Chair Professor; Ph.D. in Electrical Engineering, University of Oklahoma , U.S.A
Automatic Control, Robotics and Automation, Intelligent Control



◆ Research Interests

Robotics and Automation

Walking Robots

Intelligent Control

Intelligent Transportation Systems .

◆ Publications

- ◆ Y.-H. Chien, W.-Y. Wang, Y.-G. Leu, and T.-T. Lee, “Robust adaptive controller design for a class of uncertain nonlinear systems using on-line T-S fuzzy-neural modeling approach,” *IEEE Trans. on Systems, Man, and Cybernetics, Part B*, Vol. 41, No. 2, pp. 542-552, April 2011.
- ◆ W.-Y. Wang, Y.-H. Chien, and T.-T. Lee, “Observer-Based T-S Fuzzy Control for a Class of General Nonaffine Nonlinear Systems Using Generalized Projection Update Laws,” *IEEE Trans. on Fuzzy Systems*, Vol. 19, No. 3, pp. 493-504, June 2011.
- ◆ H.-H. Chiang, S.-J. Wu, J.-W. Perng, B.-F. Wu, and T.-T. Lee, “The Human-in-the-Loop Design Approach to the Longitudinal Automation System for an Intelligent Vehicle,” *IEEE Transactions on Systems, Man and Cybernetics, Part A* , Vol. 40, No. 4, pp. 708-720, July 2010.

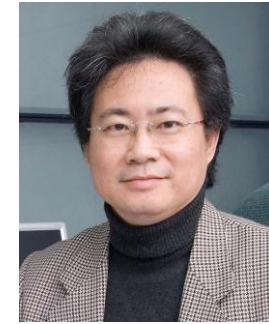
◆ Potential Applications of Research

Autonomous Driving with Lane Keeping and Safe Distance

Autonomous walking control of a Quadrapud Walking Robot

Biped Robot with Shape Memory Alloy as Actuators

Ying-Yi Hong (洪穎怡)



Professor & Dean; Ph.D., **IET Fellow**, E.E., National Tsing-Hua University, Taiwan
Power System Analysis, Renewable Energy, **Microgrid**, Intelligent Computation, FPGA Design

◆ Research Interests

- ◆ Ying-Yi is a professor in the power engineering area of the Electrical Engineering Department. Courses taught include Power Quality Analysis, Power Market, **Microgrid**, Artificial Intelligence, Genetic Algorithm and Numerical Analysis.
- ◆ Ying-Yi's research includes power system voltage stability, transient stability, optimal power flow, wind/solar power dispatch and planning, wind power forecasting, microgrid operation, maximum power point tracking, power line communication, transactions and bidding strategies in power market, power quality (harmonic, voltage flicker, voltage sag and transients) and intelligent electronic device. He utilizes stochastic optimization, genetic algorithm, immune algorithm, discrete wavelet transform, Markov model, fuzzy set theory and a variety of artificial neural networks to solve the power system problems.

◆ Publications

- ◆ Y.Y. Hong and C.S. Chiu, "Passive Filter Planning Using Simultaneous Perturbation Stochastic Approximation," *IEEE Trans. on Power Delivery*, Vol. 25, No. 2, April 2010, pp. 939-946.
- ◆ Y.Y.Hong, H.L. Chang and C.S. Chiu, "Hour-ahead Wind Power and speed Forecasting Using Simultaneous Perturbation Stochastic Approximation (SPSA) Algorithm and Neural Network with Fuzzy Inputs," *Energy*, Vol. 35, No. 9, Sept. 2010, pp. 3870-3876.
- ◆ Y.Y. Hong and K.L. Pen, "Optimal VAR Planning Considering Intermittent Wind Power Using Markov Model and Quantum Evolutionary Algorithm," *IEEE Trans. on Power Delivery*, Vol. 25, No. 4, Oct. 2010, pp. 2987-2996.
- ◆ Y.Y. Hong and P.H. Chen, "Genetic-based Under-frequency Load Shedding in a Standalone Power System Considering Fuzzy Loads," *IEEE Trans. on Power Delivery*, Jan. 2012, p.p. 87-95.

◆ Potential Applications of Research

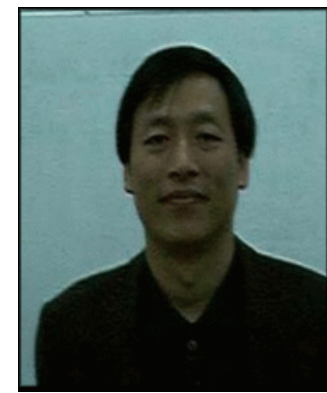
- ◆ Expansion of stand alone micro-grid, assessment of power quality in power system, development of intelligent electronic device.

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Kang-Ping Lin (林康平)

Professor; Ph.D. in Biomedical Physics, UCLA

ECG Signal Processing, Medical Image Processing, Image Motion Estimation, and Pattern Recognition for Biomedical Signals and Systems



◆ Research Interests

- ◆ Dr. Kang-Ping Lin is a professor in the medical image processing and biomedical signal analysis area of the Electrical Engineering Department. Classroom assignments include advance digital image processing, pattern recognition, random processing, and electronic technologies on medical devices.
- ◆ Dr. Kang-Ping Lin's research is major in ECG signal processing, arrhythmia detection, medical image processing, image motion estimation, and pattern recognition for biomedical signals and systems.

◆ Publications

- ◆ Tzu-Ching Shih, Geoffrey Zhang, Chih-Chieh Wu, Hung-Da Hsiao, Tung-Hsin Wu, Kang-Ping Lin, Tzungchi Huang, Hemodynamic analysis of capillary in finger nail-fold using computational fluid dynamics and image estimation, *MICROVASCULAR RESEARCH*, 81(1): 68-72, 2011.
- ◆ Tzung-Chi Huang, Wen-Chen Lin, Geoffrey Zhang, Kang-Ping Lin, "Experimental Estimation of Blood flow Velocity through Simulation of Intravital Microscopic imaging in Micro-vessels by Different Image Processing Methods", *Microvascular Research*, 80(3): 477-83, 2010.
- ◆ Chih-Chieh Wu, Heyu Wu, Yuan-Chuan Tai, Kang-Ping Lin, Ren-Shyan Liu. Evaluation of Scatter Fraction and Noise Equivalent Count Rate Performance of the microPET F-220 Scanner Integrated with the Micro Insert Device. *Journal of Medical and Biological Engineering* 30(4): 261-266, 2010.
- ◆ Chih-Chieh Wu, Geoffrey Zhang, Tzung-Chi Huang, Kang-Ping Lin, "Red blood cell velocity measurements of complete capillary in finger nail-fold using optical flow estimation", *Microvascular Research*, Vol. 78, Issue 3, p.319-324, 2009.

◆ Potential Applications of Research

- ◆ The primary research topics including: 1) In-vitro micro-circulation image analysis; 2) High noise medical image de-noising and segmentation; 3) Microprocessor based bio-signal recording system design.

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Chun-Ming Chang (張俊明)

Professor; Ph.D., School of Electronics and Computer Science, University of Southampton, U. K.

Analogue Circuit Design, No-Passive-Element Circuit Design, Active Filters, Communication Filters, Analytical Synthesis, Network Topological Synthesis



◆ Honors in the International Conferences

- ◆ Plenary Speaker of the 8th WSEAS International Conference on Electronics, Hardware, Wireless and Optical Communications (EHAC'09), The Conference is going to be held in the University of Cambridge, Cambridge, UK, February 21-23, 2009
- ◆ Plenary Speaker of the 7th WSEAS International Conference on Instrumentation, Measurement, Circuits and Systems (IMCAS'08), The Conference was held in Hangzhou China, China, April 6-8, 2008

◆ Research Interests

- ◆ Chun-Ming is a professor in the electronics and circuits of the Department of Electrical Engineering. Classroom assignments include Electronics, Circuit Theory, Engineering Mathematics, Electromagnetism, RC active Circuit Analysis, RC Active Circuit Design, Analogue Filter Design, Network Topology.....and so on.
- ◆ Chun-Ming's research is in the variety of Analogue Circuit Design, No-Passive-Element Circuit Design, Active Filter Design, Communication Filter Design, Analytical Synthesis, Network Topological Synthesis, and Biomedical Electronics.

◆ Publications

- ◆ Shu-Hui Tu, Chun-Ming Chang, Neil J. Ross, M.N.S. Swamy, "Analytical synthesis of current-mode high-order single-ended-input OTA and equal-capacitor elliptic filter structures with minimum number of components", IEEE Trans. Circuits & Syst.- I , Vol.54, no.10, pp. 2195-2210, Oct. 2007. (SCI)
- ◆ Chun-Ming Chang, Ahmed M. Soliman, and M.N.S. Swamy, "Analytical synthesis of low sensitivity high-order voltage-mode DDCC and FDCC grounded R and C all-pass filter structures", IEEE Trans. Circuits & Syst.-I, Vol.54, no.7, pp. 1430-1443, July 2007. (SCI)
- ◆ Chun-Ming Chang, "Analytical synthesis of the digitally programmable voltage-mode OTA-C universal biquad", IEEE Trans. Circuits Syst.-II, vol.53, no.8, pp. 607-611, Aug. 2006. (SCI)
- ◆ Chun-Ming Chang, Chun-Li Hou, Wen-Yaw Chung, Jiun-Wei Horng, and Chu-Kuei Tu, "Analytical synthesis of high-order single-input OTA-grounded C all-pass and band-reject filter structures", IEEE Trans. Circuits Syst.- I , vol.53, no.3, pp. 489-498, March 2006. (SCI)

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Cheng-Yuan Chang (張政元)

Professor; Ph.D., E.E., National Central University, Taiwan

Active noise control, Intelligent control system, Mechatronic system, DSP chip application



◆ Research Interests

- ◆ Cheng-Yuan Chang is an associate professor in the control area of the Electrical Engineering Department. Courses taught include Advanced Engineering Mathematics, Numerical Analysis, Fuzzy Control, Artificial Neural Network, and Linear Algebra.
- ◆ Cheng-Yuan's research is in a variety of control system analyses and applications. Research topics include 2- or 3-D overhead crane system, visual servo control system, active noise control system, embedded system design and microcontroller based mechatronic system such as heat pump and energy saving machine.

◆ Publications

- ◆ [Cheng-Yuan Chang*](#), and Handra-Wijaya Lie, "Real-time Visual Tracking and Measurement to Control Fast Dynamics of Overhead Cranes," IEEE Trans. Industrial Electronics, July 2011. (Accepted).
- ◆ [Cheng-Yuan Chang*](#), and Sheng-Ting Li, "Active Noise Control in Headsets by Using a Low-Cost Microcontroller," IEEE Trans. Industrial Electronics, vol. 58, no. 5, pp.1936-1942, May 2011.
- ◆ [Cheng-Yuan Chang*](#), Deng-Rui Chen, "Active Noise Cancellation Without Secondary Path Identification by Using an Adaptive Genetic Algorithm," IEEE Trans. Instrumentation and Measurement, vol. 59, no. 9, pp. 2315-2327, Sep. 2010.
- ◆ [Cheng-Yuan Chang*](#), Kou-Cheng Hsu, and Kuo-Hung Chiang "Anti-Sway and Motion Planning Control of Overhead Cranes," International Journal of Innovative Computing, Information and Control, vol. 6, no. 7, pp. 3313-3328, Jul. 2010.

◆ Potential Applications of Research

- ◆ Evaluation of microcontroller based mechatronic systems, Analysis of active noise control system, Visual servo control of industrial application, Embedded system design.

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陳士麟)

Professor ; Ph.D., E.E., University of London, U.K.

Power System Planning, Railway Power System, Transient Overvoltage, Power System Monitoring, Power Industry Regulation and Deregulation



◆ Research Interests

- ◆ Shi-Lin is a professor in the power and energy area of the Electrical Engineering Department. Courses taught include Electrical Machinery, Power System, Engineering Economy, Railway Electromechanical Engineering, Protective Relaying, Overvoltage Protection, Power System Operation and Control.
- ◆ Shi-Lin was as the Manager of Power System Laboratory of Taipower Research Institute during 1989-1992. Since 1997, he has served as a technical advisor to the Taipei Rapid Transit Corporation, and also to the Commission of National Corporations (MOEA) on the power supply advisory and the industrial safety auditing. Since 2001, he has served as a member of the power system safety advisory team, and then the team leader since 2007, of the Association of Allied Industries in Science Park. Shi-Lin has participated in the ground system design of Taiwan's largest synchrotron accelerator, the investigation of Taipower's 729 (1999) · 813 (2000) · 318 (2001) and 425 (2008) outage events, and the investigation and solution of Taipei Metro's power outages.

◆ Publications

- ◆ S. L. Chen, S. C. Hsu, C. T. Tseng, K. H. Yan, H. Y. Chou and T. M. Too, "Analysis of Rail Potential and Stray Current for Taipei Metro", IEEE Transactions on Vehicular Technology, Vol.55, NO.1, Jan. 2006, pp. 67-75 (USA) .
- ◆ C. H. Lee, S. C. Hsu, P. H. Hsi and S. L. Chen, "Transferring of VFTO form an EHV to MV System as Observed in Taiwan's No.3 Nuclear Power Plant", IEEE Transactions on Power Delivery, Vol.26, No.2 , April 2011, pp.1008-1016(USA).

◆ Potential Applications of Research

- ◆ Power System Analyses (incl.insulation coordination, power quality etc.)
- ◆ High Voltage Testing (incl. on-line monitoring of insulation degradation)

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Guan-Chyun Hsieh (謝冠群)

Professor; Ph.D. E.E., National Taiwan University, Taiwan

Power Electronics, Electronic Circuit Design, Control System, Renewable energy



◆ Research Interests

- ◆ Guan-Chyun is Professor in the electronic circuit area of the Electrical Engineering Department. Classroom assignments include Advanced Power Electronics, Electronic Circuit Design, Introduction to Renewable Energy.
- ◆ Guan-Chyun's research is in a variety of power electronics and lighting. Research topics include ac/dc, dc/dc, dc/ac, and ac/dc converters, PV inverter, PV charger, charger, hybrid power, fluorescent lamp ballast, CCFL, EEFL, and LED lightings.

◆ Publications

- ◆ G. C. Hsieh, "Group-Asymmetrical PWM Control for Dimmable Fluorescent Lamp Ballast without Striation and Thermostat Effect," *IEEE Trans. Power Electron.*, Vol. 24, Issue 5, pp.1293 – 1303, May 2009.
- ◆ G. C. Hsieh and H. L. Chen, "Analytic Modeling and Realization for Sigma-Delta-Modulated Power Amplifier", *IET Power Electronics*, Vol. 2, No. 5, p.496–507, Sept. 2009.
- ◆ L. R. Chen, G. C. Hsieh, and H. M. Lee, "The design of a genetic algorithm-based fuzzy pulse pump controller for a frequency-locked servo system," *J. Chinese Institute of Engineers*, vol. 30, no. 1, pp. 91-102, Jan. 2007.

◆ Potential Applications of Research

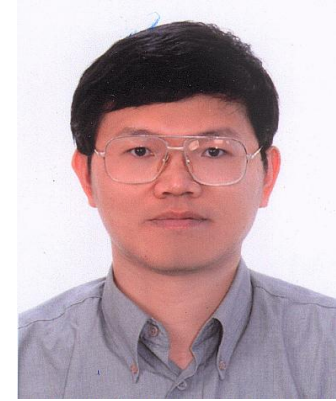
- ◆ LCD-TV power, power supply for computer, power for industrial apparatus, PV power applications for PV inverter, PV charger, and hybrid power, power for backlight and lighting including fluorescent lamp, CCFL, EEFL, and LED etc.

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Tan-Jan Ho (何天讚)

Associate Professor; Ph.D. E.C.E., University of Toronto; P. Eng. of Ontario

Systems Control; Signal Processing



◆ Research & Teaching

- ◆ Dr. Ho's research interests are in the areas of systems control and signal processing. His research includes the control of discrete-event systems, robust system control, radar signal processing, target tracking.
- ◆ Dr. Ho's course teaching includes linear system theory, systems control, system identification, estimation and tracking.

◆ Selected Publications

- ◆ T.-J. Ho, "A Switched IMM-extended Viterbi estimator-based algorithm for maneuvering target tracking," Vol.47, pp. 92-98, Jan. 2011
- ◆ T.-J. Ho and B.-S. Chen, "Robust minimax MSE equalizer designs for MIMO wireless communications with time-varying channel uncertainties," IEEE Trans. on Signal Processing, Vol. 58, No.11, pp.5835-5844, Nov., 2010.
- ◆ T.-J. Ho and B.-S. Chen, "Novel Extended Viterbi-Based Multiple-Model Algorithms for State Estimation of Discrete-Time Systems with Markov Jump Parameters," IEEE Trans. on Signal Processing, Vol. 54, No.2, pp.393-404, Feb., 2006.
- ◆ T.-J. Ho, "A Method for the Modular Synthesis of Controllers for Timed Discrete-Event Systems," International Journal of Control, Vol. 76, No. 5, pp. 520-535, 2003.

◆ Potential Application of Research

- ◆ control of automotive manufacturing systems; control of communication network systems; target navigation

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Tsan-Ming Wu (吳燦明)

Associate Professor; Ph.D. E.C.E., Georgia Institute of Technology, Atlanta, U.S.A.

Communications theory, wireless Systems, signal processing for communications, communications networks



◆ Research Interests

- ◆ Tsan-Ming is an associate professor in the communications area of Department of Electrical Engineering. Classroom assignments include Probability and Statistics, Signals and Systems, Random Processes, Digital Communications, Detection and Estimation Theory, Information Theory, Coding Theory, Queueing Theory, Mobile Communications, Digital Signal Processing, and Array Signal Processing.
- ◆ Tsan-Ming's research is in a variety of communications theory with emphasis on Communications Theory, Wireless Systems, Signal Processing for Communications, and Communications Networks. Current research topics include CDMA systems, cross-layer architectures, resource management, smart antenna, cooperative networks, and cognitive wireless networks.

◆ Publications

- ◆ Tsan-Ming Wu and Tsung-Hua Tsai, "Stochastic-based analyses of noncoherent code tracking loops over wireless fading circumstances," *IEEE Trans. on Veh. Technol.*, vol. 61, no. 1, pp 258-273, January 2012. (SCI)
- ◆ Tsan-Ming Wu and Szu-Liang Wang, "Routing selection with overloading cancellation for multihop cellular systems," *IEEE Commun. Letters*, vol. 15, no. 1, pp. 61-63, January 2011. (SCI)
- ◆ Tsan-Ming Wu and Tsung-Hua Tsai, "Successive interference cancellers for multimedia multicode DS-CDMA systems over frequency-selective fading channels," *IEEE Trans. on Inform. Theory*, vol. 55, no. 5, pp 2260-2282, May 2009. (SCI, NSC91-CS-7-033-001).

◆ Potential Applications of Research

- ◆ While the better of modulation quality, the improvement of the receiver sensitivity, and the enhancement of device characteristics make our communications between humans or between humans and machines reach anytime, anywhere, the wireless dream also pitches complexities into every stage of research and development. Dr. Wu's research areas can be applied to architecture designs of cellular phones, system designs of receivers, and wireless communications networks.

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Chian-Song Chiu (邱謙松)

Associate Professor; Ph.D., E.E., Chung-Yuan Christian University, Taiwan

Robust nonlinear control methods of constraint systems and their applications on robots



◆ Research Interests

- ◆ Chian-Song is an associate professor in the control area of the Electrical Engineering Department. Courses taught include Control Systems, Automatic Control Systems, Signals and Systems, Nonlinear Control
- ◆ Chian-Song's research is in a variety of nonlinear control and in engineering general education. Research topics include nonlinear control, fuzzy control, robust control, sliding mode control, adaptive control, robotic systems, holonomic constraint systems, nonholonomic constraint systems, time-delay systems, energy conservation systems, and engineering general education study.

◆ Publications

- ◆ C.-S. Chiu and K.-Y. Lian, "Hybrid fuzzy model-based control of nonholonomic systems: a unified viewpoint", IEEE Transaction on Fuzzy Systems, Vol. 16, No. 1, pp. 85-96, 2008.
- ◆ K.-Y. Lian, C.-Y. Hung, C.-S. Chiu, and L.-C. Fu, "Robust adaptive control of linear induction motors with unknown end-effect and secondary resistance", IEEE Transaction on Energy Conversion, Vol. 23, No. 2, pp. 412-422, 2008.
- ◆ C.-S. Chiu and K.-Y. Lian, "Adaptive motion/force tracking control of holonomic constrained mechanical systems: a unified viewpoint", Int. Journal of Adaptive Control and Signal Processing, Vol. 21, pp. 415-433, 2007.
- ◆ C.-S. Chiu, "Mixed feedforward/feedback based adaptive fuzzy control for a class of MIMO nonlinear systems", IEEE Transaction on Fuzzy Systems, Vol. 14, No. 6, pp. 716-727, 2006.

◆ Potential Applications of Research

- ◆ T-S Fuzzy Control Theory, Intelligent Control Theory, Advanced Nonlinear Control, Energy Conservation Control, Time-Delay Nonlinear Systems, Robotic Control, Signal Processing

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Shih-Hsiung Twu (涂世雄)

Associate Professor; Ph.D. E.E., National Tsing Hua University, Hsin-Chu, Taiwan, R.O.C.

Nonlinear Dynamic Systems, Cryptology, Network and Information Security, Wireless Communication, Control Theory



◆ Research Interests

- ◆ Shih-Hsiung is a Associate professor of the Electrical Engineering Department. Classroom assignments include “Modern Physics”, “Cryptology and Number Theory”, “Network and Information Security”, “Chaos and Fractals”, and “Wireless Communication”, etc...
- ◆ Shih-Hsiung research is in analysis of number theory and nonlinear dynamic systems. Research topics include nonlinear dynamic systems, cryptology, network and information security, wireless communication and control theory.

◆ Publications

- ◆ Hui-Mei Chao, Shih-Hsiung Twu & Chin-Ming Hsu (2005), “A patient-identity security mechanism for electronic medical records during transit and at rest”, Medical Informatics and the Internet in Medicine, Vol.30, p.227-240.
- ◆ Chin-Ming Hsu, Shih-Hsiung Twu, Hui-Mei Chao (2003), “A Group Digital Technique for Authentication”, IEEE, Vol.0, no.0.`
- ◆ C.M. Hsu;H.M. Chao;S.H. Twu, “A Security Mechanism for Improving Credit Card Electronic Transaction,” 工業研究院產業論壇,2003
- ◆ Chin-Ming Hsu; Hui-Mei Chao; Shih-Hsiung Twu; Men-Chen Wang, “A Secure Hierarchical Encryption mechanism with Patient ID Protection,” 2nd European Medical and Biological Engineering Conference EMBEC'02, December 4-8 2002.
- ◆ Chih-Hsing Lin; Shih-Hsiung Twu, “Authentication Protocol for 3G Mobile Communication Systems,” 2002 International Computer Symposium, December 18-21 2002.
- ◆ K.-J.Wang;H.-M.We;S.-F.Gao;S.-H.Twu “A Look-Ahead Wagner-Whitin Algorithm for Chaotic Demands,” Journal of the Chinese Institute of Industrial Engineers, July 2001.

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Jia-Yin Wang (王佳盈)

Assistant Professor; National Taiwan University, Taoyuan, Taiwan

Speech Coding, Channel Coding, Network Coding



◆ Research Interests

- ◆ Dr. Wang is a teacher in communication area of E.E. department; the teaching courses include Engineering Mathematics, Queueing Theory, Random Process, and Information Theory.
- ◆ Dr. Wang's research interests include coding theory, information theory and voice over IP technology.

◆ Publications

- ◆ Jia-Yin Wang and Mao-Chao Lin, "On Constructing Trellis Codes with Large Free Distances and Low Decoding Complexities," IEEE Trans. on Commun. vol. 45, No. 9, pp. 1017–1020, Sept. 1997.
- ◆ Mao-Chao Lin, Member, IEEE, Yeong-Luh Ueng, and Jia-Yin Wang "Two Trellis Coding Schemes for Large Free Distances," IEEE Trans. on Commun. vol. 48, No. 8, pp. 1286–1296, Aug. 2000.
- ◆ David Liu, and Jia-Yin Wang, "Voice Applications over Wireless LAN," Computer and Communication Journal vol. 101 in Taiwan, Sept. 2002. (中文: "在無線區域網路上的語音通訊" 電腦與通訊 101 期, Sept. 2002.)

◆ Patents

- ◆ Jia-Yin Wang, Chin-Wen Cheng and David Liu, "A method for DTMF detection," Taiwan Patent No. 421958, Feb 2001. (中文: "雙音複頻音調的偵測方法及裝置" 台灣專利編號: 421958)
- ◆ De-Hui Shiue, Jia-Yin Wang and David Liu, "A method for conference call applied in internet telephony system," Taiwan Patent No. 564628, Dec 2003. (中文: "一種網際網路上之多方語音通話系統及其方法" 台灣專利編號: 564628)

◆ Potential Applications of Research

- ◆ Computer/Internet Telephony, Digital Speech Coding, Communication systems with error-correcting capability.

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Chun-Yao Lee (李俊耀)



Assistant Professor; Ph.D., E.E., National Taiwan University of Science and Technology

Power Systems, Wind Generators, Power Quality.

◆ Research Interests

- ◆ Chun-yao is an assistant professor in the power systems area of the Electrical Engineering Department. Courses taught include Electrical Machinery, Power Systems, Linear Algebra, and Renewable Energy.
- ◆ Research topics include harmonic filter, Damage diagnosis of wind Generators, grounding design, and conductive concrete.

◆ Publications

- ◆ Chun-Yao Lee, Hong-Chan Chang, and Chen-Ching Liu, “Emergency Dispatch Strategy Considering Remaining Lives of Transformers,” *IEEE Transactions on Power Systems*, Vol. 22, No. 4, pp.2066-2073, Nov. 2007. (SCI)
- ◆ Chun-Yao Lee and Yi-Xing Shen, “Optimal Feature Selection for Power Quality Disturbances Classification,” *IEEE Transactions on Power Delivery*, Vol. 26, No. 4, pp. 2342-2351, Oct. 2011 (SCI)
- ◆ Chun-Yao Lee and Po-Hung Chen, “Lightning Recognition by Transmission Line Currents of Taiwan Power System,” *Energy Education Science and Technology Part A: Energy Science and Research*, Vol. 28 No. 1, pp.227-238, Oct. 2011. (SCI)
- ◆ Chun-Yao Lee and Yi-Xing Shen, “Optimization of Passive-Harmonic-Filters Set Planning Based on Particle Swarm Optimization,” *Applied Mathematics & Information Sciences* (SCI).
- ◆ Chun-Yao Lee*, Po-Hung Chen and Yi-Xing Shen, “Maximum Power Point Tracking (MPPT) System of Small Wind Power Generator Using RBFNN Approach,” *Expert Systems with Applications*, Vol. 38 No. 10, pp.12058-12065, Sept. 2011. (SCI)

◆ Potential Applications of Research

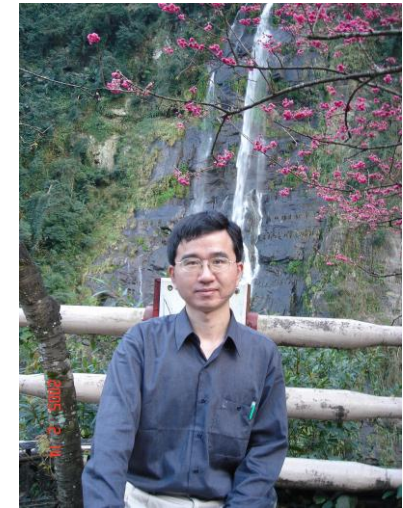
- ◆ Evaluation of Power Quality, and Evaluation of Ground Potential Rise, Wind Power Generators.

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Wen-Liang Hsue (許文良)

Assistant Professor; Ph.D. in Communication Engineering, National Taiwan University, Taiwan

Digital signal processing, Digital image processing



◆ Research Interests

- ◆ **Wen-Liang Hsue** is an assistant professor in the communication area of the Electrical Engineering Department. Classroom assignments include Principles of Communications, Signals and Systems, Linear Algebra, Digital Signal Processing and Digital Image Processing.
- ◆ Wen-Liang's research is in the field of signal processing and communications. His current research interests include discrete fractional signal transforms, digital image security, digital signal processing, digital image processing, and array signal processing.

◆ Publications

- ◆ S. C. Pei, W. L. Hsue, and J. J. Ding, "DFT-commuting matrix with arbitrary or infinite order second derivative approximation," *IEEE Trans. Signal Processing*, vol. 57, no. 1, pp. 390-394, Jan. 2009.
- ◆ S. C. Pei and W. L. Hsue, "Tridiagonal commuting matrices and fractionalizations of DCT and DST matrices of types I, IV, V, and VIII," *IEEE Trans. Signal Processing*, vol. 56, no. 6, pp. 2357-2369, June 2008.
- ◆ S. C. Pei, W. L. Hsue, and J. J. Ding, "Discrete fractional Fourier transform based on new nearly tridiagonal commuting matrices," *IEEE Trans. Signal Processing*, vol. 54, no. 10, pp. 3815-3828, Oct. 2006.

◆ Potential Applications of Research

Digital image encryption and decryption, digital watermarking, digital filtering, and digital image halftoning.

Shih-Che Hsu (許世哲)

Assistant Professor; Ph.D. in Electrical Engineering, National Tsing Hua University, Taiwan

Distribution automation, Railway electromechanics, Power system reliability, Smart grid

◆ Research Interests

- ◆ Shih-Che Hsu is an assistant professor in the electric power area of the Electrical Engineering Department. Classroom assignments include: **Electric Circuits**, **Power System Analysis**, Numerical Analysis, Industrial Electronics and Optimization Theory.
- ◆ Shih-Che Hsu's research is in the field of power system. His current research interests include: Geographic Information System (GIS) of power network, stray current and rail potential analysis of metro, power distribution reliability, microgrid protection, and smart grid standards.

◆ Publications

- ◆ C. H. Lee, S. C. Hsu, P. H. Hsi, and S. L. Chen, "Transferring of VFTO from EHV to MV System as Observed in Taiwan's No.3 Nuclear Power Plant," *IEEE Transactions on Power Delivery* Vol. 26, No. 2, April. 2011, pp. 1008-1016.
- ◆ S. C. Hsu, "The Survey of Smart Grid Standards," *Electricity Monthly* Vol. 21, No. 7, July, 2011, pp. 154-165.
- ◆ Jia-Hao Lin, Shih-Che Hsu et al, "Determining Adequate Generation Reserve Margin for the Taipower System," *Monthly Journal of Taipower's Engineering*, vol. 754, pp. 76-88, June. 2011.
- ◆ Ying-Yi Hong, Chia-Chi Chu, Men-Shen Tsai, Chun-Yao Lee, Shih-Che Hsu and Hsueh-Hsien Chang, "Study on the Design of Microgrid Test Beds in Other Countries," *Monthly Journal of Taipower's Engineering*, vol. 753, pp. 33-42, May. 2011.
- ◆ Shi-Lin Chen, Shih-Che Hsu et al, "Study on distribution network reliability to meet the requirement of individual customers in different regions," *Monthly Journal of Taipower's Engineering*, vol. 737, pp. 45-53, Jan. 2010.

◆ Potential Applications of Research

- ◆ Distribution automation, rapid traction system, power distribution system, microgrid, and smart grid.

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◆ Research Interests

Dr. Yu-Kuen Lai is an assistant professor of electrical engineering at Chung-Yuan Christian University in Chung-Li, Taiwan. He received M.S. and Ph.D. degrees in electrical and computer engineering from North Carolina State University in 1997 and 2006, respectively. His primary research has been in the area of high-performance networking systems and architectures. He is interested in performance evaluation and architecture exploration of network processors on emerging network applications. Other areas of interest include computer architecture, digital systems design, and network security.

◆ Publications

- ◆ Theophilus Wellem, Yu-Kuen Lai, Chun-Chieh Lee, Kuei-Sheng Yang, "Accelerating Sketch-based Computation with GPU: A Case Study for Network Traffic Change Detection", In Proc. of 7th ACM/IEEE Symposium on Architectures for Networking and Communication Systems (ANCS 2011), October 3-4, 2011, Brooklyn, NY, USA.
- ◆ Yu-Kuen Lai, Nan-Cheng Wang, Tze-Yu Chou, Chun-Chieh Lee, Theophilus Wellem, Hargyo Tri Nugroho, "Implementing On-line Sketch-Based Change Detection on a NetFPGA Platform", 1st Asia NetFPGA Developers Workshop, KAIST, Daejeon, South Korea, 2010
- ◆ Yu-Kuen Lai, "Packet Processing on Stream Architecture: Emerging Network Applications", VDM Verlag Dr. Mueller e.K. , ISBN : 978-3836429764, Dec. 2007
- ◆ Yu-Kuen Lai, and Gregory T. Byrd. "High-Throughput Sketch Update on a Low-Power Stream Processor," In Proc. of ACM/IEEE Symposium on Architectures for Networking and Communication Systems (ANCS), San Jose, CA, December 2006.
- ◆ Jathin S. Rai, Yu-Kuen Lai, and Gregory T. Byrd. "Packet Processing on a SIMD Stream Processor," in Network Processor Design: Issues and Practices, Volume 3, Mark A. Franklin, Patrick Crowley, Haldun Hadimioglu, and Peter Z. Onufryk, Eds., chapter 7, pp. 119-144 . Morgan Kaufmann Publishers, 2005. ISBN: 0-12-088476-3
- ◆ Yu-Kuen Lai, Gregory T. Byrd "AES Packet Encryption on a SIMD Stream Processor," in Embedded Cryptographic Hardware: Methodologies & Architectures, Nova Science Publishers, 2004, ISBN: 1-59454-012-8

◆ Teaching

- ◆ Introduction to Computer Networks, Network Systems Design, Advanced Computer Networks, Digital ASIC Design

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Computer Architecture, Image Processing

◆ Research Interests

- ◆ Chen 's research is in the areas of computer architecture and image processing. Chen's work has included such topic areas as: the study of the single chip micro-controller architecture, studies of medical image processing.

◆ Publications

- ◆ KP Lin, PC Wang, Te-Shing Chen, PT Hung, "Sectional Contour Interpolation Using Fourier Descriptor", Proceedings-20th Annual International Conference IEEE/EMBS, pp540-543 1998
- ◆ KP Lin, Te-Shing Chen, WJ Yao, LC Wu, RS Liu, "Dynamic PET-FDG Image Segmentation Using Markov Random Field Method", Proceeding of SPIE, Image Processing 1998
- ◆ CL Yu, KP Lin, Te-Shing Chen, WJ Yao, LC Wu, RS Liu, SC Huang, "An Implementation of Elastic-Mapping-Based Medical Image Registration", IEEE International conference on Image Processing, 1997, vol. 2, p 896

◆ Potential Applications of Research

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