

# CURRICULUM VITAE

Lin Zhiping  
Associate Professor  
School of Electrical and Electronic Engineering

## **Academic Qualifications**

1987 PhD, University of Cambridge  
1982 BEng, South China Institute of Technology

## **Professional Qualifications / Memberships**

2000 – Present Senior Member, Institute of EEE USA

## **Summary of Working Experience**

Feb 1999 – Present Associate Professor, School of EEE, NTU  
Dec 1993 – Jan 1999 Engineer/Senior Engineer, DSO National Labs, Singapore  
July 1988 – Apr 1993 Lecturer/Associate professor, Shantou University, China  
Aug 1987 – June 1988 Research Fellow, University of Calgary, Canada

## **Academic Honours and Awards**

<b>Year</b>	<b>Academic Honour / Award</b>
1983	Recipient, Scholarship for studying overseas towards a PhD degree, Chinese Government
1983	Recipient, Overseas Research Student Award, Committee of Vice Chancellors and Principals of the U.K.

## **RESEARCH SUMMARY**

### **Key Areas of Research**

- Machine learning
- Statistical and bio-signal/image processing
- Multidimensional systems and signal processing

### **Research Awards / Recognition**

<b>Year</b>	<b>Research Award / Recognition</b>
2018	Best Paper Award, ELM 2018
2016	Meritorious Paper Award, Journal of Computers in Biology and Medicine
2015	Best Paper Award, ELM 2015
2007 - 2008	Distinguished Lecturer, Circuits and Systems Society, IEEE
2007	IEEE Signal Processing Society Young Author Best Paper Award (co-author and supervisor)

### **Keynote Presentations**

*[Total: 4, Last 3 years: 0]*

1. "Automated medical image classification: techniques and challenges," keynote speech at the fourteenth International Conference on Signal Processing, Beijing, China, 2018
2. "Sequential extreme learning machine for class imbalance and concept drift," keynote speech at the Ninth International Conference on Extreme Learning Machines (ELM), Singapore, 2018
3. "Multidimensional Systems and Biomedical Applications," plenary address at the Seventh International Workshop on Multidimensional Systems, France, 2011
4. "Output feedback stabilizability and stabilization of linear nD systems," plenary address at the First International Workshop on Multidimensional Systems, Poland, 1998

### **Invited Presentations**

*[Total: 24, Last 3 years: 4]*

1. "Classification of Non-tumorous Facial Pigmentation Disorders Using SMOTE and Deep Learning," IEEE Circuits And Systems Society Distinguished Lecture, Invited Lecture At Hangzhou Dianzi University, Hangzhou, China, September 2022 (online seminar)
2. "Classification of Non-tumorous Facial Pigmentation Disorders Using SMOTE and Deep Learning," IEEE Circuits And Systems Society Distinguished Lecture, Invited Lecture At Yanshan University, China, December, 2021 (online seminar)

3. "Classification of Non-tumorous Facial Pigmentation Disorders Using SMOTE and Deep Learning," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture At Yonsei University, South Korea, November 2021 (online seminar)
4. "Classification of Non-tumorous Facial Pigmentation Disorders Using SMOTE and Deep Learning," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture At Taiwanese Association of Artificial Intelligence, September 2021 (online seminar)
5. Invited Lecture at Zhejiang University, China, September 2018 (camp tour in NUS, Singapore)
6. Invited Lecture at Beijing Institute of Technology, Beijing, China, May 2013
7. Invited Lecture at Beijing University of Chemical Technology, China, December 2013
8. Invited Lecture at Shanghai University, Shanghai, China, Nov 2011
9. Invited Lecture at Hangzhou Dianzi University, Hangzhou, China, Nov 2011
10. Invited Lecture at Zhejiang University of Technology, Hangzhou, China, Nov 2011
11. Invited Lecture at National Chiao Tung University, Hsinchu, Taiwan, May 2009
12. Invited Lecture at Nanjing University of Science and Technology, Nanjing, China, June 2008
13. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at Shanghai Jiao Tong University, Shanghai, China, June 2008
14. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at Ajou University, Seoul, Korea, September 2008
15. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at Macao University, Macao, China, December 2008
16. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at Carlton University, Ottawa, Canada, June 2007
17. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at Concordia University, Montreal, Canada, June 2007
18. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at National University of Singapore, Singapore, October 2007
19. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at National Sun Yat-Sen University, Kaohsiung, Taiwan, December 2007
20. "State Space Realization of a 3D Image Set with Application to Noise Reduction of Fluorescent Images," IEEE Circuits and Systems Society Distinguished Lecture, Invited Lecture at National Cheng Kung University, Tainan, Taiwan, December 2007
21. Invited Lecture at Tokyo Institute of Technology, Tokyo, Japan, May 2005
22. Invited Lecture at University of Texas Southwestern Medical Center, Dallas, Texas, USA, May 2005
23. Invited Lecture at University of Hong Kong, Hong Kong, China, May 2005
24. Invited Lecture at University of Wurzburg, Germany, June 1998

## Research Funding

### External Grants

Role	Year	Project Title	Amount (S\$)	Source of Grant
PI	2022 – 2024	LEXUS Sub-Project C Urban Anomaly Detection and Human Activity Classification with Cellular Base-station Traffic	282,000	DSO National Labs
PI	2022 – 2026	Data-driven Models For Analyzing Smart Sensors And Meters In Water Distribution Networks	9,945	EDB-IPP Xylem Water Solutions Singapore Pte Ltd Grant
PI	2021 – 2024	P6.2 Vision-based / RFID Sensor Fusion for Better Spatial Resolution	584,520	NTU-Shaeffler Joint Lab, & A*STAR
PI	2021 – 2024	P6 Instantaneous Network build-up for surveillance /positioning /detection tasks in industrial settings	1,918,440	Industry Alignment Fund - Industry Collaboration Projects (IAF-ICP)
PI	2020 – 2021	RIVENDELL Track 2: Signal Anomaly Analytics	140,000	DSO National Labs
PI	2019 – 2023	Human-Robot Interaction Phase 1	512,400	A*STAR
PI	2019	Sub-Project 2 TRITON: Algorithm Development and Real Data Validation	34,000	DSO National Labs
PI	2017 – 2022 (Transferred from previous PI in 2021)	Development Advanced Signal Processing Techniques For Real-Time Data Analysis (Program Title : Next Generation Broadband, Compact, Ultra-Sensitive, Real-Time, Tunable Laser Spectroscopy Analyzer)	341,160	National Research Foundation (NRF)
PI	2015 – 2019	An Intelligent Wearable Device Incorporating ECG and Respiratory Sound for Medical Applications	545,592.85	Delta-EEE Joint Grant
PI	2015 – 2019	Project Mosquito Net	1,979,000	Ministry of Defence (MINDEF)

PI	2014 – 2019 (Transferred from previous PI in 2017)	Computational Multi-Layered Displays	828,650	National Research Foundation
PI	2014 – 2016	Digital image analysis for assessment of severity of melasma in patients	73,000	A*STAR-NHG-NTU Skin Research Grant
PI	2013 – 2014	JANSKY III Sub-Project 2 - Mobile Single Antenna Geolocation	71,000	Temasek Lab @ NTU
PI	2012	JANSKY II Sub-Project 5 - TDOA-FDOA Geolocation and Tracking in Mixed LOS-NLOS Environments	24,000	Temasek Lab @ NTU
PI	2007 – 2008	SAR change detection and video compression	100,000	DSO National Labs
PI	2006 – 2022 (Transferred from previous PI in 2018)	High Selectivity Acoustic Array	166,064.41	DSO National Labs
PI	2003 – 2022 (Transferred from previous PI in 2018)	Bandpass delta-sigma ADC	110,460.48	DSO National Labs
PI	2000 – 2002	Wideband SAR signal analysis and processing	82,609	DSO National Labs
Co-PI	2022 – 2025	WP4 Cognitive Intelligent Robotic Sensing: 3D chip-integrated Sub-THz Wave RADAR, Acoustic Radar, Optical LiDAR, and Light Field Camera (3D-IRALC) Sensor with Artificial Intelligence (AI) edge data fusion	452,000 (2,808,000)	Delta-NTU Joint Lab Phase II
Co-PI	2020 – 2023	Towards An Intelligent Sensor for Non-invasive Glucose Monitoring in Diabetes	250,000 (851,760)	MOE AcRF Tier 2
Co-PI	2022 – 2024	Smart Portable Infrared Spectrometer For Rapid Pathogen Detection of Infectious Diseases	130,000 (499,929.60)	National Medical Research Council (NMRC)
Co-PI	2013 – 2019	Nano-Opto-Fluidic System (NOFS) For Rapid Viral Detection and Sorting Via Optical Force	851,350 (1,702,700)	Environment & Water Industry Development Council

Co-PI	2012 – 2014	A non-invasive Microwave Acoustic Imaging Apparatus for Breast Cancer Scanning and Diagnosis	100,000 (200,000)	NMRC
Co-PI	2008 – 2011	Development of Photothermal Imaging System for Imaging sub-cellular organelles	300,000 (815,507)	A*STAR
Co-PI	2008 – 2011	New Synthesis Algorithm Developments And Hardware Implementations For Image Processing Applied To Medical Diagnostic And Communication Systems	250,000 (514,340)	A*STAR

### Internal Grants

Role	Year	Project Title	Amount (S\$)	Source of Grant
PI	2021 - 2023	Frequency-Domain Machine-Learning-Based Side-Channel-Attacks for Advanced Microchips	98,250	MOE AcRF Tier 1
PI	2017 – 2020 (Transferred from previous PI in 2018)	Optimization of the Sharpest Digital Filter Transfer Function with Minimum Arithmetic Complexity	99,966.67	MOE AcRF Tier 1
PI	2016 – 2018	Optimization of High Performance FIR Digital Filters and Filterbanks for Efficient Implementation	50,000	MOE AcRF Tier 1
PI	2015 – 2016	Estimation of Driver Stress from Ultra-Short Term Heart Rate Variability	98,600	MOE AcRF Tier 1
PI	2006 – 2007	Processing and classification of heart rate variability signals with clinical applications	50,000	NTU (2006ICTG09)
PI	2006 – 2007	Three-dimensional (3D) video signal analysis, compression and applications	40,000	NTU (CSP/RF/04/05)
PI	2000 – 2003	Multidimensional signal processing of NMR data	28,507	MOE AcRF Tier 1

**Citation Summary** (according to the citation reports attached)

Database	Citation Count		H-index
	without self-citations	with self-citations	
Web of Science (SCI)	4208	4503	34
Google Scholar		8131	47

**Publications** (in chronological order, starting with the most recent)

<b>Bold</b>	Denotes main author (bold <b>all</b> the main authors' names in your CVs) (the person(s) who has/have made the most scientific/intellectual contribution but not student/researcher)
<b>^</b>	Denotes corresponding author
<b>~</b>	Denotes PI/ Supervisor/Team Lead
<b>**</b>	Denotes directly supervised research staff, i.e. POs, RAs, RFs, postdocs, etc.
<b>*</b>	Denotes PhD or research students (supervised or co-supervised)
<b>##+</b>	Denotes Tier 1A+ papers (1 Jan 2020 – 31 Dec 2022)
<b>##</b>	Denotes Tier 1A papers (1 Jan 2020 – 31 Dec 2022)
<b>#</b>	Denotes Tier 1B papers (1 Jan 2020 – 31 Dec 2022)

**Journal Papers**

<i>Last 3 years (1 Jan 2020 – 31 Dec 2022)</i>	<i>Tier 1A+</i>	<i>3</i>
	<i>Tier 1A</i>	<i>9</i>
	<i>Tier 1B</i>	<i>12</i>
<i>Current year (1 Jan 2022 – 31 Dec 2022)</i>	<i>Tier 1A+</i>	<i>2</i>
	<i>Tier 1A</i>	<i>5</i>
	<i>Tier 1B</i>	<i>3</i>

1. \*Peng J. W., Xu Y. C., ~**Lin Z. P.**, Weng Z. Y., Yang Z. S., Zhuang H. P., “Decoupled Neural Network Training with Re-computation and Weight Prediction”, *PLOS ONE*, 2023 ##
2. \*\*Weng Z. Y., Zhuang H. P., Li H. Z., Ramalingam B., Mohan R. E., ~**Lin Z. P.**, “Online Multi-Face Tracking with Multi-Modality Cascaded Matching”, *IEEE Transactions on Circuits and Systems for Video Technology*, 2023 ##
3. Li Z. C., **Xu H. L.**, Lin Z. P., Chen X. F., Ma C. B., “Robust self-triggered DMPC for linear discrete-time systems with local and global constraints”, *Journal of the Franklin Institute*, Volume 360, Issue 1, Pages 527-554, Jan. 2023 #

4. \*Yang B., Wu J., **Zhang X.**, ~Lin Z. P., Nie F., Chen B., "Robust Anchor-based Multi-view Clustering with Spectral Embedded Concept Factorization," *Neurocomputing*, vol. 528, pp. 136-147, 2023. #
5. \*\*Luo F. L., Zou Z. H., Liu J. M., ~Lin Z. P., "Dimensionality Reduction and Classification of Hyperspectral Image via Multistructure Unified Discriminative Embedding," *IEEE Transactions on Geoscience and Remote Sensing*, 60, 1–16, 2023. ##
6. **Lai X. P.**, Cao J. W., Lin Z. P., "An Accelerated Maximally Split ADMM for a Class of Generalized Ridge Regression," *IEEE Transactions on Neural Networks and Learning Systems*, Volume: 34, Issue: 2, Page(s): 958 - 972, February 2023 ##+
7. \*\*Zhang W. W., Kasun L. C., Wang Q. J., Zheng Y. J., ~Lin Z. P., "A Review of Machine Learning for Near Infrared Spectroscopy", *Sensors*, 22, 9764. <https://doi.org/10.3390/s22249764>, 2022 #
8. Ramalingam B., Le A. V., Lin Z. P., Weng Z. Y., **Mohan R. J.**, Pookkuttath S., "Optimal Selective For Cleaning using Deep Learning Algorithms and Reconfigurable Robot hTetro", *Scientific Reports*, Sep 24;12(1):15938. doi: 10.1038/s41598-022-19249-7, 2022 ##
9. \*Zhang S. Y., Zhang H. H., ~Lin Z. P., Ng S. H. "Automated and Precise Heartbeat Detection in Ballistocardiography Signals using Bidirectional LSTM", *Franklin Open*, vol. 1, pp. 30-38, 2022
10. \*Li H., Lee C. H., Chia D., ~Lin Z. P., Huang W. M., Tan C. H., "Machine Learning in Prostate MRI for Prostate Cancer: Current Status and Future Opportunities", *Diagnostics*, 12(2), 289, 2022.
11. \*Yang B., **Zhang X. T.**, **Lin Z. P.**, Nie F. P., Chen B. D., Wang F., "Efficient and Robust Multi-view Clustering with Anchor Graph Regularization", *IEEE Transactions on Circuits and Systems for Video Technology*, Volume: 32, Issue: 9, September 2022, Pages: 6200 – 6213, 2022 ##
12. \*Peng X. G., Song R. Z., Cao Q., Li Y., Jia X. F., ~Lin Z. P., Huang G. B., "Real-Time Illegal Parking Detection Algorithm in Urban Environments," *IEEE Transactions on Intelligent Transportation Systems*, Volume: 23, Issue: 11, Page(s): 20572 - 20587, November 2022 ##+
13. \*Yang B., **Zhang X.**, Chen B., Nie F., ~Lin Z. P., and Nan Z., "Efficient Correntropy-based Multi-view Clustering with Anchor Graph Embedding," *Neural Networks*, vol. 146, pp. 290-302, 2022. ##
14. \*Peng X. G., Li H. H., Yuan F., Razul S. G., Chen Z. B. and ~Lin Z. P., "An extreme learning machine for unsupervised online anomaly detection in multivariate time series". *Neurocomputing*, vol. 501, 596-608, 2022 #
15. \*Peng S. Y., Yang Z. J., Nie F. P., Chen B. D., ~Lin Z. P., "Correntropy based semi-supervised concept factorization with adaptive neighbors for clustering", *Neural Networks*, Volume 154, Pages 203-217, October 2022 ##
16. \*Zhuang H. P., ~Lin Z. P., Toh K.-A., "Blockwise Recursive Moore-Penrose Inverse for Network Learning," *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 52(5), 3237-3250, May 2022 #
17. \*Peng S. Y., Yang Z. J., Ling Bingo W. K., Chen B. D., ~Lin Z. P., "Dual Semi-Supervised Convex Nonnegative Matrix Factorization for Data Representation," *Information Sciences*, 585, 571–593, 2022 ##
18. \*Zhuang H. P., Wang Y., Liu Q. L., and ~Lin Z. P., "Fully Decoupled Neural Network Learning Using Delayed Gradients," *IEEE Transactions on Neural Networks and Learning Systems*, 52(5), 3237 - 3250, 2022 ##+



19. \*Zhuang H. P., ~Lin Z. P., Toh K.-A., "Correlation Projection for Analytic Learning of a Classification Network," *Neural Processing Letters*, 53, 3893–3914, 2021.
20. \*\*Oh B. -S. and ~Lin Z. P., "Extraction of Global and Local m-DS features from FMCW Radar Returns for UAV Detection," *IEEE Transactions on Aerospace and Electronic Systems*, 57(2), 1351 – 1360, 2021 ##
21. Chen J. C., Ng J.-S., Chong K.-S., Lin Z. P., **Gwee B.-H.**, "A Novel Normalized Variance-based Differential Power Analysis against Masking Countermeasures," *IEEE Transactions on Information Forensics and Security*, 16, 3767 – 3779, 2021 ##
22. Chen X. F., **Xu H. L.**, Zhai X. K., Lin Z. P., "Generalised KYP lemma with its application in finite frequency H-infty distributed filter design for nonideally interconnected networked control systems," *International Journal of Systems Science*, 52(3), 635-656, 2021
23. Su H., Lin Z. P., **Sun L.**, "Extraction of category orthonormal subspace for multi-class classification," *Journal of the Franklin Institute*, 358, 5089-5112, 2021 #
24. \*Peng S. Y., Ser W., Chen B. D., ~Lin Z. P., "Robust Semi-Supervised Nonnegative Matrix Factorization for Image clustering," *Pattern Recognition*, 111, 107683, 2021 ##
25. Wang H., **Xu H. L.**, Zhai X. K., Chen X. F., Lin Z. P., "Asymptotic stability analysis and model reduction for spatially interconnected time-delay systems," *Journal of the Franklin Institute*, 357(17), 12670-12699, 2020 #
26. **Lai X. P.**, Cao J. W., Huang X. F., Wang T. L., and Lin Z. P., "A Maximally Split and Relaxed ADMM for Regularized Extreme Learning Machines," *IEEE Transactions on Neural Networks and Learning Systems*, 31(6), 1899 – 1913, 2020 ##+
27. \*Peng S. Y., Ser W., Chen B. D., ~Lin Z. P., "Robust orthogonal nonnegative matrix tri-factorization for data representation," *Knowledge-Based Systems*, 201 – 202, 106054, 2020 ##
28. \*\*Luo F. L., Guo T., ~Lin Z. P., Ren J. C., Zhou X. C., "Semisupervised Hypergraph Discriminant Learning for Dimensionality Reduction of Hyperspectral Image," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 13, 424 – 456, 2020 #
29. Li J. B., Lv J. H., Oh B.-S., Lin Z. P., **Yu Y. J.**, "Identification of Stress State for Drivers Under Different GPS Navigation Modes," *IEEE Access*, 8, 102773-102783, 2020 #
30. Huang Y. R., **Jin Y.**, Li Y. D., Lin Z. P., "Towards Imbalanced Image Classification: A Generative Adversarial Network Ensemble Learning Method," *IEEE Access*, 8, 88399-88409, 2020 #
31. \*Zhuang H. P., ~Lin Z. P., Toh K.-A., "Training a multilayer network with low-memory kernel-and range projection," *Journal of the Franklin Institute*, 357(1), 522 – 550, 2020 #
32. **Wang Z. X.**, Lin Z. P., "Optimal Feature Selection for Learning-based Algorithms for Sentiment Classification," *Cognitive Computation*, 12, 238 – 248, 2020 #
33. \* Peng S. Y., Ser W., Chen B. D., Sun L., and ~Lin Z. P., "Robust nonnegative matrix factorization with local coordinate constraint for image clustering," *Engineering Applications of Artificial Intelligence*, 88, 103354, 2020 #
34. Cho S. C., Oh B.-S., **Toh K.-A.**, Lin Z. P., "Extraction and Cross-Matching of Palm-Vein and Palmprint From the RGB and the NIR Spectrums for Identity Verification," *IEEE Access*, 8, 4005 - 4021, 2020 #
35. Song W. T., Cheng Q. J., Surman P., Liu Y., **Zheng Y. J.**, Lin Z. P., Wang Y. T., "Design of a light-field near-eye display using random pinholes," *Optics Express*, 27(17), 23763-23774, 2019 #
36. Song W. T., Cheng Q. J., Liu Y., **Zheng Y. J.**, Lin Z. P., Wang Y. T., "Three-dimensional image authentication using binarized images in double random phase integral imaging," *Chinese Optics Letters*, 17(5), 051002 (1-5), 2019

37. \*\*Oh B.-S., \*Zhuang H. P., Toh K.-A., ~Lin Z. P., "Augmented Empirical Mode Decomposition for Complex-valued Univariate Signals," *IET Signal Processing*, 13(4), 424-433, 2019
38. \*Zheng S. N., Cai H., Song J. F., Zou J., Chin L. K., Liu P. Y., ~Lin Z. P., Kwong D. L., Liu A. Q., "A Single-chip Integrated Spectrometer via Tunable Microring Resonator Array," *IEEE Photonics Journal*, 11(5), 6602809 (10 pages), 2019 #
39. \*\* Oh B.-S., Guo X., and ~Lin Z. P., "A UAV Classification System based on FMCW Radar Micro-Doppler Signature Analysis," *Expert Systems with Applications*, 132, 239–255, 2019 ##
40. \*Lin D. Y., ~ Lin Z. P., Cao J. W., Velmurugan R., Ward E. S., Ober R. J., "A two-stage method for automated detection of ring-like endosomes in fluorescent microscopy images", *PLOS ONE*, 14(6), 0218931, 2019 ##
41. \*Liu Q. L., Lim Y. C. and ~^ Lin Z. P., "A class of IIR filters synthesized using frequency response masking technique," *IEEE Signal Processing Letters*, 26(11), 1693–1697, 2019 #
42. \*Liu Q. L., Lim Y. C. and ~^ Lin Z. P., "Design of pipelined IIR filters using two-stage frequency-response masking technique," *IEEE Trans. Circuits Syst. II, Exp. Briefs*, 66(5), 873-877, 2019 #
43. \*Zheng S. N., Zou J., Cai H., Song J. F., Chin L. K., Liu P. Y., Lin Z. P., Kwong D. L., Liu A. Q., "Microring resonator-assisted Fourier transform spectrometer with enhanced resolution and large bandwidth in single chip solution," *Nature Communications*, 10, 2349, 2019 ##+
44. Sun H. B., Oh B.-S., Guo X. and Lin Z. P., "Improving the Doppler Resolution of Ground-Based Surveillance Radar for Drone Detection," *IEEE Transactions on Aerospace and Electronic Systems*, 55, 3667 – 3673, 2019 ##
45. Cao J. W., Zhang K., Yong H. W., Lai X. P., Chen B. D. and ^ Lin Z. P., "Extreme Learning Machine with Affine Transformation Inputs in an Activation Function," *IEEE Transactions on Neural Networks and Learning Systems*, 30, 2093 – 2107, 2019 ##+
46. \*\*Zhao R. J., Lai X. P., Tay D. B. H. and ~^ Lin Z. P., "An Alternating Variable Technique for the Constrained Minimax Design of Frequency-Response-Masking Filters", *Circuits, systems, and Signal Processing*, 38, 827–846, 2019 #
47. \*\*Zhao R. J., Lai X. P., Hong X. Y., and ~^Lin Z. P., "A matrix-based IRLS algorithm for the least lp-norm design of 2-D FIR filters," *Multidimensional Systems and Signal Processing*, 30, 1 – 15, 2019.
48. Kim J. Y., Oh K. R., Oh B.-S., Lin Z. P., Toh K.-A., "A projection based line features extraction for finger-knuckle-print verification," *Cognitive Computation*, 11(1), 50-70, 2019 #
49. Li L. Z., ^Lin Z. P., Chai Y. and Cai J. J., "Output feedback stabilization of two-dimensional fuzzy systems," *Multidimensional Systems and Signal Processing*, 30, 1731–1748, 2019.
50. \*Nguyen L. D., Gao R. H., Lin D. Y., and ~^Lin Z. P., "Biomedical image classification based on a feature concatenation and ensemble of deep CNNs." *Journal of Ambient Intelligence and Humanized Computing*, 1–13, 2019
51. Xu H. L., Lin Z. P., Zhai X. K., Feng H. Y., Chen X. F., "Quadratic Stability Analysis and Robust Distributed Controllers Design for Uncertain Spatially Interconnected Systems," *Journal of the Franklin Institute*, 355, 7924 - 7961, 2018 #
52. \*Liang Y. F., Sun L., Ser W., Lin F., Thng S. T. G., Chen Q. P., ~^Lin Z. P., "Classification of Non-Tumorous Skin Pigmentation Disorders Using Voting Based Probabilistic Linear Discriminant Analysis," *Computers in Biology and Medicine*, 99, 123-132, 2018 ##

53. \*Lin D. Y., Sun L., Toh K.-A., Zhang J. B., ~Lin Z. P., "Biomedical image classification based on a cascade of an SVM with a reject option and subspace analysis," *Computers in Biology and Medicine*, 96, 128 – 140, 2018 ##
54. Peng S. Y., Ser W., Chen B. D., Sun L., ~Lin Z. P., "Correntropy based graph regularized concept factorization for clustering," *Neurocomputing*, 316, 34 – 48, 2018 #
55. \*\*Oh B.-S., **Toh K.-A.**, Teoh A. B. J., ~Lin Z. P., "An Analytic Gabor Feedforward Network for Single-sample and Pose-invariant Face Recognition," *IEEE Transactions on Image Processing*, 27, 2791 – 2805, 2018 ##+
56. \*Lin D. Y., Sun L., Toh K.-A., Zhang J. B., ~Lin Z. P., "Twin SVM with a reject option through ROC curve," *Journal of the Franklin Institute*, 355, 1710 – 1732, 2018 #
57. **Sun L.**, Toh K.-A., Chen B. D., Lin Z. P., "Exploiting the Categorical Reliability Difference for Binary Classification," *Journal of the Franklin Institute*, 355, 2022-2040, 2018 #
58. **Zhang J.**, Yu Z. L., Gu Z. H., Li Y. Q., Lin Z. P., "Multichannel Electrocardiogram Reconstruction in Wireless Body Sensor Networks through Weighted  $\ell_{1,2}$  Minimization," *IEEE Transactions on Instrumentation and Measurement*, 67, 2024 – 2034, 2018 #
59. **Zhang J.**, Yu Z. L., Cen L., Gu Z. H., Li Y. Q., Lin Z. P., "Deterministic Construction of Sparse Binary Measurement Matrix via Incremental Integer Optimization," *Information Sciences*, 430–431, 504–518, 2018 ##
60. Meng H. L., **Lai X. P.**, Cao J. W., Lin Z. P., "A Sequential Partial Optimization Algorithm with Guaranteed Convergence for Minimax Design of IIR Digital Filters," *Circuits, Systems and Signal Processing*, 37, 4336–4362, 2018 #
61. \*Peng S. Y., Ser W., Chen B. D., Sun L., ~Lin Z. P., "Robust constrained adaptive filtering under minimum error entropy criterion," *IEEE Transactions on Circuits and Systems II: Express Briefs*, 65, 1119 – 1123, 2018 #
62. \*\*Oh B.-S., Guo X., Wan F. Y., Toh K.-A., ~Lin Z. P., "Micro-Doppler mini-UAV Classification Using Empirical Mode Decomposition Features," *IEEE Geoscience and Remote Sensing Letters*, 15(2), 227-231, 2018 #
63. **Toh K.-A.**, Lin Z. P., Sun L., Li Z. G., "Stretchy binary classification," *Neural Networks*, 97, 74 – 91, 2018 ##
64. \*Liu T. C., Lekamalage C. K. L., Huang G. B., ~Lin Z. P., "An adaptive graph learning method based on dual data representations for clustering," *Pattern Recognition*, 77, 126-139, 2018 ##
65. \*Ding S. Y., Mirza B., ~Lin Z. P., Cao J. W., Lai X. P., Nguyen T. V., Sepulveda J., "Kernel based online learning for imbalance multiclass classification," *Neurocomputing*, 277, 139-148, 2018 #
66. \*Liu T. C., Lekamalage C. K. L., Huang G.-B., ~Lin, Z. P., "Extreme Learning Machine for Joint Embedding and Clustering," *Neurocomputing*, 277, 78-88, 2018 #
67. **Tay D.B.H.**, Lin Z. P., "Almost Tight Rational Coefficients Biorthogonal Wavelet Filters," *IEEE Signal Processing Letters*, 25(6), 748 – 752, 2018 #
68. \*Li J. S., ~Lin Z. P., Razul S.G., Kumar A.A., Zheng Y. J., See C. M., "DOA estimation with a rotational uniform linear array (RULA) and unknown spatial noise covariance", *Multidimensional Systems and Signal Processing*, 29(2), 537–561, 2018.
69. \*Peng S. Y., Ser W., **Chen B. D.**, Sun L., ~Lin Z. P., "Constrained maximum correntropy adaptive filtering," *Signal Processing*, 140, 116-126, 2017 ##
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## Conference Papers

<i>Last 3 years (1 Jan 2020 – 31 Dec 2022)</i>	<i>Tier 1</i>	<i>24</i>
<i>Current year (1 Jan 2022 – 31 Dec 2022)</i>	<i>Tier 1</i>	<i>8</i>

1. \*\*Zhuang H., Weng Z., Wei H., Xie R., Toh K.-A., ~Lin Z. P., "ACIL: Analytic Class-Incremental Learning with Absolute Memorization and Privacy Protection", Thirty-Sixth Conference on Neural Information Processing Systems (NeurIPS), Nov - Dec, 2022. #
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5. \*Song R. Z., Kasun L.L C., Peng X. G., ~Lin Z. P., Cao Q., Huang G. B., "Motion Embedding for On-road Motion Object Detection for Intelligent Vehicle Systems", 2022 IEEE 25th International Conference on Intelligent Transportation Systems (ITSC), 3354-3359, 2022 #
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9. \*\*Li H., Peng X., Zhuang H., ~Lin Z., "Multiple Temporal Context Embedding Networks for Unsupervised Time Series Anomaly Detection," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022. #
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111. **Huang W.**, Tan Z. M., Lin Z., Huang G.-B., Zhou J., Chui C.K., Su Y., Chang S., "A Semi-automatic Approach to the Segmentation of Liver Parenchyma from 3D CT Images with Extreme Learning Machine," IEEE Engineering in Medicine & Biology Society (EMBC), San Diego, California USA, August-September, 2012 #
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114. \*Yu Z., **Lin Z.**, "Scene Change Detection Using Motion Vectors and DC components of Prediction Residual in H.264 compressed Videos," IEEE Conference on Industrial Electronics and Applications (ICIEA), Singapore, July, 2012.
115. \*Cai Y., **Shan Y.**, Lin Z., Neo H., "Coaxial Power Sensor Calibration with Adaptor by Direct Comparison Transfer", Conference on Precision Electromagnetic Measurements (CPEM) Digest, pp.90-91, Washington DC, USA, July, 2012.
116. \*Yi L., Razul S., **Lin Z.**, See C.-M., "Road Constraint Assisted Target Tracking in Mixed Los/NLOS Environments Based on TDOA Measurements," IEEE International Symposium on Circuits & Systems (ISCAS), Seoul, Korea, May, 2012 #
117. \*Cao J., **Lin Z.**, "The Detection Bound of the Probability of Error in Compressed Sensing Using Bayesian Approach," IEEE International Symposium on Circuits & Systems (ISCAS), Seoul, Korea, May, 2012 #
118. \*Wong Y., **Lin Z.**, Ober R.J., "Effect of Time Discretization on the Limit of the Accuracy of Parameter Estimation for Moving Single Molecules Imaged by Fluorescence Microscopy," IEEE International Symposium on Biomedical Imaging (ISBI), Barcelona, Spain, May, 2012.
119. \*\*Xu H., **Lin Z.**, Makur A., Xu L., "Asymptotic Unknown Input Observers for 2-D Systems," International Workshop on Multidimensional Systems, Poitiers, France, Sept. 2011.
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122. \*Ong X. R., Shan Y., Zhou Y., **Lin Z.**, "Monte Carlo Simulation Method in Measurement Uncertainty Evaluation," Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), Singapore, Dec, 2010.
123. \*Hong C., Zeng Y., **Lin Z.**, "Time Synchronization in Cooperative Communication," Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), Singapore, Dec, 2010.
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128. **Lai X.P.**, Lin Z., "Design of IIR Digital Filters with Prescribed Phase Error and Reduced Group-delay Error," World Congress on Intelligent Control and Automation (WCICA), Jinan, China, July 6-9 2010.
129. \*\*Xu H., **Lin Z.**, Makur A., "Non-Fragile H-Infinity Filter Design for Polytopic 2-D Systems in Fornasini- Marchesini Model," IEEE International Symposium on Circuits & Systems (ISCAS), Paris, France, May, 2010 #
130. **Lai X. P.**, Lin Z., "A Sequential Constrained Least-Squares Method to Minimax Design of Stable IIR Digital filters," IEEE Conference on Decision and Control (CDC), Shanghai, China, Dec. 16-18, 2009 #
131. Vasudevan S., **Chen G. C. K.**, Lin Z., Puhan N. B., Kiat T. C., "Three-Dimensional Phase Images Using Photothermal Microscope Integrated with Digital Holographic Interferometry", presented at Novel Techniques in Microscopy, OSA Spring Optics & Photonics Congress, Vancouver, Canada, April 26-30, 2009.
132. \*Yu H., **Lin Z.**, Teo F. C. T., "An Efficient Coding Scheme Based on Image Alignment for H.264/AVC," IEEE International Symposium on Circuits & Systems (ISCAS), Taipei, May, 2009 #
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134. \*Kwok K. C., **Lin Z.**, Zeng Y., "Precoded MIMO-SC-FDE and Blind Channel Estimation," IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Macao, China, Nov. 30 - Dec. 3, 2008.
135. \*Yu H., **Lin Z.**, Chai G. L., Yan C. H., Raman N., "A DCT-based change detection method for multi-temporal SAR images," IEEE International Geoscience & Remote Sensing Symposium (IGARSS), Boston, USA, July 2008.
136. \*Liu Y., **Lin Z.**, "Design of WLS FIR Filters with Group Delay Constraint," International Conference on Information, Communications and Signal Processing (ICICSP), Singapore, Dec. 10-13, 2007.
137. \*Padmanabhan P., **Lin Z.**, Ong M. E. H., Ser W., Huang G.-B., "Automatic extraction of HRV sequences from noisy ECG data for reliable analysis and

- tediagnosis”, in Proc. Third IASTED International Conference on Telehealth, Montreal, Canada, May 31-June 1, 2007.
138. \*H. Yu, **Z. Lin**, R. S. Tan, T. T. Le, D. Ghista., “H.264 Standard for Left Ventricle Video Compression and Tediagnosis”, (Invited paper), in Proc. Third IASTED International Conference on Telehealth, Montreal, Canada, May 31-June 1, 2007.
  139. **Lin Z.**, Xu L., Anazawa Y., “Revisiting the Absolutely Minimal Realization for Two-Dimensional Digital Filters,” IEEE International Symposium on Circuits & Systems (ISCAS), New Orleans, USA, May 27-30, 2007 #
  140. **Lin Z.**, Liu Y., “FRM Filter Design with Group Delay Constraint Using Second-Order Cone Programming,” IEEE International Symposium on Circuits & Systems (ISCAS), New Orleans, USA, May 27-30, 2007 #
  141. \*Liu Y., **Lin Z.**, “Design of Arbitrary FIR Digital Filters with Group Delay Constraint,” IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Singapore, Dec. 4-7, 2006.
  142. Xu Z., Lin Z., **Makur A.**, “Multiple Description Image Coding with Hybrid Redundancy,” IEEE Asia Pacific Conference on Circuits and Systems (APCCAS), Singapore, Dec. 4-7, 2006.
  143. **Xu L.**, Lin Z., Anazawa Y., “Symbolic Computation Approach for Minimal Realization of a Class of nD Systems,” International Conference on Electrical Machines and Systems (ICEMS), Nagasaki, Japan, Nov., 20-23, 2006.
  144. **Xu L.**, Fan H., Lin Z., Bose N. K., “A Direct-Construction Approach to Multidimensional Realization and LFR Uncertainty Modeling,” 17th International Symposium on Mathematical Theory of Networks and Systems (MTNS), Kyoto, Japan, July 24-28, 2006.
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  146. Xu Z., **Makur A.**, Lin Z., “Characterization and design of oversampled linear phase filterbanks with arbitrary oversampling ratio,” IEEE International Symposium on Circuits & Systems (ISCAS), Kos, Greece, May 21-24, 2006 #
  147. **Lin Z.**, Liu Y., “FIR Filter Design with Group Delay Constraint Using Semidefinite Programming”, IEEE International Symposium on Circuits & Systems (ISCAS), Kos, Greece, May 21-24, 2006 #
  148. **Lin Z.**, Yu H. T., Pan F., “A Scalable Fast Mode Decision Algorithm for H.264”, IEEE International Symposium on Circuits & Systems (ISCAS), Kos, Greece, May 21-24, 2006 #
  149. **Lin Z.**, Boudelloua M. S., Xu L., “On the Equivalence and Factorization of Multivariate Polynomial Matrices”, IEEE International Symposium on Circuits & Systems (ISCAS), Kos, Greece, May 21-24, 2006 #
  150. **Xu L.**, Lin Z., Anazawa Y., “Minimal Realization for a Class of nD Filters by Grobner Basis Approach,” Asian Symposium on Computer Mathematics (ASCM), Seoul, Korea, Dec. 2005.
  151. \*Yu H., Pan F., **Lin Z.**, Sun Y., “A Perceptual Bit Allocation Scheme for H.264”, IEEE International Conference on Multimedia and Expo (ICME), Amsterdam, Netherlands, July 2005 #
  152. **Xu L.**, Lin Z., Anazawa Y., “On the Synthesis of Stable Stabilizing Compensators for Linear nD SISO Systems,” Fifth International Conference on Control and Automation (ICCA), Budapest, Hungary, June, 2005.
  153. **Xu L.**, Fan H., Lin Z., Xiao Y., Anazawa Y., “A Constructive Procedure for Multidimensional Realization and LFT Uncertainty Modelling,” IEEE International Symposium on Circuits & Systems (ISCAS), Kobe, Japan, May, 2005 #

154. \*Yu H. T., **Lin Z.**, Pan F., "An Improved Rate Control Algorithm for H.264," IEEE International Symposium on Circuits & Systems (ISCAS), Kobe, Japan, May, 2005 #
155. **Lin Z.**, Zou Q., Ober R. J., "The CRLB for Bilinear Systems and Its Biomedical Applications," IEEE International Symposium on Circuits & Systems (ISCAS), Kobe, Japan, May, 2005 #
156. **Ober R. J.**, Lin Z., Zou Q., "On Identifiability of Bilinear Systems," IEEE International Symposium on Circuits & Systems (ISCAS), Kobe, Japan, May, 2005 #
157. \*Liu Y., Zou Q., **Lin Z.**, "Generalized Sidelobe Cancellers with Leakage Constraints," IEEE International Symposium on Circuits & Systems (ISCAS), Kobe, Japan, May, 2005 #
158. \*Liu Y., **Lin Z.**, "Design of Complex FIR Filters Using the Frequency-Response Masking Approach," IEEE International Symposium on Circuits & Systems (ISCAS), Kobe, Japan, May, 2005 #
159. \*Lai X., Ward E. S., **Z. Lin**, and R. J. Ober. "Three-dimensional state space realization algorithm: noise suppression of fluorescence microscopy images and point spread functions", in Proc. SPIE International Symposium on Biomedical Optics, San Jose, USA, Jan. 2005.
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165. **Lin Z.**, Xu L., Wu Q., "Design of Multidimensional Filter Banks Using Grobner Bases: A Survey," IEEE International Symposium on Circuits & Systems (ISCAS), Vancouver, Canada, May, 2004 #
166. **Pan F.**, Lin Z., Lin X., Rahardja S., Juwono W., Slamet F., "Content Adaptive Frame Skipping for Low Bit Rate Video Coding," the fourth International Conference on Information, Communications and Signal Processing (ICICSP), Singapore, Dec., 2003.
167. Zeng Y., **Bi G.**, Lin Z., "Multi-Dimensional Integer Discrete W Transform," the fourth International Conference on Information, Communications and Signal Processing (ICICSP), Singapore, Dec., 2003.
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170. \*Zou Q., **Lin Z.**, Ober R. J., "The Fisher Information Matrix for Two-dimensional Separable-denominator Continuous Systems," IEEE International Symposium on Circuits & Systems (ISCAS), Bangkok, Thailand, May, 2003 #

171. \*Ye H., **Lin Z.**, "Global Optimization of Neural Network Weights Using Subenergy Tunneling Function and Ripple Search," IEEE International Symposium on Circuits & Systems (ISCAS), Bangkok, Thailand, May, 2003 #
172. **Lin Z.**, Zou Q., Ober R. J., "The Fisher Information Matrix for Two-Dimensional Data Sets," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Hong Kong, China, April, 2003 #
173. **Lin Z.**, "Grobner Bases and Applications in Control and Systems," International Conference on Control, Automation, Robotics and Vision (ICARCV), Singapore, Dec, 2002
174. \*Ye H., **Lin Z.**, "A Stochastic Method for Minimizing Functions with Many Minima," IEEE International Workshop on Neural Networks for Signal Processing, Switzerland, Sep, 2002
175. **Lin Z.**, Ying J. Q., Xu L., Zhang C., "Sufficient Conditions for the Strong Stabilizability of Linear nD MIMO Systems," in Proc. International Conference on Control and Automation (ICCA), Xiamen, China, June, 2002
176. Cheng Y. P., **Lu Y. L.**, Lin Z., "A Super Resolution SAR Imaging Method Based on CSA", International Geoscience and Remote Sensing Symposium (IGARSS), Canada, June 2002
177. \*Zou Q., **Lin Z.**, "Measurement time requirement for generalized cross-correlation based time-delay estimation," IEEE International Symposium on Circuits & Systems (ISCAS), Arizona, USA, May, 2002 #
178. Zeng Y., **Bi G.**, Cheng L. Z., Lin Z., "A New Fast Algorithm for Multi-Dimensional DCT-IV/DST-IV," the 3rd International Conference on Information, Communications and Signal Processing (ICICSP), Singapore, Oct., 2001
179. **Lin Z.**, Zeng Y., Bi G., Yeo J., "Wideband SAR Signal Analysis and Processing," the 3rd International Conference on Information, Communications and Signal Processing (ICICSP), Singapore, Oct., 2001
180. \*Ng W. K., **Lin Z.**, Tay D. B. H., "Color Image Compression using Inter-pixels and Inter-frames Correlation," the 3rd International Conference on Information, Communications and Signal Processing (ICICSP), Singapore, Oct., 2001
181. \*Zheng Y., **Lin Z.**, "A New Wavelet-based Tracking Algorithm for Rapidly Time-varying Systems," the 11th IEEE Workshop on Statistical Signal Processing (SSP), Singapore, August, 2001
182. **Wang L.**, Teo K. K., Lin Z., "Predicting Time Series using Wavelet Packet Neural Networks", IEEE International Joint Conference on Neural Networks (IJCNN), July 15-19, 2001, Washington, DC., USA, pp.1593-1597, 2001.
183. Teo K. K., **Wang L.**, Z. Lin, "Wavelet Packet Multi-Layer Perceptron for Chaotic Time Series Prediction: Effects of Weight Initialization," Intelligent Systems Design and Applications (ISDA), San Francisco, USA, 2001
184. \*\*Zeng Y., Bi G., **Lin Z.**, "Integer Sinusoidal Transforms Based on Lifting Factorization," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Salt Lake City, USA, 2001.#
185. \*Zou Q., Zou X., Zhang M., **Z. Lin**, "A Robust Speech Detection Algorithm in A Microphone Array Teleconferencing System," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Salt Lake City, USA, 2001 #
186. **Lin Z.**, Ying J. Q., Xu L., "Further Results on Primitive Factorizations for n-D Polynomial Matrices," IEEE International Symposium on Circuits and Systems (ISCAS), Sydney, Australia, 2001 #
187. **Lin Z.**, "Feedback Stabilizability of Linear Systems over Unique Factorization Domains," International Conference on Control, Automation, Robotics and Vision (ICARCV), Singapore, 2000

188. Teo K. K., **Wang L.**, Lin Z., "Wavelet Multi-layer Perceptron Neural Network for Time-series Prediction," International Conference on Computing and Information (ICCI), Kuwait, 2000
189. \*Zheng Y., **Lin Z.**, "Blind Equalization of Time-varying Channel On-line Based on Non-Gaussian Parametric Model," International Conference Signal Processing Applications and Technology, Dallas, USA, 2000
190. **Lin Z.**, Bose N. K., "Some Conjectures on Multivariate Polynomial Matrices," Second International Workshop on Multidimensional Systems, Czocha Castle, Poland, pp. 165-170, 2000
191. **Ying J. Q.**, Lin Z., Xu L., Wu J., "On the Strong Stabilizability of Time-delay Linear Systems," in Proc. Math Theory of Networks and Systems, Perpignan, France, 2000
192. **Lin Z.**, Ying J. Q., "Stabilizability Tests for Linear nD MIMO Systems," in Proc. Math Theory of Networks and Systems, Perpignan, France, 2000
193. \*Ng W. K., **Lin Z.**, "A New Shape-adaptive DCT for Coding of Arbitrarily Shaped Image Segments," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), vol. 4, pp. 2115-2118, Istanbul, Turkey, 2000 #
194. \*Zheng Y., **Lin Z.**, "Time-varying Autoregressive System Identification using Wavelets," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), vol. 1, pp. 572-575, Istanbul, Turkey, 2000 #
195. **Lin Z.**, Ying J. Q., "On nD Polynomial Matrix Factorizations," The IEEE International Symposium on Circuits and Systems (ISCAS), Geneva, Switzerland, vol. V, pp. 757-760, May, 2000 #
196. **Lawton W. M.**, Lin Z., "Matrix Completion Problems in Multidimensional Systems," The IEEE International Symposium on Circuits and Systems (ISCAS), Florida, USA, vol., 5, pp. 45-48, May, 1999 #
197. **Lin Z.**, "On the Elementary Factors of MIMO Linear Systems," in Abstracts of the First International Workshop on Multidimensional Systems, Lagow, Poland, pp. 91-93, July, 1998
198. **Lin Z.**, "Output Feedback Stabilizability and Stabilization of Linear nD Systems," (plenary address), in Abstracts of the First International Workshop on Multidimensional Systems, Lagow, Poland, pp. 30-32, July, 1998
199. **Lin Z.**, "Adaptive Linear Prediction with Application to Missing Observations," in Proc. IEEE TENCON - Digital Signal Processing Applications, Perth, Australia pp. 473-478, 1996
200. **Lin Z.**, "Detection of Helicopter Signals using Cyclostationarity," IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Detroit, USA, pp. 1952--1955, 1995 #
201. **Lin Z.**, "On Primitive Factorizations for n-D Polynomial Matrices," IEEE International Symposium on Circuits and Systems (ISCAS), Chicago, USA, pp. 595--598, 1993 #
202. **Lin Z.**, "Stabilization and Realization of a Class of Generalized Linear Systems," American Control Conference (ACC), Seattle, USA, pp. 976--977, 1986
203. **Lin Z.**, "Effects of Groups of Operators on Generalized Nyquist Diagrams," American Control Conference (ACC), Seattle, USA, pp. 759--760, 1986
204. **Lin Z.**, "New Proof and Algorithms for 2-D Polynomial Matrix Primitive Factorization over Real Coefficient Field," IEEE International Symposium on Circuits and Systems (ISCAS), San Jose, USA, pp. 828--831, 1986 #
205. **Lin Z.**, "Stabilization of Two-dimensional Systems by Output Feedback Control: MIMO Case," IEEE International Symposium on Circuits and Systems (ISCAS), San Jose, USA, pp. 388--390, 1986 #



## Innovation

### Patents Granted

1. Zhiping Lin, Yong Kiang Yeo, Jianmin Zhang, Wee Ser, and Yenpo Tai, "System and Method for Health Condition Monitoring," Singapore patent, application number: SG\_201710150 -SG(041.05948.PSG), 14 Nov. 2018.
2. M. E. H. Ong, Z. Lin, W. Ser and G.-B. Huang, "Method of predicting acute cardiopulmonary events and survivability of a patient," US patent No. 8,932,220, 15 Jan. 2015.
3. Z. Lin, "Automatic Meter Reading Systems", U.K. Patent No. 2,284,961, Sep. 1997.

### Patents Licensed

1. 2011-2020: The patent of "Method of Predicting Acute Cardiopulmonary Events and Survivability of A Patient" was awarded a license by ZOLL Medical Corporation, USA (to Marcus Ong Eng Hock (SGH), Lin Zhiping, Ser Wee, Huang Guangbin).

## **TEACHING SUMMARY**

### Courses Taught (since joining NTU)

<b>Course Code</b>	<b>Course Title</b>	<b>Academic Year</b>	<b>Course Level</b>
EE6401	Advanced Digital Signal Processing	AY18 – Present	PG
EE6424	Digital Audio Signal Processing	AY15 – AY19	PG
EE7402	Statistical Signal Processing	AY13 – Present	PG
EE4905	Biomedical Signal Processing	AY12 – AY14	UG
EE3072	Project	AY10 – AY13	UG
EE6422	Adaptive Signal Processing	AY07 – AY09	PG
NM6005	Digital Signal Processing	AY04 – Present	PG
EE6421	Statistical Signal Processing	AY04 – AY13	PG
E6426	Image Processing and Pattern Recognition	AY02 – AY04	PG
E6423	Array Signal Processing	AY00 – AY07	PG
E406	Information Engineering Design	AY00 – AY03	UG

### Academic Supervision and Mentoring

<b>No.</b>	<b>PhD Student</b>	<b>Period</b>	<b>Role</b>	<b>Thesis/ Project Title</b>	<b>Current Status</b>
<b>Current</b>					
1	Song Rongzihan (Transferred from another supervisor in July 2021)	2020 - present	Main Supervisor	Vehicle Movement Detection by Machine Learning Techniques	Passed QE

2	Peng Xinggan (Transferred from another supervisor in July 2021. I served as Co-supervisor from July 2019)	2019 - present	Main Supervisor	Anomaly Detection Using Deep learning Network with Application to Medical Images	Passed QE
3	Chen Yongming	2022 - present	Co-Supervisor	Urban Anomaly Detection and Human Activity Classification with Cellular Base-station Traffic	On-going
4	Van Koh Kwan Zhi	2022 - present	Co-Supervisor	Data-Driven Models for Analyzing Smart Sensors and Meters in Water Distribution Networks	On-going
5	Luo Ziwang	2022 - present	Co-Supervisor	Wearable Multimodal Sensing Fibers and Fabrics for AI-Supervised Sensing	On-going
6	Peh Wei Yan (Transferred from another Co-supervisor in July 2021)	2018 - present	Co-Supervisor	Deep Learning Methods for Diagnosis of Epilepsy from Electroencephalograms	IGP – pass oral exam
<b>Graduated</b>					
1	Thangavel Prasanth (Transferred from another supervisor in July 2021)	2017 - 2022	Main Supervisor	Machine Learning Algorithms For Diagnosis Of Epilepsy From EEG	Senior Data Scientist at Grab, Singapore
2	Zhuang Huiping	2017 - 2021	Main Supervisor	Speeding Up Deep Neural Network Training With Decoupled And Analytic Learning	Assoc Professor at South China University

					of Technology, China
3	Chen Jichao (Transferred from another supervisor in July 2021)	2016 - 2021	Main Supervisor	Extreme Learning Machine For Classification And Clustering On Multiview Data	Scientist at ByteDance, Singapore
4	Liu Qinglai (Transferred from another supervisor in April 2018)	2016 - 2020	Main Supervisor	Design Of Recursive Digital Filters Using Frequency-Response Masking Technique	Scientist at TLab@NTU
5	Lin Dongyun	2014 - 2019	Main Supervisor	Robust Classification And Detection With Applications In Biomedical Images	Scientist at I2R
6	Liang Yunfeng	2014 - 2018	Main Supervisor	Computerized Methods For Classification And Severity Assessment Of Skin Pigmentation Disorders	Scientist at Rolls Royce, Singapore
7	Mirza Bilal	2010 - 2015	Main Supervisor	Sequential Extreme Learning Machines For Class Imbalance And Concept Drift	Researcher in the US
8	Yi Lili	2008 - 2015	Main Supervisor	Target Tracking In Mixed LOS/NLOS Environments	Researcher in China
9	Cao Jiuwen	2008 - 2013	Main Supervisor	Further Studies Of Extreme Learning Machine And Compressed Signal Detection	Tenured Professor at Hangzhou Dianzi University, China
10	Wong Yau	2006 - 2012	Main Supervisor	Limit Of The Accuracy Of Parameter Estimation For Moving Single Molecules	Tenured Senior Lecturer at Nanyang Polytechnic, Singapore
11	Yu Hongtao	2003 - 2009	Main Supervisor	Efficient Rate-Distortion Optimization Techniques For H.264	Self-employment in Canada

12	Liu Yongzhi	2002 - 2007	Main Supervisor	Design Of Finite Impulse Response Filters With Reduced Group Delays And Active/Robust Array Beamformers	Researcher in China
13	Ye Hong	1999 - 2005	Main Supervisor	Global Optimization And Biomedical Applications	Manager at NTU
14	Zheng Yuanjin (Transferred from another supervisor in June 1999)	1998 - 2002	Main Supervisor	Contributions To Nonstationary Adaptive Signal Processing And Time-Varying System Identification	Tenured Associate Professor at NTU
15	Peng Siyuan	2016 - 2021	Co-Supervisor	Correntropy Based Nonnegative Matrix Factorization: Algorithms And Clustering Applications	Lecturer in a Chinese university
16	Zheng Shaonan	2014 - 2019	Co-Supervisor	On-Chip Spectrometer: Design, Fabrication And Experiment	Tenured Assoc. Professor at Shanghai University, China
17	Liu Tianchi	2013 - 2018	Co-Supervisor	Clustering And Semi-Supervised Classification With Application To Driver Distraction Detection	Scientist at Shopee
18	Zhou Hongming	2009 - 2014	Co-Supervisor	Extreme Learning Machine For Classification And Regression	Researcher in China

#### Masters students (by Research Only)

No.	Masters Student	Period	Role	Thesis/ Project Title	Current Status
<b>Current</b>					
1	Song Shufeng (Transferred from another supervisor in June 2022)	2021 - Present	Main Supervisor	Portrait matting using an attention-based memory network	Submitted thesis, and thesis being revised based on examiners' comments now
<b>Graduated</b>					

1	Tang Haihan (Transferred From Another Supervisor in June 2022)	2021 - 2022	Main Supervisor	Object Counting Using Machine Learning	Software Development Engineer, Huawei, China
2	Zou Qiyue	2001 - 2004	Main Supervisor	System Theory in Biomedical Applications	Researcher in the US
3	Lai Xuming	2001 - 2004	Main Supervisor	Image Processing in Biomedical Applications	Not in contact
4	Ng Wee Kok (Transferred from another supervisor in June 1999)	1998 - 2001	Main Supervisor	Compression Techniques with Arbitrary Shape Support	Not in contact
5	Ong Soon Huat (Transferred from another supervisor in June 1999)	1997 - 2000	Main Supervisor	Joint Time-Frequency Analysis Of Ammunition Velocity Doppler Radar Signals	Not in contact
6	Zhang Guoping (Transferred from another supervisor in June 1999)	1997 - 1999	Main Supervisor	Wavelets Transform In Multiuser Communication Systems	Not in contact

### Masters students (By Coursework) & Undergraduate Students

No. Graduated (Since joining NTU)			No. Currently Supervising		
MSc#	FYP	URECA	MSc#	FYP	URECA
30	124	33	10	8	4

# MSc students (by coursework), include those taking either dissertation or Independent Study Module.

### Post-doctoral fellows

No.	Post-doc Fellow	Appointment	Period	Thesis/ Project Title	Current Status
<b><i>In employment</i></b>					

1	Guo Jia	Research Fellow	2022 - Present	P6.2 Vision-based / RFID Sensor Fusion for Better Spatial Resolution	On-going
2	Zhang Wenwen	Research Fellow	2022 - Present	Towards An Intelligent Sensor for Non-invasive Glucose Monitoring in Diabetes	On-going
3	Weng Zhenyu	Research Fellow	2021 - Present	Human-Robot Interaction Phase 1	On-going
<b>Left service</b>					
1	Zhuang Huiping	Research Fellow	2022	Human-Robot Interaction Phase 1	Assoc. Prof. in a Chinese university
2	Li Hanhui	Research Fellow	2021	RIVENDELL Track 2: Signal Anomaly Analytics	Assoc. Research Prof. in a Chinese university
3	Liyanaarachchi Lekamalage Chamara Kasun	Research Fellow	2020 - 2022	Development Advanced Signal Processing Techniques For Real-Time Data Analysis	Researcher in Singapore
4	Luo Fulin	Research Fellow	2020 - 2021	Human-Robot Interaction Phase 1	Prof. in a Chinese university
5	Liu Minghui	Research Fellow	2018	Project Mosquito Net	Self-employment in China
6	Zhao Ruijie	Research Fellow	2017	Optimization of High Performance FIR Digital Filters and Filterbanks for Efficient Implementation	Assoc. Prof. in a Chinese university

7	Yu Yajun	Research Fellow	2016	Estimation of Driver Stress from Ultra-Short Term Heart Rate Variability	Assoc. Prof. in a Chinese university
8	Oh Beomseok	Research Fellow	2015 - 2019	Project Mosquito Net	Asst. Prof. in a S. Korean university
9	Sun Lei	Research Fellow	2015	Digital image analysis for assessment of severity of melasma in patients	Assoc. Prof. in a Chinese university
10	Zhang Jingbo	Senior Research Fellow	2013 - 2019	Nano-Opto-Fluidic System (NOFS) For Rapid Viral Detection and Sorting Via Optical Force	Principle RF, NTU
11	Xu Huiling	Research Fellow	2009 - 2011	New Synthesis Algorithm Developments And Hardware Implementations For Image Processing Applied To Medical Diagnostic And Communication Systems	Prof. in a Chinese university
12	Niladri Puhan	Research Fellow	2008 - 2009	Development of Photothermal Imaging System for Imaging sub-cellular organelles	Associate Professor, IIT Bhubaneswar, India
13	Cheng Yuping	Research Fellow	2001 - 2003	Low frequency FOPEN Radar study	Researcher in China
14	Zeng Yonghong	Research Fellow	2000 - 2002	Wideband SAR signal analysis and processing	Senior Scientist at I2R

### **Teaching Awards / Recognition**

Year	Teaching Award / Recognition
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2022	Mentored FYP student Peter Yuen who won Koh Boon Hwee Scholars Award
2021	Mentored FYP student Tang Yuan who won 2021 EEE FYP Challenge Award 1st Prize
2020	NTU URECA Undergraduate Research Excellence Award 2020 for Peng Jiawei, URECA and FYP student under my supervision
2020	Mentored FYP student Liu Yuan who won Koh Boon Hwee Scholars Award
2020	Mentored FYP student Li Xintong who won Lee Kuan Yew Gold Medal
2020	Mentored URECA and FYP student Gao Ruihan who won Lee Kuan Yew Gold Medal
2019	NTU URECA Undergraduate Research Excellence Award 2019 for Peng Jiawei, URECA student under my supervision
2019	NTU URECA Undergraduate Research Excellence Award 2019 for Gao Ruihan, URECA student under my supervision
2019	Nanyang Outstanding Young Alumni Award 2019 for Yan Zhan, FYP student under my supervision 2015 – 2016
2019	URECA student, Peng Jiawei received NTU URECA 2019 conference funding support, who was under my supervision.
2019	URECA student, Gao Ruihan, received NTU URECA 2019 conference funding support, who was under my supervision.
2019	NTU URECA journal publication award 2019 (with L. D. Nguyen, URECA student under my supervision)
2018-2019	NTU Professional Internship Book Prize For Academic Year 2018-19 for Gao Ruihan, intern student under my tutoring
2018	URECA student, Sun Jiajun received NTU URECA 2018 conference funding support, who was under my supervision.
2017	URECA student, Chen Zhihuan received NTU URECA 2017 conference funding support, who was under my supervision.
2017	NTU URECA journal publication award 2017 (with Ding Shuya, URECA student under my supervision)
2016	NTU URECA journal publication award 2016 (with Li Jianshu, URECA student under my supervision)
2016	NTU URECA journal publication award 2016 (with T. L. Nguyen, URECA student under my supervision)
2015	Featured in the “Experience of URECA professors” of the URECA 2015 Yearbook (as 1 of the 2 professors for the first time in URECA Yearbook)
2015	URECA student, Yin Hongxu received NTU URECA 2015 conference funding support, who was under my co-supervision.
2015	NTU URECA journal publication award 2015 (with Zhu Wanzheng, URECA student under my supervision)
2015	NTU URECA journal publication award 2015 (with M. L. Doan, URECA student under my supervision)
2014	URECA student, Chen Yue received NTU URECA 2014 conference funding support, who was under my supervision.
2014	NTU URECA journal publication award 2014 (with Li Jianshu, URECA student under my supervision)
2013	STMICROELECTRONICS iNEMO DESIGN CONTEST 2013 - SECOND PRIZE (WITH LI SHIWEI AND WU HAOZHOU, FYP STUDENTS UNDER MY SUPERVISION)
2013	NTU URECA Popularity Votes award 2013 (with Li Shiwei, URECA student under my supervision)



2012	NTU URECA journal publication award 2012 (with Liu Yiyi, URECA student under my supervision)
2011	NTU URECA journal publication award 2011 (with Zhang Dongye, URECA student under my supervision)

## **SERVICE SUMMARY**

### **Service Awards / Recognition**

<b>Year</b>	<b>Role</b>
2003	Outstanding Reviewer, IEEE Transactions on Circuits and Systems I

### **School**

<b>Period of appointment</b>	<b>Role</b>
2022 - Present	EEE MSc (SP) Program Lead
2022 - Present	Member, EEE Research Apprentice Program (EEE RAP)
2022 - Present	Member, EEE Industry Alliance Committee
2022	EEE MSc (SP) Deputy Program Lead
2020 - 2021	Member of EEE MSc Admission Evaluation Committee
2020 - 2022	Chair of EEE Website Committee
2007 - 2012	Chair of EEE FYP Committee

### **University**

<b>Period of appointment</b>	<b>Role</b>
2020 - Present	Member, NTU Senate Committee of Tellers
2018 - 2020	Member, NTU Senate Committee of Education
2016 - 2020	Senator of NTU Senate

### **Academic Community**

<b>Period of appointment</b>	<b>Role</b>
2023 - Present	Vice Chair of IEEE Signal Processing Society Singapore Chapter
2021 - 2022	Treasurer of IEEE Signal Processing Society Singapore Chapter
2019; 2007 - 2008	Chair of IEEE Circuits and Systems Society Singapore Chapter
2015 - 2020	Subject Editor, Journal of The Franklin Institute
2014 - 2015	Associate Editor, Journal of The Franklin Institute
2013	General Chair, Ninth ICICS Conference, Tainan, Taiwan
2011 - 2015	Editor-in-Chief, Multidimensional Systems and Signal Processing
2010 - 2011	Associate Editor, IEEE Transactions on Circuits and Systems II
2005 - 2010	Co-Editor, Multidimensional Systems and Signal Processing
2000 - 2007	Associate Editor, Circuits, Systems and Signal Processing
1993 - Present	Editorial Board Member, Multidimensional Systems and Signal Processing

### **Other Services**

<b>Period of appointment</b>	<b>Role</b>
2023 - Present	Advisor of The Teochew Doctorate Society Singapore (TDSS)
2020 - 2022	Vice President of The Teochew Doctorate Society Singapore (TDSS)