Curriculum Vitae

Last updated in 2023.

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Cihun-Siyong (Alex) Gong

Education:

1. B.S. Degree, Department of Civil Engineering, National Yang Ming Chiao Tung University, Taiwan (year of graduation: 2002)
2. M.S. Degree, Institute of Biomedical Engineering, National Yang Ming Chiao Tung University, Taiwan (year of graduation: 2005)
3. Ph.D. Degree, Department of Electrical Engineering, National Central University, Taiwan (year of graduation: 2008)

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Professional Work History:

1. R&D Engineer and Project Leader, Information and Communications Research Laboratories, Industrial Technology Research Institute, Hsinchu, 310 Taiwan (Mar., 2009 – Jul., 2013)
2. Adjunct Assistant Professor, Department of Electrical Engineering, National Taiwan Normal University, Taipei, 106 Taiwan (Aug., 2012 – Jul., 2013)
3. Adjunct Assistant Professor, Department of Electrical Engineering, National United University, Miaoli, 360 Taiwan (Aug., 2012 – Jul., 2013)
4. Assistant Professor, Department of Electrical Engineering, Chang Gung University, Taoyuan, 333 Taiwan (Aug., 2013 - Jul., 2017)
5. Adjunct Assistant Researcher and Principle Investigator, Department of Ophthalmology, Chang Gung Memorial Hospital, Linkou Branch, Taoyuan, 333 Taiwan (Jan., 2016 - now)

6. Adjunct Associate Researcher and Principle Investigator, Department of Neurosurgery, Chang Gung Memorial Hospital, Linkou Branch, Taoyuan, 333 Taiwan (Jan., 2022 - now)
7. Associate Professor, Department of Electrical Engineering, Chang Gung University, Taoyuan, 333 Taiwan (Aug., 2017 - now)
8. Full Professor, Department of Electrical Engineering, Chang Gung University, Taoyuan, 333 Taiwan (Aug., 2023 - now)

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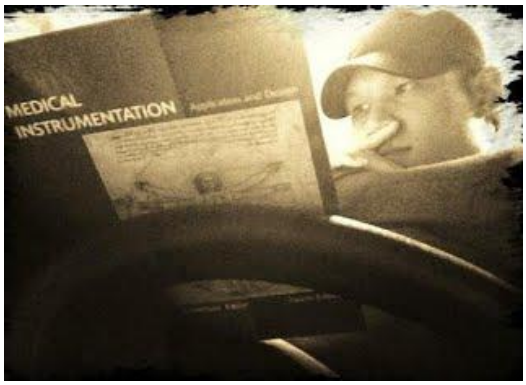
Biography-



Cihun-Siyong Alex Gong has been involved in biomedical circuits and systems since he started his M.S. program. He received his B.S. degree in Civil Engineering from National Chiao Tung University (NCTU), Taiwan, the M.S. degree in Biomedical Engineering from National Yang Ming University (NYMU), Taiwan, and the Ph.D. degree in Electrical Engineering from National Central University (NCU), Taiwan, in 2002, 2005, and 2008, respectively. In 2009, he joined the Industrial Technology Research Institute (ITRI), Taiwan, as one of the Research and Development Staff Members and has become an IEEE Member since then. He held Adjunct Assistant Professor position at National Taiwan Normal University (NTNU), Taiwan, and National United University (NUU), Taiwan, in 2012 and 2013, respectively. He joined the Department of Electrical Engineering, School of Electrical and Computer Engineering, College of Engineering, Chang Gung University (CGU), Taiwan, as an Assistant Professor in 2013, where he is presently a Professor and with the Portable Energy System Group, Green Technology Research Center. He was also an Associate Researcher and Principle Investigator of Chang Gung Memorial Hospital (CGMH), where he has been working closely with clinicians. His research interests are in electronics for medicine and healthcare, including interfacing-associated solid-state circuits and their physiological issues. Prof. Gong was a Visiting Scholar at University of Southampton, UK, in 2015-2016. He chaired the sessions on Advanced Circuit and System on Green and Biomedical Applications, Information and Communication Technology for Translational Medicine and Green Applications, and RF and Wireless for the IEEE ISCE 2013, IEEE ICCE-TW 2014, IEEE ICCE-TW 2015, IEEE ICCE 2015, IEEE ICCE-TW 2016, and IEEE ICCE-TW 2017, respectively. Dr., Gong has been Technical Program Committee (TPC) member of the conferences IEEE GCCE

2015-2017, IEEE ICCE-TW 2015-2017, IEEE ICCE 2016-2022, ICFUN 2016-2022, IEEE ICECS, and IEEE LACAS 2021-2022.. etc. He has also been Technical Program Co-chair of the 2016 Symposium on Engineering, Medicine and Biology Applications (SEMBA), Taiwan, and Publicity Chair of the IEEE ICCE-TW 2015-2017. Alex was a recipient of the 2004 Annual Symposium on Biomedical Engineering Excellent Paper Awards, the 2005 NYMU Honours Student Awards in memory of the Yin, Syun-Ruo, the 2008 NCU Outstanding Graduate Student Awards, the Best Student Paper Contest Awards in the 2008 IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC), the 2009 Best Design Awards of the Chip Implementation Center (CIC), Taiwan, the 2009 Taipei International Invention Show and Technomart Gold Medal Awards, the 2012 Best Paper Awards of the Computer and Communication (CCL) Technical Journal, the Honorable Mention Awards at the 2013 Biomedical Engineering Symposium on 4B, Taiwan, the Honorable Mention Awards at the IEEE ICCE-TW 2014, the 2021 Outstanding Paper Award of the 26th Vehicle Engineering Symposium, the 2021 Biomedical Engineering Technology Symposium (TSBME 2021) Best Oral Presentation Award, the 2018 College Student Research Project Research Creation Award (*Supervisor), and the Ministry of Science and Technology's Annual Subsidy to Colleges and Universities Research Awards (two times). Prof. Gong holds 12 patents and has published over 50 technical papers including academic publications in international journals and conferences and industrial reports for companies. He founded MIX studio, Taiwan, and was working for Merry Monarc(h) and JumpTaoyuan studios, Taiwan, prior to his academic career. Dr. Gong is a Senior Member of the IEEE. He is serving as Editors for SCI-indexed journals *IEEE ACCESS*, *PLOS ONE*, and *Micromachines*.

(All the conferences whose names are with the words “CE” refer to "Consumer Electronics")

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Awards-

1. 2004 Annual Symposium on Biomedical Engineering Excellent Paper Award
2. 2005 NYMU Honours Student Award in memory of the Yin, Syun-Ruo
3. 2008 NCU Outstanding Graduate Student Award
4. 2008 IEEE EDSSC Best Student Paper Contest Award
5. 2009 CIC Best Design Award
6. 2009 Taipei International Invention Show and Technomart Gold Medal Award
7. 2012 CCL Technical Journal Best Paper Award
8. 2013 Biomedical Engineering Symposium on 4B Honorable Mention Award

9. 2014 IEEE ICCE-TW Honorable Mention Award
10. Marquis Who's Who in the World
11. IEEE Senior Member
12. Ministry of Science and Technology's Annual Subsidy to Colleges and Universities Research Awards (two times)
13. 2021 Outstanding Paper Award of the 26th Vehicle Engineering Symposium, Taiwan
14. 2021 Biomedical Engineering Technology Symposium (TSBME 2021) Best Oral Presentation Award
15. 2018 College Student Research Project Research Creation Award (*Supervisor)

Academic Service-

1. Reviewer, Journal of Electromagnetic Waves and Applications (JEMWA)
2. Reviewer, IEEE Intl. Conf. Electronics, Cir. Sys. (ICECS)
3. Reviewer, Bioresource Technology
4. Reviewer, IEEE Trans. Cir. And Sys.--II (TCASII)
5. Reviewer, IEEE Biomed. Cir. Sys. Conf. (BioCAS) (2009-2012)
6. Reviewer, IEEE VLSI-DAT
7. Reviewer, IEEE EMBS Special Conference on Neural Engineering (NER)
8. Reviewer, IEEE CISP'11-BMEI'11
9. Reviewer, IEEE EMBS Conference (EMBC)
10. Reviewer, VLSI Design/CAD Symposium, Taiwan
11. Reviewer, IEEE Sensors Journal (2014-2018)
12. Reviewer, IEEE Trans. Biomedical Circuits and Systems (TBCAS)
13. Reviewer, BioMedical Engineering OnLine (2015)
14. Reviewer, Brain Research (2015)
15. Reviewer, IEEE/OSA Journal of Display Technology (2015)
16. Reviewer, International Journal of Energy Research (2015)
17. Session Chair of IEEE ISCE 2013
18. Session Chairs of IEEE ICCE-TW 2014-2017
19. Session Chair of IEEE ICCE 2015-2022
20. Session Chair of IEEE ICUFN 2016-2021
21. TPC members of IEEE ISCE, IEEE ICCE-TW, IEEE GCCE, IEEE ICCE, and IEEE ICUFN
22. IEEE ICCE-TW 2015-2018 Publicity Chair
23. IEEE ICCE-TW 2018 Special Session Organization Co-Chair
24. TPC Co-chair of SEMBA 2016

25. TPC member of IEEE ICECS 2018
26. TPC member of IEEE 2018 International Conference on Advanced Technologies for Communications (ATC)
27. TPC member of IEEE LACAS 2021-2022
28. Invited Lectures - The Third International Symposium on InfoComm and Media Technology in Bio-Medical and Healthcare Application (2013 IS 3T-in-3A), Chinese Culture University, National United University, National Central University, Yuan Ze University.. etc
29. M.S. Degree Committee Member of several universities in Taiwan
30. Section Editor, SM Journal of Biomedical Engineering
31. Program Planning Committee Member, Department of Engineering and Technologies, Ministry of Science and Technology (MOST), Taiwan
32. Editor, Journal of Electronics and Communication Engineering Research
33. Associate Editor, IEEE ACCESS
34. Topical Editor, Micromachines
35. Editor, PLOS ONE

Journal Article-

[1] Cihun-Siyong Alex Gong, Muh-Tian Shiue, Kai-Wen Yao, and Tong-Yi Chen, "Low-Power and Area-Efficient PSK Demodulator for Wirelessly Powered Implantable Command Receivers," IEE (IET) Electronics Letters, Vol. 44, Issue 14, pp. 841-843, Jul. 2008. (SCI, EI)

[2] Cihun-Siyong Alex Gong, Muh-Tian Shiue, Kai-Wen Yao, Tong-Yi Chen, Yin Chang, and Chun-Hsien Su, "A Truly Low-Cost High-Efficiency ASK Demodulator Based On Self-Sampling Scheme for Bioimplantable Applications," IEEE Trans. Cir. and Sys.--I (TCAS-I): Regular Papers, Vol. 55, Issue 6, pp. 1464 - 1477, Jul. 2008. (SCI, EI)

[3] Cihun-Siyong Alex Gong, Muh-Tian Shiue, Ci-Tong Hong, and Kai-Wen Yao, "Analysis and Design of An Efficient Irreversible Energy Recovery Logic in 0.18-um CMOS," IEEE Trans. Cir. And Sys.--I (TCAS-I): Reg. Papers, Vol. 55, Issue 9, pp. 2595 - 2607, Oct. 2008.

[4] Cihun-Siyong Alex Gong, "An Active-diode-based CMOS Rectifier for Biomedical Power Harvesting Applications," Int. J. Circ. Theor. Appl., Vol. 39, Issue 5, pp. 439 - 449, 2011. (SCI, EI)

[5] Muh-Tian Shiue, Kai-Wen Yao, and Cihun-Siyong Alex Gong, "Tunable high resistance voltage-controlled pseudo-resistor with wide input voltage swing capability," IEE (IET) Electronics Letters, Vol. 47, Issue 6, pp. 377-378, March.

2011. (SCI, EI)

[6] Cihun-Siyong Alex Gong, Kai-Wen Yao, and Muh-Tian Shiue, "A CMOS multichannel electrical stimulation prototype system," Int. J. Circ. Theor. Appl., Vol. 41, Issue 3, pp. 238 - 258, 2013. (SCI, EI)

[7] Cihun-Siyong Alex Gong, "Investigation of efficient ASK demodulation for wirelessly powered Biodevices," IEE Electronics Letters, Vol. 48, Issue 4, pp. 203-204, 2012. (SCI, EI) -Featured Article

[8] Cihun-Siyong Alex Gong and Kin Fong Lei, "Advances in Miniaturized Instruments for Genomics," BioMed Research International, Vol. 2014, Article ID 734675, 13 pages, 2014. (SCI) -Invited Review Article

[9] Cihun-Siyong Alex Gong and Chien-Kun Ting, "Investigation of an Intelligent System for Fiber Optic-Based Epidural Anesthesia," BioMed Research International, Vol. 2014, Article ID 437679, 7 pages, 2014. (SCI)

[10] Cihun-Siyong Alex Gong et al., "Predicting Postoperative Vomiting for Orthopedic Patients Receiving Patient-Controlled Epidural Analgesia with the Application of an Artificial Neural Network," BioMed Research International, Vol. 2014, Article ID 786418, 6 pages, 2014. (SCI)

[11] Cihun-Siyong Alex Gong et al, "Impedimetric detection of whole blood concentration for early detection of intraocular hemorrhage," Microelectron Eng, 129: pp. 70–76, 2014. (SCI, EI)

[12] Cihun-Siyong Alex Gong et al, "Portable Optical Epidural Needle-A CMOS-Based System Solution and Its Circuit Design," PLOS ONE, Vol. 9, Issue 8, 2014. (SCI)

[13] Meng-Tsan Tsai, Feng-Yu Chang, Cheng-Kuang Lee, Cihun-Siyong Alex Gong, Yu-Xiang Lin, Jiann-Der Lee, Chih-Hsun Yang, and Hao-Li Liu, "Investigation of temporal vascular effects induced by focused ultrasound treatment with speckle-variance optical coherence tomography," Biomedical Optics Express, Vol. 5, No. 7, pp. 2009 - 2011, 2014. (SCI)

[14] Kuo-Hsing Cheng, Cheng-Liang Hung, Cihun-Siyong Alex Gong, Jen-Chieh Liu, Bo-Qian Jiang, Shi-Yang Sun, "A 0.9- to 8-GHz VCO With a Differential Active Inductor for Multistandard Wireline SerDes, " IEEE Trans. Cir. Sys.-II (TCAS-II): Express Briefs, Vol. 61, Issue 8, pp. 559 - 563, 2014. (SCI, EI)

[15] Cihun-Siyong Alex Gong, "Investigation of Noise-Margin-Enhanced and Low-Power Memory Techniques for SoC Applications," Circuits Syst Signal Process, Volume 34, Issue 4, pp 1115 - 1128, 2015. (SCI, EI)

[16] Yu Lin Tsou, Cihun-Siyong Alex Gong, Nai Chen Cheng, Yu Lee, Christina F. Jou, "Integrated Biosensing Platform Based on a 1.74-mW -90-dBm Sensitivity Dual-Mode-Operation Receiver for IEEE 802.15.6 Human Body

Communication Standard," IEEE Sensors Journal, Vol. 15, No. 6, pp. 3317 - 3327, 2015. (SCI, EI)

[17] I-Chyn Wey, Bing-Chen Wu, Chien-Chang Peng, Cihun-Siyong Alex Gong, Chang-Hong Yu, "Robust C-element design for soft-error mitigation, " IEICE Electron. Express, Vol.12, No.10, pp. 20150268 - 20150268, 2015. (SCI, EI)

[18] Muh-Tian Shiue, Kai-Wen Yao, Cihun-Siyong Alex Gong, "A Bandwidth-tunable Bioamplifier with Voltage-controlled Symmetric Pseudo-resistors, " Microelectron. J., Vol. 46, Issue 6, pp. 472–481, 2015. (SCI, EI)

[19] Cihun-Siyong Alex Gong et al., "A Wide-Range Charge Controller for Solar Sensor, " Journal of Circuits, Systems and Computers, Vol. 24, No. 7, pp. 1550108-1 - 1550108-9, 2015. (SCI, EI)

[20] Cihun-Siyong Alex Gong et al., "A Programmable High-Voltage Compliance Neural Stimulator for Deep Brain Stimulation in Vivo, " Sensors, 15(6), pp. 12700-12719, 2015. (SCI, EI)

[21] Cihun-Siyong Alex Gong* et al., "Data-rate-efficient CMOS modulator for wireless biomedical sensor network applications," International Journal of Microwave and Wireless Technologies, Online First, 2015. (SCI, EI) *Co-first authors

[22] Jian-Chiun Liou, Cihun-Siyong Alex Gong, Cheng-Fu Yang, Yen-Hsiang Fang, "Design and fabrication of multiplexer driver for InP-laser arrays with waveguide," Optical and Quantum Electronics, 48:97, February 2016. (SCI, EI)

[23] Cihun-Siyong Alex Gong* et al., "Low-Cost Comb-Electrode Capacitive Sensing Device for Liquid-Level Measurement, " IEEE Sensors Journal, Volume 16, Issue 9, pp. 2896 - 2897, 2016. (SCI, EI) *Co-first authors

[24] Bo-Hao Chen, Andrey Kopylov, Shih-Chia Huang, Oleg Seredin, Roman Karpov, Sy-Yen Kuo, K Robert Lai, Tan-Hsu Tan, Munkhjargal Gochoo, Damdinsuren Bayanduuren, Cihun-Siyong Gong*, Patrick CK Hung, "Improved global motion estimation via motion vector clustering for video stabilization, " Engineering Applications of Artificial Intelligence, 54, 39-48, 2016. (SCI, EI) *Co-corresponding authors

[25] J.-C. Liou, C.-F. Yang, C.-S. Gong, "Design and Fabrication of Identification Inkjet Print Head Chip Fuse Sensors, " Sensors and Materials, 28 (5), 493-501, 2016. (SCI, EI)

[26] Hsin-Yun Wu*, Cihun-Siyong Alex Gong*, Shih-Pin Lin, Kuang-Yi Chang, Mei-Yung Tsou, and Chien-Kun Ting, "Predicting postoperative vomiting among orthopedic patients receiving patient-controlled epidural analgesia using SVM and LR, " Scientific Reports, 6, Article number: 27041, 2016. (SCI) *Co-first authors

[27] Cihun-Siyong Alex Gong, Yu-Chen Lee, Jyun-Liang Lai, Chueh-Hao Yu, Li Ren Huang, and Chia-Yen Yang, "The High-efficiency LED Driver for Visible Light Communication Applications, "Scientific Reports, 6, Article number: 30991, 2016. (SCI)

[28] Cihun-Siyong Alex Gong et al, "Design and Implementation of A Voltage-controlled Oscillator for MICS-based Sensor Network System," International Journal of Microwave and Wireless Technologies, Volume 8, Issue 7, pp. 1005-1015, 2016. (SCI, EI)

[29] Cihun-Siyong Alex Gong, "Design and Evaluation of A Wireless CMOS Energy Harvester for Biomedical Sensor Networks," International Journal of Microwave and Wireless Technologies, Volume 8, Issue 3, pp. 529-535, 2016. (SCI, EI)

[30] Chia-Hung Chang†, Cihun-Siyong Alex Gong†, Jian-Chiun Liou, Yu-Lin Tsou, Feng-Lin Shiu, Hwann-Kaeo Chiou, and Po-Hsun Tu, "A 260-uW Down-conversion Demodulator for MICS-band Receiver, " Journal of Circuits, Systems and Computers, Volume 26, Issue 02, 1750027, 2016. (SCI, EI) †Co-corresponding authors

[31] Cihun-Siyong Alex Gong et al., "Development of a Flexible Non-Metal Electrode for Cell Stimulation and Recording, " Sensors, 16(10), 1613, 2016. (SCI, EI)

[32] Cihun-Siyong Alex Gong et al., "Fully integrated 2.45-GHz OOK receiver for wireless sensor networks, "Int. J. Circ. Theor. Appl., Volume 44, Issue 11, pp. 1926–1941, 2016. (SCI, EI)

[33] C.-S. A. Gong*, C.-H. Chang*, F.-L. Shiu, H.-K. Chiou, Y.-S. Hwang, "A front-end receiver with a dual cross-coupling technique for MICS applications, " International Journal of Circuit Theory and Applications, , Volume 45, Issue 4, pp. 1926–1941, 2017. (SCI, EI) *Co-corresponding authors

[34] Patrick Rwei*, Cihun-Siyong Alex Gong*, Li-Jyuan Luo, Meng-Bo Lin, Jui-Yang Lai, Hao-Li Liu, "In vitro investigation of ultrasound-induced oxidative stress on human lens epithelial cells," Biochemical and Biophysical Research Communications, 22;482(4):954-960, 2017. (SCI) *Co-first authors

[35] Chia-Hung Chang, Wei-Hsien Chen, Cihun-Siyong Alex Gong, and Wei-Wen Hu, "A direct conversion transmitter with digital-assisted DC offset and I/Q phase calibration," International Journal of Circuit Theory and Applications, Volume 45, Issue 12, pp. 2073-2084, 2017. (SCI, EI)

[36] Cihun-Siyong Alex Gong et al., "Design and Implementation of Acoustic Sensing System for Online Early Fault Detection in Industrial Fans," Journal of Sensors," Volume 2018, Article ID 4105208, 15 pages, 2018. (SCI, EI)

[37] Cihun-Siyong Alex Gong* et al., "Two Dimensional Parity Check with Variable

Length Error Detection Code for the Non-Volatile Memory of Smart Data," Appl. Sci. 8(8), 1211, 2018. (SCI) *Co-corresponding authors

[38] Cihun-Siyong Alex Gong* et al., "A 13.56 MHz CMOS High-Efficiency Active Rectifier With Dynamically Controllable Comparator for Biomedical Wireless Power Transfer Systems," IEEE Access, Vol 6, pp. 49979 - 49989, 2018. (SCI, EI) *Co-first authors

[39] Cihun-Siyong Alex Gong* et al. "Double Assurance of Epidural Space Detection Using Fiberoptics-Based Needle Design and Autofluorescence Technologies for Epidural Blockade in Painless Labor," Sensors, no. 11: 3592, 2018. (SCI, EI) *first & corresponding authors

[40] Cihun-Siyong Alex Gong* et al. "Optically Guided Epidural Needle Placement Using 405-nm Wavelength for Accurate Puncture," Sci Rep 9, 1552, 2019. (SCI) *Co-first authors

[41] JC Liou, CSA Gong (Cihun-Siyong Alex Gong), LC Chen, "Multi-Channel Physiological Monitoring Integrated Artificial Intelligence Prosthetic Arm Assistive Learning System," Journal of Nanoelectronics and Optoelectronics 14 (5), 688-698, 2019. (SCI, EI)

[42] JC Liou, CSA Gong (Cihun-Siyong Alex Gong), LC Chen, "The Merging of Multi-Dimensional Data Registration Circuit and Thermal Inkjet Printhead System," Journal of Nanoelectronics and Optoelectronics 14 (5), 680-687, 2019. (SCI, EI)

[43] HC Lee, CSA Gong* (Cihun-Siyong Alex Gong), PY Chen, "A compressed sensing estimation technique for doubly selective channel in OFDM systems," IEEE Access, 115192-115199, 2019. (SCI, EI) *Co-corresponding authors

[44] Cihun-Siyong Alex Gong* et al. "A bootstrapped comparator-switched active rectifying circuit for wirelessly powered integrated miniaturized energy sensing systems," Sensors, no. 21: 4714, 2019. (SCI, EI) *first & corresponding authors

[45] YC Chang, CSA Gong (Cihun-Siyong Alex Gong), CT Chiu, "Fault-tolerant mesh-based NoC with router-level redundancy," Journal of Signal Processing Systems 92 (4), 345-355, 2020. (SCI, EI)

[46] Cihun-Siyong Alex Gong* et al. "Implementation of machine learning for fault classification on vehicle power transmission system," IEEE Sensors Journal, vol. 20, no. 24, pp. 15163-15176, 2020. (SCI, EI) *first & corresponding authors

[47] Chien-Kun Ting, Udesh Dhawan, Ching-Li Tseng, Cihun-Siyong Alex Gong, Wai-Ching Liu, Huai-De Tsai, and Ren-Jei Hung, "Hyperthermia-Induced Controlled Local Anesthesia Administration Using Gelatin-Coated Iron–Gold Alloy Nanoparticles," Pharmaceutics, 12, no. 11: 1097, 2020. (SCI)

[48] Yu-Wei Tsai, Zhuhuang Zhou, Cihun-Siyong Alex Gong, Dar-In Tai, Anca

Cristea, Yu-Ching Lin, Ya-Chun Tang, Po-Hsiang Tsui, "Ultrasound Detection of Liver Fibrosis in Individuals with Hepatic Steatosis Using the Homodyned K Distribution," Ultrasound in Medicine & Biology, 47(1):84-94, 2021. (SCI)

[49] Cihun-Siyong Alex Gong* et al., "Exploiting deep neural network and long short-term memory method-ologies in bioacoustic classification of LPC-based features," PLOS ONE 16(12): e0259140, 2021. (SCI) *first & corresponding authors

[50] Cihun-Siyong Alex Gong*, "IC-Based Rectification Circuit Techniques for Biomedical Energy-Harvesting Applications" Micromachines, 13, no. 3: 411, 2022. (SCI, EI) *first & corresponding authors

[51] Cihun-Siyong Alex Gong* et al., "How to Implement Automotive Fault Diagnosis Using Artificial Intelligence Scheme," Micromachines, 13, no. 9: 1380, 2022. (SCI, EI) *first & corresponding authors

[52] Cihun-Siyong Alex Gong* et al., "Deep Learning with LPC and Wavelet Algorithms for Driving Fault Diagnosis," Sensors, 22, no. 18: 7072, 2022. (SCI, EI) *first & corresponding authors

[53] Feng-Shuo Hsu, Zi-Jun Su, Yamin Kao, Sen-Wei Tsai, Ying-Chao Lin, Po-Hsun Tu, Cihun-Siyong Alex Gong, Chien-Chang Chen, "Lightweight Deep Neural Network Embedded with Stochastic Variational Inference Loss Function for Fast Detection of Human Postures," Entropy, 25, no. 2: 336, 2023. (SCI)

Selected Most Recent Conference Proceedings-

[1] Y.-L. Tsou, C.-S. Alex Gong, C. F. Jou, "An ultra low-power wakeup receiver for energy-efficient wireless senor network," IEEE ICCE-TW, pp. 3-4, 2014. (EI) *IEEE ICCE-TW 2014 Honorable Mention Award*

[2] C.-S. Alex Gong et al, "Functional connectivity altering in hippocampus with closed-loop deep brain stimulation," IEEE ICCE-TW, pp. 7-8, 2014. (EI)

[3] C.-S. Alex Gong et al, "Comparison of Subthreshold Logic with Adiabatic Circuit Techniques," IEEE ISOCC, pp. 146-147, 2014. (EI)

[4] I.-C. Wey, J.-F. Huang, C.-S. Alex Gong, S.-W. Li, C.-C. Lin, C.-Y. Chien, Y.-F. Luo, Y.-H. Kuo, M.-J. Chang, C.-C. Hsu, "Low-power design towards implantable neural signal processor- energy efficiency analysis for near-threshold voltage circuits design," IEEE ISBB, pp. 196-199, 2015. (EI)

[5] Huang-Chang Lee, Pin-Yuan Chen, and Cihun-Siyong Alex Gong*, "A compressed sensing technique for OFDM channel estimation using full-band training symbols," IEEE ICUFN, pp. 562-564, 2017. (EI)

[6] CH Wu, WJ Chen, Cihun-Siyong Alex Gong, MT Tsai, "Characteristics of brain

tumor with optical coherence tomography," European Conference on Biomedical Optics, 11078_61, 2019

Patents:

[1] Taiwanese patent I306342 ※2009 Taipei International Invention Show and Technomart Gold Medal Award※)
[2] Amplitude Shift Keying (ASK) Demodulation Circuit (US patent 7609783)
[3] A Complementary Energy Path Adiabatic Logic (US patent 7746117B2)
[4] Low-Complexity and Low-Power Phase Shift Keying Demodulator Architecture (US patent 7911266B2)
[5] Static Random Access Memory Architecture with Enhanced Read Static Noise Margin (US patent 8009462B2)
[6] Taiwanese patent I413384
[7] Taiwanese patent M371555U1
[8] Taiwanese patent I473424
[9] Taiwanese patent I458297
[10] Taiwanese patent I465750
[11] Taiwanese patent I476415
[12] US Patent 9,983,042

Cover Letter:

I am fascinated with improving impact on IC, system technologies, and integrated sensing techniques, and believe that advances in circuits, systems, devices, process, and algorithms have been driving a technology revolution in the applications of microsystems, enabling effective and sustainable solutions to pressing problems in automotive, life science, medicine, health care, energy, and ubiquitous sensing. I have pursued the idea of using the techniques I have learned to deal with real problems in automotive and biomedical engineering in particular. Such research activities require inter-disciplinary collaborations among scientists, engineers, medical researchers, drivers, and practitioners. I have been doing research for up to sixteen years. My current directions are mainly on integrated micro/portable/wearable system as well as algorithm design with micromechanical techniques, e.g. integrated MEMS for biomedical, automotive, green, solar, and optical applications, with particular emphasis on early diagnosis and treatment. Rehabilitation-associated equipment, neural prostheses, and clinical decision support systems requiring high-level integration and specifically developed signal processing chains of sensing are also topics of interest.

Other smart hybrid microsystems for which the faculty members of my department would be beneficial and necessary in the future are research subject matter as well. My M.S. thesis concerns retinal physiological imgaing processing and encoding. My Ph.D. dissertation conerns efficient miniaturized circuits and systems for implantable devices involving biosensing. During the industrial carreer, I were working for RFID and SoC departments for a variety of applications including pulse radar sensing, portable ultrasonic imaging system, and high SNR low-power amplification and filtering circuits, systems, and devices. I have also been contributing energy harvesting microsystem for smart sensing. My personal lab was established in 2013, where I have been directing and supervising graduate and undergraduate students working towards B.S., M.S., and Ph.D. degrees since then. My life goal is to find out interesting topics and solve real problems practically. From system's perspective, this can be either macro or micro scale (or both). I have published over tens of peer-reviewed referred journal papers and international conference proceedings including circuits and systems for automotive, medicine, and green, electricity applied to automotive fault prediction and diagnosis, life sciences, biomedical sensing devices, clinical decision support system based on optics and functional electrical stimulation, electronic instrumentation, sensing and transducing techniques, human visual system, chip and IC design, neural prostheses, integrated energy harvesting and telemetry. I have been responsible for and/or involved in the following regular classes, to name but a few, for both undergraduate and graduate students

1. Microelectronics;
2. Hardware Description Language;
3. VLSI Design;
4. Medical Imaging Processing;
5. Printed Circuit Board Design;
6. Nanocircuit Design;
7. Low Power System Design;
8. Design of Micro-sensors and Sensing Circuit Systems;
9. Biomedical Electronics;
10. Development and Regulations of Medical Device;

I have served as several committee members and chairs for a variety of IEEE and other conferences. I have also served academic editors and reviewers for a number of internationally referred journals and conferences. I always thought it would be my privilege to be invited as an editor, a reviewer, or a committee member. It is considered a researcher’s duty to keep publishing his/her results so that others can learn

from your shared experiences to come out a better future and create knowledge to benefit posterity. These footprints become literature which allows us step on a right direction without repeated failures.

My lab is continuously recruiting self-motivated graduated and undergraduated students who are looking forward to doing AI, mixed-signal (analog + digital) IC design, device, and consumer platform realization using off-the-shelf discrete components, and SW/HW co-integrated system development for automotive, biomedical, and green applications of algorithms, electronics, and instruments. Students who applied to my lab were asked to be ready (mentally prepared) for having a broad, open mind to accept research challenges. Lab members will learn how to become a self-disciplined mature researcher under supervision. I have a long track record of working with young/junior people including students and research assistants.

Special thanks to:

智慧型特殊應用電路系統實驗室
Smart Application-specific Circuits and Systems Lab
深耕