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**Cheng-Ta Chiang**

Electrical Engineering

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**Research interests:** Biomedical integrated circuits & systems; Imaging sensor circuits & systems; Sensor signal conditioning circuits & transducers; Successive approximation ADC & Pipelined ADC; Oversampled Sigma-Delta Modulator; Agricultural Sensors and Systems; Application Specific Integrated Circuits for Industrial Products.

**Education:** Ph.D. Electronics Engineering, National Chiao Tung University, Taiwan, 2006.
M.S. Biomedical Engineering, National Cheng Kung University, Taiwan, 2001.
B.S. Electronics Engineering, Chung-Yuan Christian University, Taiwan, 1999.

**Professional Experiences:**

*Professor* of Electrical Engineering, National Chia Yi University, (2016 – now);

*Associate Professor* of Electrical Engineering, National Chia Yi University, (2013 – 2016);

*Assistant Professor* of Electrical Engineering, National Chia Yi University, (2010 – 2013);

*Analog IC Design Engineer*, Industrial Technology Research Institute (ITRI), Taiwan, (2006 – 2010);

*Visiting Scholar* of Electrical Engineering and Computer Science, The Johns Hopkins University, USA, (2004 – 2005);

*Technical Consultant*, Maxi-amp Inc., Taiwan, (2011 – 2012);

*Technical Consultant for Fingerprint IC*, Oriental System Technology Inc., Taiwan, (2012.6 – 2012.9);

*Consultant* of Chiayi County Government, Taiwan, (2015 – Now);

*Chairman* of Department of Electrical Engineering, National Chia Yi University, Taiwan (2022.2 – 2023.1).

*Director* of Intelligent Agriculture Research Center, National Chia Yi University, (2018 – 2019);

*Chief Executive Officer* of Industry Promotion Office of College of Science and Engineering, National Chia Yi University, (2016 – 2017);

*Division Chief* of Student Assistance office of Student Affairs, National Chia Yi University, (2014 – 2015);

**Professional Activities:** Senior Member: *IEEE* (2013).

Journal Reviewer: ***IEEE Journal of Solid-State Circuits***, ***IEEE Transactions on Circuits and Systems I:***

***Regular Papers*, *IEEE Transactions on Circuits and Systems II: Express Briefs*, *IEEE Sensors Journal*, *IEEE Photonics Journal*, *IEEE Transactions on Industrial Electronics*, *IEEE Transactions on Instrumentation & Measurement*, *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, *IEEE Journal of Biomedical and Health Informatics*, *Sensors and Actuators A: Physical*, *IET The Journal of Engineering*, *International Journal of Electronics*, *International Journal of Electronics Letters*, *Microelectronics Journal*, *Circuits, Systems & Signal Processing*, *EURASIP Journal on Advanced in Signal Processing*, *Mechatronics*, *Sensors*, *Measurement Science and Technology*, *Micromachines*, *Applied Sciences*, *Food Chemistry*, *International Journal of Circuit Theory and Applications*, *and* *Journal of Aquatic Food Product Technology.***

Editorial Advisory Board Member: *Sensors & Transducers Journal*.

Associate Editor: IEEE Sensors Journal (2017-2025)

Associate Editor: IEEE Internet of Things Journal (2018-2025)

Associate Editor: IEEE Trans. on AgriFood Electronics (2023-now)

Topical Editor: IEEE Sensors Journal (2019-2025)

Topical Editor: IEEE Internet of Things Journal (2026-Now)

Member: *IEEE Circuits and Systems* (2002 – 2006, 2018 – now).

*IEEE Journal of Solid-State Circuits* (2000 – now).

*IEEE Sensors Council* (2015 – now).

*IEEE Circuits and Systems Sensors System Technical Committee (*2021 – now).

**Secretary: *IEEE Solid-State Circuits (SSC) Society Tainan Chapter* (2017 – 2020).**

Chair: *IEEE Circuits and Systems Sensors System Tainan Chapter* (2023 – 2024).

**Teaching Experience:**

*Undergraduate courses:*

Introduction of VLSI (Spring 10, Fall 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24).

Introduction of Radio-Frequency Identification (Spring 10).

Digital Logic and Laboratory (Spring 10, 11, 12, 25, Fall 22).

Computer Organization (Fall 10, 13, 24, Spring 21, 25).

Introduction of Computer Science (Fall 10).

Signals and Systems (Spring 11).

Computer Architecture (Fall 11).

Control Systems Engineering (Fall 11, Spring 13).

Electric Circuits II(Fall 11, 14, 15, 16, 17, 18, 19, 20, 21).

Digital Integrated Circuits (Spring 12, 13, 15, 16, 20).

Analog Integrated Circuits (Fall 12).

Electronic Instrumentation & Measurements (Fall 12, 20, Spring 25, 26).

Advanced Analog Integrated Circuits (Spring 13).

Electric Circuits I (Spring 14, 15, 16, 17, 18, 19, 20, 21).

Digital Signal Processing (Fall 21, 24).

Microelectronics III (Fall 21, 22).

Microelectronics II (Spring 22, 23, 25, 26).

Introduction to UAV and Technical Application (Spring 22)

*Graduate courses:*

Analog Integrated Circuits (Fall 13, 15, 16).

Advanced Analog Integrated Circuits (Spring 14).

Sensors and Circuits (Spring 14, 15, 16).

Data Converter Integrated Circuits (Fall 14).

Computer Organization (Spring 17).

Memory Integrated Circuits (Fall 18).

Analog Integrated Circuits (I) (Fall 17, 18, 22).

Analog Integrated Circuits (II) (Spring 18).

Introduction of Agricultural Drones (Spring 19).

**M.S. Thesis Advisor:**

Kuan-Lun Huang

M.S.E. Thesis title: *Design of A CMOS Monolithic Light to Sigma-Delta Modulator*, Sep. 2013.

Asih Setiarini

M.S.E. Thesis title: *A CMOS Biologically Expansion/Contraction Motion Sensor and Its Implementation on Z-Motion Direction/Velocity Detection*, July 2014.

Cheng-Wei Wang

M.S.E. Thesis title: *A CMOS Wind Speed to Continuous-Time Sigma-Delta Converter for Wind Speed Monitoring Applications*, July 2014.

Chang-Chih Hsieh

M.S.E. Thesis title: *A CMOS Gas Concentration to Continuous-Time Delta-Sigma Modulator for Environmental $CO_2$ Concentration Monitoring Applications*, June 2015.

Ci-Ruei Peng

M.S.E. Thesis title: *A Multi-level Force-Feedback CTV-Based Analog Sensing Circuits with Delta-Sigma Modulator for CMOS Micro-Accelerometers*, June 2015.

Jin-Liang Lin

M.S.E. Thesis title: *Design and Implementation of a Biologically Stereo Sensor System for Stereo*

*Image Applications*, Nov. 2015.

Chih-Tao Lin

M.S.E. Thesis title: *A CMOS Salinity to Continuous-Time Delta-Sigma Modulator for Environmental Salinity Monitoring Applications*, Aug. 2016.

Shun-Jyun Jiang

M.S.E. Thesis title: *A CMOS Citric Acid Concentration to Continuous-Time Incremental Delta-Sigma Modulator for Fruit Citric Acid Concentration Detection in Fruit Farms*, Oct. 2018.

Kang-Yu Liu

M.S.E. Thesis title: *An Infrared Photocurrent Intensity to Continuous-Time Incremental Sigma-Delta Modulator for Monitoring Unplanned Self-Extubation of Patients in Medical Institution*, Dec. 2018.

Lian-Teng Lin

M.S.E. Thesis title: *A CMOS Fish Freshness to Continuous-Time Incremental Sigma-Delta Modulator for Monitoring Fish Freshness in Fish Markets*, Dec. 2019.

**M.S. Thesis committee outside National Chia Yi University:**

| | |
|---|---|
| Chien-Hsun Chen | I-Shou University, Taiwan, 2012; advisor Prof. Shuming T. Wang |
| Phillip Gung | Tung-Hai University, Taiwan, 2014; advisor Prof. Yu-Chung Huang |
| Shuo-Wei Wang | National Chung Cheng University, Taiwan, 2014; advisor Prof. Tsung-Heng Tsai |
| Po-Hsun Nien | National Chung Cheng University, Taiwan, 2014; advisor Prof. Tsung-Heng Tsai |
| Bing-Wei Lai | National Chung Cheng University, Taiwan, 2014; advisor Prof. Tsung-Heng Tsai |
| Chun-Hao Chang | National Chung Hsing University, Taiwan, 2015; advisor Prof. Wei-Liang Lin |
| Bing-Jun Tsai | National Chung Hsing University, Taiwan, 2015; advisor Prof. Wei-Liang Lin |
| Fang-An Lee | National Chung Hsing University, Taiwan, 2015; advisor Prof. Wei-Liang Lin |
| Bo-Han Chen | Tung-Hai University, Taiwan, 2015; advisor Prof. Yu-Chung Huang |
| Yi-Chan Hisao | National Chung Cheng University, Taiwan, 2015; advisor Prof. Tsung-Heng Tsai |
| Yu-Chen Hsiao | Tung-Hai University, Taiwan, 2015; advisor Prof. Yu-Chung Huang |
| Chung-Ming Yu | National Cheng Kung University, Taiwan, 2016; advisor Prof. Chia-Ling Wei |
| Chia-Ning Su | National Cheng Kung University, Taiwan, 2016; advisor Prof. |

| | |
|---|---|
| | Chia-Ling Wei |
| Ting-Wei Hu | National Chung Hsing University, Taiwan, 2016; advisor Prof. Wei-Liang Lin |
| Po-Tsang Wang | National Chung Hsing University, Taiwan, 2017; advisor Prof. Wei-Liang Lin |
| Teng-Chuan Cheng (Ph.D.) | National Chung Cheng University, Taiwan, 2017; advisor Prof. Tsung-Heng Tsai |
| Chi-Wei Chen Hsu | National Chung Cheng University, Taiwan, 2017; advisor Prof. Tsung-Heng Tsai |
| Shih-Ming Huang | National Chung Cheng University, Taiwan, 2019; advisor Prof. Tsung-Heng Tsai |
| Wei-Jun Liao | National Chung Cheng University, Taiwan, 2019; advisor Prof. Tsung-Heng Tsai |
| Che-Wei Liang | National Chung Cheng University, Taiwan, 2019; advisor Prof. Tsung-Heng Tsai |
| Zheng-Wei Lai | National Chung Cheng University, Taiwan, 2020; advisor Prof. Tsung-Heng Tsai |
| You-Xin Ling | National Chung Cheng University, Taiwan, 2020; advisor Prof. Tsung-Heng Tsai |
| Ming-Chao Tsai | National Chung Cheng University, Taiwan, 2020; advisor Prof. Tsung-Heng Tsai |
| Chin-Hu Huang | National Central University, Taiwan, 2022; advisor Prof. Kuo-Hsing Cheng |
| Song-You Hong | National Chung Cheng University, Taiwan, 2024; advisor Prof. Tsung-Heng Tsai |

**Refereed Journal Articles:**

♦Cheng-Ta Chiang*, J. Y. Shen, and K. H. Chen, "A Beer Freshness Detector for Open-Can Beer Drink Safety Applications," *IEEE Sensors Journal*, vol. 25, no. 13, pp. 25543 25550, July 2025. 【NEWS】【NEWS】

♦Cheng-Ta Chiang*, "CASS Chapter Highlights," *IEEE Circuits and Systems Magazine*, vol. 25, no. 1, pp. 106-108, Feb. 2025.

♦Cheng-Ta Chiang*, "CASS Chapter Highlights," *IEEE Circuits and Systems Magazine*, vol. 24, no. 4, pp. 108-108, Nov. 2024.

♦Cheng-Ta Chiang*, "A Fish Meat Freshness Detector for IoT-Based Seafood Market Applications," *IEEE Sensors Journal*, 2024, vol. 24, no. 2, pp. 2049-2054, Jan. 2024.

♦Cheng-Ta Chiang*, Z. X. Huang, S. M. Wu, and J. C. Chen, "Design of a Tea Polyphenols Concentration Detector for Tea Health Food Applications," *IEEE Sensors Journal*, vol. 23, no. 21, pp. 26524-26530, Nov. 2023. 【NEWS】【NEWS】

♦Cheng-Ta Chiang*, "A Fruit Citric Acid Concentration Detector for Fruit Farm IoT Applications," *IEEE Sensors Journal*, vol. 23, no. 20, pp. 25340-25345, Oct. 2023.

♦Cheng-Ta Chiang*, Y. C. Wu, S. H. Yang, and J. C. Chen, "A Sulfur Dioxide Concentration Detector for Daylily Food Safety Applications," *IEEE Sensors Journal*, vol. 23, no. 17, pp. 20066-20072, Sep. 2023. 【NEWS】【NEWS】

♦Cheng-Ta Chiang*, C. Y. Nien, C. Y. Yang, and S. M. Chen, "A CMOS Algae Growth Period Monitor for Algaculture Applications," *IEEE Sensors Journal*, vol. 22, no. 20, pp. 19120-19128, Oct. 2022. 【NEWS】【NEWS】

♦Cheng-Ta Chiang* and C. Y. Hsu, "A Soil Yeast Count Monitor for Plant Growing Applications," *IEEE Sensors Journal*, vol. 21, no. 20, pp. 23510-23517, Oct. 2021.【NEWS】【NEWS】

♦Cheng-Ta Chiang*, F. C. Hsu, W. J. Lin, and J. C. Chen, "A Novel Capsaicin Concentration Detector for Individuals with Capsaicin Sensitivity," *IEEE Sensors Journal*, vol. 21, no. 12, pp. 13727-13734, June 2021.

♦Cheng-Ta Chiang* and L. S. Shie, "A Glucose Concentration Detector with Wide-Range Converter Used on Livestock," *IEEE Sensors Journal*, vol. 20, no. 11, pp. 6114-6120, June 2020.

♦Cheng-Ta Chiang*, T. Y. Chen, and Y. T. Wu, "Design of a Water Salinity Difference Detector for Monitoring Instantaneous Salinity Changes in Aquaculture," *IEEE Sensors Journal*, vol. 20, no. 6, pp. 3242-3248, March 2020.

♦Cheng-Ta Chiang* and K. Y. Liu, "A CMOS Wearable Infrared Light Intensity Digital Converter for Monitoring Unplanned Self-Extubation of Patients," *IEEE Sensors Journal*, vol. 19, no. 15, pp. 6430-6436, Aug. 2019.

♦Cheng-Ta Chiang* and L. Y. Chien, "A Pitaya Dye-Sensitized Solar Cell Monitor for Environmental Sunlight Intensity Detection," *IEEE Sensors Journal*, vol. 19, no. 11, pp. 4229-4236, Feb. 2019. 【NEWS】【NEWS】【NEWS】【NEWS】

♦Cheng-Ta Chiang*, C. H. Huang, and H. H. Huang, "A Citric Acid Concentration Detector Used with Chicken Poultry Drinking Solution," *IEEE Sensors Journal*, vol. 19, no. 3, pp. 1135-1140, Feb. 2019.

♦Cheng-Ta Chiang*, "Design of a CMOS MEMS Accelerometer Used in IoT Devices for Seismic Detection," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, vol. 8, no. 3, pp. 566-577, Sep. 2018.

♦Cheng-Ta Chiang*, C. M. Chang, and C. C. Chang, "Design of an Ultraviolet Light Intensity Monitor for Personally Wearable Devices," *IEEE Sensors Journal*, vol. 18, no. 11, pp. 4673-4678, June 2018.

♦Cheng-Ta Chiang*, Y. K. Lu, and L. T. Lin, "A CMOS Fish Spoilage Detector for IoT Applications of Fish Markets," *IEEE Sensors Journal*, vol. 18, no. 1, pp. 375-381, Jan. 2018.

♦Cheng-Ta Chiang*, "Design of a High-Sensitivity Ambient Particulate Matter 2.5 Particle Detector for Personal Exposure Monitoring Devices," *IEEE Sensors Journal*, vol. 18, no. 1, pp. 165-169, Jan. 2018.

♦Cheng-Ta Chiang*, "A CMOS Seawater Salinity to Digital Converter for IoT Applications of Fish Farms," *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 64, no. 9, pp. 2591-2597, Sep. 2017.

♦Cheng-Ta Chiang*, "Design of a CMOS Chlorophyll Concentration Detector Based on Organic Chlorophyll Battery for Measuring Vegetable Chlorophyll Concentration," *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, vol. 25, no. 5, pp. 1725-1730, May 2017.

♦Cheng-Ta Chiang* and Y. T. Hou, "A CMOS Monolithic Position-Sensitive Detector with Stray Illumination Noise Removal for Light-Spot Position Detection Applications," *IEEE Sensors Journal*, vol. 17, no. 6, pp. 1918-1924, March 2017.

♦Cheng-Ta Chiang*, M. Chung, and M. Y. Huang, "Design of a Gas Sensor Transducer Circuitry with Calibration Ability for CO2 Concentration Detection," *IEEE Sensors Journal*, vol. 16, no. 16, pp. 6367-6373, Aug. 2016.

♦Cheng-Ta Chiang*, S. M. Huang, and C. N. Wu, "Development of a Calibrated Transducer CMOS Circuit for Water Turbidity Monitoring," *IEEE Sensors Journal*, vol. 16, no. 11, pp. 4478-4483, June 2016.

♦Cheng-Ta Chiang* and C. C. Hsieh, "Design of a CMOS Digitized Gas Transducer with Noise Shaping for CO2 Concentration Monitoring Applications," *IEEE Sensors Journal*, vol. 16, no. 4, pp. 975-982, Feb. 2016.

♦Cheng-Ta Chiang* and F. W. Chang, "Design of a Calibrated Temperature Difference Sensor Transducer for Monitoring Environmental Temperature Difference Applications," *IEEE Sensors Journal*, vol. 16, no. 4, pp. 1038-1043, Feb. 2016.

♦Cheng-Ta Chiang*, Jian-Xiang Lin, and Lin Liu, "Design of a CMOS Calibrated Monolithic Illumination Meter for Monitoring Solar Radiation of Tomato Crops," *IEEE Sensors Journal*, vol. 15, no. 9, pp. 5285-5290, Sep. 2015.

♦Cheng-Ta Chiang* and Che-Wei Chang, "Design of a Calibrated Salinity Sensor Transducer for Monitoring Salinity of Ocean Environment and Aquaculture," *IEEE Sensors Journal*, vol. 15, no. 9, pp. 5151-5157, Sep. 2015.

♦Cheng-Ta Chiang* and Ping-Chen Tsai, "Design of a Calibrated Liquid Level Sensor Transducer for Detecting Rainfall of Botanic Garden," *IEEE Sensors Journal*, vol. 15, no. 6, pp. 3311-3316, June 2015.

♦Cheng-Ta Chiang*, "Design of a CMOS Digitized Wind Transducer with Noise Insensitivity for Wind Environmental Monitoring Applications," *IEEE Sensors Journal*, vol. 15, no. 4, pp. 2046-2053, April 2015.

♦Cheng-Ta Chiang* and Asih Setiarini, "A CMOS Biologically Expansion/Contraction Motion Sensor and Its Implementation on Z-Motion Direction/Velocity Detection," *IEEE Sensors Journal*, vol. 15, no. 4, pp. 2166-2176, April 2015.

♦Cheng-Ta Chiang*, C. I. Chang, and Weileun Fang, "Design of a Digitized Vibration Detector Implemented by CMOS Capacitive Transducer with In-plane SOI Accelerometer," *IEEE Sensors Journal*, vol. 14, no. 8, pp. 2546-2556, Aug. 2014.

♦Cheng-Ta Chiang*, "Design of a CMOS Monolithic Digitized Light Detector with Noise Insensitivity for Light Monitoring Applications," *IEEE Sensors Journal*, vol. 14, no. 8, pp. 2537-2545, 2014.

♦Cheng-Ta Chiang* and J. Y. Liou, "Design of a CMOS Intelligent Light Sensing Chip for Automatic Brightness Tuning Applications," *IEEE Sensors Journal*, vol. 13, no. 12, pp. 4955-4961, Dec. 2013.

♦Cheng-Ta Chiang*, "Design of a CMOS Monolithic Digitized Light Transducer with Calibration Technique for Ambient Light Sensor Applications," *IEEE Sensors Journal*, vol. 13, no. 5, pp. 1931-1940, May 2013.

♦Cheng-Ta Chiang* and W. H. Chang, "A 12-Bit Multi-Channel Dual-Mode Successive Approximation ADC for Power Management Bus (Pmbus) Devices," *International Journal of Circuit Theory and Applications*, vol. 41, no. 5, pp. 498-513, May 2013.

♦Cheng-Ta Chiang*, C. S. Wang, and C. Y. Wu, "A CMOS MEMS Audio Transducer Implemented by Silicon Condenser Microphone With Analog Front-End Circuits of Audio Codec," *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, vol. 20, no. 9, pp. 1656-1667, Sep. 2012.

♦Cheng-Ta Chiang*, C. T. Kuo, and Y. C. Huang, "Design of a CMOS Led Print Head Driver with Compensation Circuits," *IEEE Sensors Journal*, vol. 12, no. 5, pp. 870-879, May 2012.

♦Cheng-Ta Chiang*, K. C. Hsieh, and Y. C. Huang, "Design of a CMOS Phase to Digital Transducer for Optical Incremental Sensors," *Sensors and Actuators A: Physical*, vol. 170, no. 1-2, pp. 106-113, Nov. 2011.

♦Cheng-Ta Chiang*, L. L. Kao, and Y. C. Huang, "A Low-Cost CMOS Dual-Mode AC/DC Data Converter for Signal Measuring Technique," *Journal of Analog Integrated Circuits and Signal Processing*, vol. 63, no. 2, pp. 255-271, May 2010.

♦Cheng-Ta Chiang*, C. S. Wang, and Y. C. Huang, "A Monolithic CMOS Autocompensated Sensor Transducer for Capacitive Measuring Systems," *IEEE Transactions on Instrumentation & Measurement*, vol. 57, no. 11, pp. 2472-2486, Nov. 2008.

♦Cheng-Ta Chiang* and Y. C. Huang, "A Semicylindrical Capacitive Sensor with Interface Circuit Used for Flow Rate Measurement," *IEEE Sensors Journal*, vol. 6, no. 6, pp. 1564-1570, Dec. 2006.

♦C. Y. Wu and Cheng-Ta Chiang*, "A Low-photocurrent CMOS Retinal Focal-plane Sensor with a Pseudo-BJT Smoothing Network and an Adaptive Current Schmitt Trigger for Scanner Applications," *IEEE Sensors Journal*, vol. 4, no. 4, pp. 510-518, Aug. 2004.

♦Cheng-Ta Chiang* and C. Y. Wu, "Implantable Neuromorphic Vision Chips," *IEE Electronics Letters*, vol. 40, no. 6, pp. 361-362, March 2004.

**International Conference Papers:**

♦C. T. Chiang, S. Y. Cheng, and Y. F. Tsai, "A CMOS High Background-Light Immunity Position-Sensitive Detector (PSD) with Light Flicker Noise Filter for High Background Light Environment," in *Proc. of IEEE International Conf. on Applied System Innovation, ICASI'25*, April 2025.

♦C. T. Chiang, D. Y. Lin, and J. Q. Zhang, "A CMOS Neuromorphic Retinal Vision Chip for High Background Light Environment," in *Proc. of IEEE International Conf. on Applied System Innovation, ICASI'25*, April 2025.

♦C. T. Chiang, J. Y. Shen, and K. H. Chen, "A CMOS Beer Freshness to Duty Cycle Converter for Applications of Measuring Open-Can Beer Freshness," in *Proc. of IEEE International Conf. on Applied System Innovation, ICASI'25*, April 2025.

♦C. T. Chiang, Y. C. Wu, S. H. Yang, and J. C. Chen, "A CMOS Sulfur Dioxide Concentration to Time Period Converter for Measuring Sulfur Dioxide Concentration in Food Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2023*, pp. 1763-1767, Aug. 2023.

♦C. T. Chiang, S. M. Wu, Z. X. Huang, and J. C. Chen, "A CMOS Concentration of Tea Polyphenols to Frequency Converter for Applications of Sensing the Concentration of Tea Polyphenols," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2023*, pp. 398-402, Aug. 2023.

♦C. T. Chiang, Y. H. Wu, and C. H. Chao, "A Real-time Artificial Intelligence Recognition System on Contaminated Eggs for Egg Selection," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2022*, Aug. 2022. 【NEWS】【NEWS】

♦C. T. Chiang, C. Y. Nien, M. S. Yang, C. Y. Yang, and S. M. Chen, "A CMOS Algae Growth Period to Duty Cycle Converter for Monitoring Algae Growth Status Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2022*, Aug. 2022.

♦ C. T. Chiang and L. C. Huang, "A CMOS Auto-High Background Immunity Position-Sensitive Detector (PSD) for High Background Light Environment," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2022*, Aug. 2022.

♦C. T. Chiang, C. Y. Hsu, and Y. C. Huang, "A CMOS Soil Yeast Count to Frequency Converter for Sensing Yeast Count Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2021*, pp. 1351-1355, Aug. 2021.

♦C. T. Chiang, F. C. Hsu, W. J. Lin, and J. C. Chen, "A CMOS Capsaicin Concentration Converter with Auto-Sensitivity Control Circuits for Sensing Scoville Scale Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2020*, pp. 536-541, Oct. 2020.

♦C. T. Chiang, T. Y. Chen, and Y. T. Wu, "A CMOS Salinity Difference to Frequency Converter with Auto-Sensitivity Selection Circuits for Applications in Aquaculture," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2019*, pp. 637-642, Aug. 2019.

♦C. T. Chiang, L. S. Shie, and B. H. Wang, "A Wide-Range Sugar Concentration to Duty Cycle Converter with Scaling Circuits for Detecting Sugar Concentration Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2019*, pp. 631-636, Aug. 2019.

♦C. T. Chiang, and L. T. Lin, "A CMOS Fish Freshness to Continuous-Time Incremental Sigma-Delta Modulator for Monitoring Fish Freshness in Fish Freshness," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2019*, pp. 626-630, Aug. 2019.

♦C. T. Chiang, C. H. Huang, and H. H. Huang, "A CMOS Citric Acid Concentration to Duty Cycle Converter with Adjustment Circuits for Detecting Citric Acid Concentration Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2018*, pp. 421-426, Aug. 2018.

♦C. T. Chiang and L. Y. Chien, "A Digitized Visible Light Intensity Transducer Combined with Organic Dye-Sensitized Battery Coated on Outdoor Glass," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2018*, pp. 411-415, Aug. 2018.

♦C. T. Chiang and S. J. Jiang, "A CMOS Citric Acid Concentration to Continuous-Time Incremental Delta-Sigma Modulator for Detecting Fruit Citric Acid Concentration in Fruit Farms," in *Proc. of IEEE International Conf. on Applied System Innovation, ICASI'18*, pp. 927-930, April 2018.

♦C. T. Chiang and K. Y. Liu, "An Infrared Photocurrent Intensity to Continuous-Time Incremental Sigma-Delta Modulator for Monitoring Unplanned Self-Extubation of Patients in Medical Institution," in *Proc. of IEEE International Conf. on Applied System Innovation, ICASI'18*, pp. 939-942, April 2018.

♦C. T. Chiang, C. M. Chang, and C. C. Chang, "A CMOS Ultraviolet (UV) Light Intensity to Duty Cycle Converter with Calibration Circuits for Monitoring Environmental UV Light Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2017*, pp. 56-60, Aug. 2017.

♦C. T. Chiang, Y. K. Lu, and L. T. Lin, "A CMOS Fish Resistance to Period Converter with Calibration Circuits for Fish Spoilage Detecting Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2017*, pp. 51-55, Aug. 2017.

♦C. T. Chiang, S. W. Huang, and G. X. Liu, "A CMOS Particulate Matter 2.5 (PM2.5) Concentration to Frequency Converter with Calibration Circuits for Air Quality Monitoring Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2016*, pp. 966-970, Aug. 2016.

♦C. T. Chiang and Y. H. Huang, "Development of a CMOS Driving Circuit with Compensation Function for Gyroscope Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2016*, pp. 95-99, Aug. 2016.

♦C. T. Chiang and Y. T. Hou, "A CMOS Monolithic Calibrated Position-Sensitive Detector (PSD) for Detecting Light-Spot Position Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2016*, pp. 862-867, Aug. 2016.

♦C. T. Chiang and C. T. Lin, "A CMOS Digitized Salinity Signal Conditioning Circuits for Environmental Monitoring of Salinity," in *Proc. of IEEE International Conf. on Applied System Innovation, ICASI'16*, May 2016. (Best Conference Paper Award)

♦C. T. Chiang and J. X. Lin, "A CMOS Digitized Monolithic Sun Sensor Transducer with Calibration Circuits for Monitoring Solar Radiation of Tomato Crops," in *Proc. of IEEE International Conf. on Sensors, Sensors'15*, pp. 1397-1400, Nov. 2015.

♦C. T. Chiang and S. M. Huang, "A CMOS Turbidity to Frequency Converter with Calibration Circuits for Detecting Turbidity Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2015*, pp. 381-385, Aug. 2015.

♦C. T. Chiang and F. W. Chang, "A CMOS Temperature Difference to Frequency Converter with Calibration Circuits for Environmental Temperature Difference Monitoring Applications," in *Proc. of IEEE International Conference on Mechatronics and Automation, ICMA 2015*, pp. 1060-1064, Aug. 2015.

♦C. T. Chiang and C. R. Peng, "A Multi-level Force-Feedback CTV-Based Analog Sensing Circuits with Delta-Sigma Modulator for CMOS Micro-Accelerometers," in *Proc. of IEEE International Conference on Networking, Sensing and Control, ICNSC'15*, pp. 281-286, April 2015.

♦C. T. Chiang and C. C. Hsieh, "A CMOS Digitized Gas Transducer with Noise Insensitivity for Environmental Monitoring of $CO_2$ Concentration," in *Proc. of IEEE International Conference on Networking, Sensing and Control, ICNSC'15*, pp. 58-62, April 2015.

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♦Cheng-Ta Chiang, "Introduction of MEMS Circuits and Systems," Department of Electronic Engineering, Chung-Yuan Christian University, Taiwan, Oct. 2011.

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2010-2011 MEMS Integration Acoustic Chip (I), National Science Council, N.T 585,000; PI.

2011-2012 CMOS Image Sensors, SAR ADC, Pipelined ADC, Sigma-Delta Modulator, Light-to-Frequency Converter, and Capacitive Touch Converter, Maxi-Amp Inc., N.T 300,000; PI.

2012-2013 LED Print-Head Driving Chips with Compensation Circuits, National Science Council, N.T 663,000; PI.

2013-2014 Integrated Intelligent Light Sensing System, National Science Council, N.T 413,000; PI.

2013-2014 Design and Implementation of Digitized Transducer for Optical Incremental Sensors, National Science Council, N.T 732,000; PI.

2013-2014 Design and Implementation of Sensors and Sensing Circuits, Ministry of Education, N.T 550,000; PI.

2014-2015 A High-Linearity and Wide-Dynamic Range Light to Frequency Converter with Calibration Circuits, Ministry of Science and Technology, N.T 674,000; PI.

2014-2015 Design and Implementation of Microsensors and Module Sensing Circuits, Ministry of Education, N.T 600,000; PI.

2015-2016 A General-Purpose Digitized Salinity Transducer with Calibration Circuits for Monitoring Salinity of Ocean Environment and Aquaculture, Ministry of Science and

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2020-2021 An IoT Integrated Circuit of Salinity Difference Sensor Transducer with Auto-Sensitivity Selection Used in Aquaculture, Ministry of Science and Technology, N.T 734,000; PI.

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