



2021 IEEE Technical Field Award Recipients and Citations

1. **IEEE BIOMEDICAL ENGINEERING AWARD**—recognizes outstanding contributions to the field of biomedical engineering—sponsored by the *IEEE Circuits and Systems Society* and *IEEE Engineering in Medicine and Biology Society*—to

Recipient

KATHERINE WHITTAKER FERRARA (FIEEE)— Professor, Stanford University, Palo Alto, California, USA

Citation

“For the integration of ultrasound and engineered vesicles in the diagnosis and treatment of cancer.”

2. **IEEE CLEDO BRUNETTI AWARD**—recognizes, for outstanding contributions to nanotechnology and technologies for microsystem miniaturization—sponsored by the *Brunetti Bequest*—to

Recipient

JESUS DEL ALAMO (FIEEE)— Donner Professor and Professor of Electrical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

Citation

“For leadership in and contributions to InGaAs- and GaN-based field-effect transistor technology.”

3. **IEEE ELECTRONICS PACKAGING TECHNOLOGY AWARD**—recognizes meritorious contributions to the advancement of components, electronic packaging, or manufacturing technologies—sponsored by the *IEEE Electronics Packaging Society*—to

Recipient

CHIN C. LEE (LFIEEE)—Retired Professor, University of California, Irvine, California, USA

Citation

“For contributions to new silver alloys, new bonding methods, flip-chip interconnect, and education for electronics packaging.”

4. **IEEE CONTROL SYSTEMS AWARD**—recognizes outstanding contributions to control systems engineering, science, or technology—sponsored by the *IEEE Control Systems Society*—to

Recipient

HIDENORI KIMURA (FIEEE)—Vice Director, Systems Innovation Center, Tokyo, Japan

Citation

“For contributions to synthesis theory of control systems and its applications to manufacturing devices and systems.”

5. **IEEE JAMES L. FLANAGAN SPEECH AND AUDIO PROCESSING AWARD**—recognizes outstanding contribution to the advancement of speech and/or audio signal processing—sponsored by the *IEEE Signal Processing Society*—to

Recipient

DAVID NAHAMOO (LFIEEE)—CTO, Pryon Inc., Raleigh, North Carolina, USA

Citation

“For contributions to and leadership in research and deployment of spoken-language technologies.”

6. **IEEE FOURIER AWARD FOR SIGNAL PROCESSING**—recognizes an outstanding contribution to the advancement of signal processing, other than in the areas of speech and audio processing—sponsored by the *IEEE Circuits and Systems Society* and the *IEEE Signal Processing Society*—to

Recipient

K. J. RAY LIU (FIEEE)—Distinguished University Professor, University of Maryland, College Park, Maryland, USA

Citation

“For outstanding leadership in and pioneering contributions to signal processing for wireless sensing and communications.”

7. **IEEE ELECTROMAGNETICS AWARD**—recognizes outstanding contributions to electromagnetics in theory, application, or education—sponsored by the *IEEE Antennas and Propagation Society*, *IEEE Electromagnetic Compatibility Society*,

IEEE Geoscience and Remote Sensing Society, and IEEE Microwave Theory and Techniques Society—to

Recipient

CONSTANTINE A. BALANIS (LFIEEE)—Regents' Professor of Electrical Engineering, School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, Arizona, USA

Citation

“For contributions to electromagnetics through excellence in book authorship, teaching, and antenna research.”

8. **IEEE ANDREW S. GROVE AWARD**—recognizes outstanding contributions to solid-state devices and technology—sponsored by the *IEEE Electron Devices Society—to*

Co-Recipients

HIDEAKI AOCHI (SMIEEE)—Senior Expert, Institute of Memory Technology Research and Development, Kioxia Corporation, Kanagawa, Japan

AND

RYOTA KATSUMATA (SMIEEE)—Deputy General Manager, Advanced Memory Development Center, Kioxia Corporation, Mie, Japan

AND

MASARU KITO (MIEEE)—Group Manager, Advanced Memory Development Center, Kioxia Corporation, Mie, Japan

Citation

“For pioneering and sustained contributions to high-density, three-dimensional flash memory.”

9. **IEEE HERMAN HALPERIN ELECTRIC TRANSMISSION AND DISTRIBUTION AWARD**—recognizes outstanding contributions to electric transmission and distribution—sponsored by the *Robert and Ruth Halperin Foundation, in memory of Herman and Edna Halperin, and the IEEE Power & Energy Society—to*

Recipient

BRIAN STOTT (LFIEEE)—President, Stott, Inc., Scottsdale, Arizona, USA

Citation

“For contributions to the development and application of power flow and optimal power flow analysis.”

10. **IEEE MASARU IBUKA CONSUMER ELECTRONICS AWARD**—recognizes outstanding contributions in the field of consumer electronics technology—sponsored by *Sony Corporation*—to

Recipient

STEVE WOZNIAK (FIEEE)—Public Speaker, Woz Speaks, Los Gatos, California, USA

Citation

“For pioneering the design of consumer-friendly personal computers.”

11. **IEEE RICHARD HAROLD KAUFMANN AWARD**—recognizes outstanding contributions in industrial systems engineering—sponsored by the *IEEE Industry Applications Society*—to

RECIPIENT

STEPHEN MCARTHUR (FIEEE)—Distinguished Professor, University of Strathclyde, Glasgow, United Kingdom

Citation

“For innovative contributions to the advancement of intelligent systems for power engineering applications.”

12. **IEEE JOSEPH F. KEITHLEY AWARD IN INSTRUMENTATION AND MEASUREMENT**—recognizes outstanding contributions in electrical measurements—sponsored by *Keithley Instruments, Inc.* and the *IEEE Instrumentation and Measurement Society*—to

Co-Recipients

ERIC W. STRID (LFIEEE)—Retired, Board of Directors of Power Oregon, White Salmon, Washington, USA

AND

K. REED GLEASON (nonmember)—V.P. of Technology Development, Form Factor, Inc., Livermore, California, USA

Citation

“For contributions to RF microprobing measurement techniques enabling accurate on-wafer circuit testing.”

13. **IEEE GUSTAV ROBERT KIRCHHOFF AWARD**—recognizes an outstanding contribution to the fundamentals of any aspect of electronic circuits and systems that has a long-term significance or impact—sponsored by the *IEEE Circuits and Systems Society*—to

Recipient

THOMAS H. LEE (FIEEE)—Professor, Stanford University, Stanford, CA USA

Citation

“For pioneering CMOS technology for high-performance wireless circuits and systems.”

14. **IEEE LEON K. KIRCHMAYER GRADUATE TEACHING AWARD**—recognizes inspirational teaching of graduate students in the IEEE fields of interest—sponsored by the *Leon K. Kirchmayer Memorial Fund*—to

Recipient

ANDREA GOLDSMITH (FIEEE)—Dean of Engineering and Applied Science, Princeton University, Princeton, New Jersey, USA

Citation

“For educating, developing, guiding, and energizing generations of highly successful students and postdoctoral fellows.”

15. **IEEE KOJI KOBAYASHI COMPUTERS AND COMMUNICATIONS AWARD**—recognizes outstanding contributions to the integration of computers and communications—sponsored by *NEC Corporation*—to

Recipient

HARI BALAKRISHNAN (FIEEE)—Professor, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

Citation

“For broad contributions to computer networking and mobile and wireless systems.”

16. **IEEE WILLIAM E. NEWELL POWER ELECTRONICS AWARD**—recognizes outstanding contribution(s) to the advancement of power electronics—sponsored by the *IEEE Power Electronics Society*—to

Recipient

ROBERT W. ERICKSON (FIEEE)—Professor, University of Colorado at Boulder, Boulder, Colorado, USA

Citation

“For contributions to power electronics education and analysis, modeling, and design of power converters.”

17. [**IEEE DONALD O. PEDERSON AWARD IN SOLID-STATE CIRCUITS**](#)—recognizes outstanding contributions to solid-state circuits—sponsored by the *IEEE Solid-State Circuits Society*—to

Recipient

A. PAUL BROKAW (LFIEEE)—Retired, Analog Devices, Inc., Tucson, Arizona, USA

Citation

“For leadership in the design of voltage references, amplifiers, and power management, and for contributions to the principles of analog circuit design.”

18. [**IEEE PHOTONICS AWARD**](#)—recognizes outstanding achievements in photonics—sponsored by the *IEEE Photonics Society*—to

Recipient

JACK JEWELL (SMIEEE)—Self-employed, Consultant, Boulder, Colorado, USA

Citation

“For seminal and sustained contributions to the development and commercialization of vertical-cavity surface-emitting lasers (VCSEL).”

19. [**IEEE ROBOTICS AND AUTOMATION AWARD**](#)—recognizes outstanding contributions in the field of robotics and automation—sponsored by the *IEEE Robotics and Automation Society*—to

Co-Recipients

TOMAS LOZANO-PEREZ (FIEEE)—Professor of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

AND

JEAN-CLAUDE LATOMBE (non-member)—Kumagai Professor Emeritus, School of Engineering, Computer Science Department, Stanford University, Stanford, California, USA

Citation

“For foundational contributions to robot motion planning and visionary leadership of the field.”

20. [**IEEE FRANK ROSENBLATT AWARD**](#)—recognizes outstanding contributions to the advancement of the design, practice, techniques, or theory in biologically and linguistically motivated computational paradigms, including but not limited to neural networks, connectionist systems, evolutionary computation, fuzzy systems, and hybrid intelligent systems in which these paradigms are contained—sponsored by the *IEEE Computational Intelligence Society*—to

Recipient

JIM KELLER (LFIEEE)—Retired, Electrical Engineering and Computer Science Department, University of Missouri, Columbia, Missouri, USA

Citation

“For fundamental work on fuzzy pattern recognition, fuzzy clustering, and fuzzy technologies in computer vision.”

21. **IEEE MARIE SKLODOWSKA-CURIE AWARD**—recognizes outstanding contributions to the field of nuclear and plasma sciences and engineering—sponsored by the *IEEE Nuclear and Plasma Sciences Society*—to

Recipient

MICHEL DEFRISE (FIEEE)—Retired Professor, Brussels, Belgium

Citation

“For key developments in image reconstruction for positron emission tomography and x-ray computed tomography.”

22. **IEEE INNOVATION IN SOCIETAL INFRASTRUCTURE AWARD**—recognizes significant technological achievements and contributions to the establishment, development, and proliferation of innovative societal infrastructure systems through the application of information technology with an emphasis on distributed computing systems—sponsored by *Hitachi, Ltd.* and the *IEEE Computer Society*—to

Recipient

ELISA BERTINO (FIEEE)— Professor, Purdue University, West Lafayette, Indiana, USA

Citation

“For advancing the security and privacy of new-generation cellular networks.”

23. **IEEE CHARLES PROTEUS STEINMETZ AWARD**—recognizes exceptional contributions to the development and/or advancement of standards in electrical and electronics engineering—sponsored by the *IEEE Standards Association*—to

Recipient

HARAN KARMAKER (LFIEEE)—Principal R&D Engineer, TECO Westinghouse Motor Company, Round Rock, Texas, USA

Citation

“For leadership in and contributions to the development of standards for electrical machines.”

24. [**IEEE ERIC E. SUMNER AWARD**](#)—recognizes outstanding contributions to communications technology—sponsored by *Bell Labs, Nokia*—to

Recipient

EN-HUI YANG (FIEEE)—Professor, Department of Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario, Canada

Citation

“For contributions to the theory and practice of source coding.”

25. [**IEEE NIKOLA TESLA AWARD**](#)—recognizes outstanding contributions to the generation and utilization of electric power—sponsored by the *IEEE Industry Applications Society* and the *IEEE Power & Energy Society*—to

Recipient

ZI-QIANG ZHU (FIEEE)—Professor, Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, South Yorkshire, United Kingdom

Citation

“For contributions to the design, modeling, control, and application of ac permanent magnet machines and drives.”

26. [**IEEE KIYO TOMIYASU AWARD**](#)—recognizes outstanding early to mid-career contributions to technologies holding the promise of innovative applications—sponsored by the late *Dr. Kiyoo Tomiyasu*, the *IEEE Geoscience and Remote Sensing Society*, and the *IEEE Microwave Theory and Techniques Society*—to

Recipient

ZHU HAN (FIEEE)—John and Rebecca Moores Professor, Dept. of Electrical & Computer Engineering, University of Houston, Texas, USA

Citation

“For contributions to game theory and distributed management of autonomous communication networks.”

27. [**IEEE TRANSPORTATION TECHNOLOGIES AWARD**](#)—recognizes advances in technologies within the fields of interest to the IEEE as applied in transportation systems—sponsored by the *IEEE Industry Applications Society*, *IEEE Industrial Electronics Society*, *IEEE Intelligent Transportation Systems Society*, *IEEE Microwave Theory and Techniques Society*, *IEEE Power Electronics Society*, *IEEE Power & Energy Society*, and *IEEE Vehicular Technology Society*—to

Recipient

PHILIP T. KREIN (FIEEE)—Executive Dean, ZJU-UIUC Institute, Zhejiang University, International Campus, Hangzhou, China

Citation

“For contributions to electric vehicle battery management and hybrid system optimization.”

28. **IEEE UNDERGRADUATE TEACHING AWARD**—recognizes inspirational teaching of undergraduate students in the fields of interest of the IEEE—sponsored by the *IEEE Education Society*—to

Recipient

CRISTIANE A. PIMENTEL (MIEEE)—Professor, Federal University of Recôncavo da Bahia, Feira de Santana, Brazil

Citation

“For encouraging women to pursue STEM careers, and developing industry-based projects for social justice.”

29. **2020 IEEE ERIC HERZ OUTSTANDING STAFF MEMBER AWARD**—recognizes a present or past full-time staff member of the IEEE with at least ten years of service—sponsored by *IEEE*—to

Recipient

PATRICK P. RYAN (SMIEEE)—Society Executive Director, IEEE Power & Energy Society, Piscataway, New Jersey, USA

Citation

“For leadership in creating a successful model for IEEE and Society memberships by fostering member value and partnerships with volunteers.”