

IEEE Fellows Elevated as of January 2021

R1 -Northeastern USA

Boston Section

Asuman Ozdaglar

for contributions to distributed multi-agent networks

Domitilla Del Vecchio

for contributions to circuit engineering in synthetic biology

Joel Voldman

for contributions to electronic microscale manipulation of cells

Nicholas Kolias

for contributions to the development of Gallium Nitride monolithic microwave integrated circuit technology

Robert Shin

for leadership in electromagnetic modeling of radar systems and in microwave remote sensing

Stefano Coraluppi

for contributions to multi-sensor multi-target tracking

Buffalo Section

Amit Goyal

for contributions to high-temperature superconducting materials

Junsong Yuan

for contributions to human behavior understanding and video analytics

Thomas Thundat

for contributions to multi-modal microelectromechanical systems for chemical and biological sensors

Ithaca Section**Hadas Kress-gazit**

for contributions to automated control synthesis and formal methods for robotics

Jose Martinez

for contributions to adaptable multiprocessor computer architectures

New Jersey Coast Section**Chongjin Xie**

for contributions to optical transmission and datacenter optical networking

New York Section**Vasilis Fthenakis**

for contributions to photovoltaics technology

North Jersey Section**Jaideep Vaidya**

for contributions to privacy protection in data analytics and access control management

Princeton/Central Jersey Section**Dario Pompili**

for contributions to underwater acoustic communication networks

Providence Section**Dana Yoerger**

for development of autonomous underwater vehicles for deep ocean exploration and science

Honggang Wang

for contributions to low power wireless for IoT and multimedia applications

Schenectady Section

Birsen Yazici

for contributions to synthetic aperture radar and passive imaging

Springfield Section

Bruce Croft

for contributions to information retrieval

Tappan Zee Subsection

Dmitri Maslov

for contributions to quantum circuit synthesis and optimization, and compiling for quantum computers

Jose Moreira

for advances in high performance computing systems software and processor design

R10 -Asia and Pacific

Australian Capital Terr Section

Xiuping Jia

for contributions to feature mining and classification of hyperspectral images

Beijing Section

Hongke Zhang

for contributions to high-speed railway communications

Hua Geng

for contribution to control of renewable energy power converters

Huadong Ma

for contributions to multimedia sensor networks

I Chih-lin

for leadership in wireless mobile networks

Jie Tang

for contributions to knowledge discovery from data and social network mining

Junzhi Yu

for contributions to bio-inspired swimming robots

Lintao Zhang

for contributions to computer-aided verification with efficient Boolean satisfiability solvers

Shixia Liu

for contributions to visual text analysis and visual model analysis

Wenchuan Wu

for contributions to energy management, operations, and control

Xiaofeng Liao

for contributions to neurodynamic systems and chaotic cryptography

Yu Zheng

for contributions to spatio-temporal data mining and urban computing

Zhao-liang Li

for contributions to thermal infrared remote sensing

Zhaocheng Wang

for contributions to pilot design and modulation of OFDM wireless systems

Chengdu Section**Chunming Li**

for contributions to computer vision and medical image analysis

Delhi Section**Richa Singh**

for contributions to robust and secure biometrics

Fukuoka Section**Gourab Majumdar**

for contribution to power semiconductor devices and intelligent power module

Guangzhou Section

Jizhong Zhu

for application of optimization methods for real-time economic power system operation

Jun Li

for contributions in hyperspectral image processing

Hefei Subsection

Houqiang Li

for contributions to video coding and multimedia content analysis

Meng Wang

for contributions to multimedia content analysis and retrieval

Hong Kong Section

Cong Wang

for contributions to security of cloud storage and computation

Francis Lau

for contributions to analysis of chaotic communications systems and low-density parity-check code design

Kaibin Huang

for contributions to wirelessly powered communications and multi-antenna communications

Matthew Mckay

for contributions to random matrix theory in statistical signal processing

Pascal Vontobel

for contributions to graphical models for channel coding

Kansai Section

Jun Ohta

for contributions to CMOS image sensors and devices for biomedical applications

Shinzo Tamai

for contributions to control for motor drives and three-level converters

Tomohiro Nakatani

for contributions to far-field signal processing for speech enhancement and recognition

Nagoya Section**Jianqing Wang**

for contributions to electro-magnetic compatibility of biological and wearable/implant devices

Nagpur Subsection**Hiralal Suryawanshi**

for contributions to converters for renewable energy systems, drives, and electrical machines

Nanjing Section**Dong Yue**

for contributions to network-based control and its applications to power systems

Geyi Wen

for contributions to antenna quality factor

Hanchuan Peng

for contributions to visualization and quantitative analysis of large-scale biological data

New South Wales Section**Alberto Avolio**

for contributions to knowledge and monitoring of arterial hemodynamics

Shujun Zhang

for contributions to the development of advanced piezoelectrics for transducers

Willy Susilo

for contributions to cloud computing security

Wing Kwan Ng

for contributions to resource allocation for wireless communication networks

Queensland Section

Daniel Quevedo

for contributions to optimal and model predictive control

Firuz Zare

for contribution to power converters and leadership role in standardization

Sendai Section**Tetsuya Suemitsu**

for contributions to high-frequency high-electron-mobility transistors

Seoul Section**Byoung-hoon Kim**

for contributions to development and standardization of mobile communication technologies

Chan-byoung Chae

for contributions to MIMO design and prototypes for emerging communication systems

Hyundong Shin

for contributions to the analysis and design of wireless communication and networking

Kyoung Mu Lee

for contributions to image restoration and visual tracking

Wonjun Lee

for contributions to multiple access and resource allocation in wireless networks

Shanghai Section**Bao-liang Lu**

for contributions to artificial neural networks and affective brain-computer interfaces

Daoqiang Lu

for development of materials and manufacturing processes for mobile devices

Huang De Shuang

for contributions to neural networks for pattern recognition and bioinformatics

Jingyi Yu

for contributions to theoretical analysis, algorithms and systems for computational photography and computer vision

Shikoku Section**Shuxiang Guo**

for contributions to medical robots for minimally invasive surgery and biomimetic underwater robots

Singapore Section**Amit Gupta**

for leadership in power conversion systems

Chau Yuen

for contributions to energy efficient wireless communications

Danwei Wang

for contributions to modelling, analysis, and control for constrained robots

Sanjib Panda

for contributions to iterative learning control of motor drives

Xudong Jiang

for contributions to face and fingerprint image recognition

Tainan Section**Mi-ching Tsai**

for leadership in magnetic materials for the electric motor industry

Taipei Section**Ai-chun Pang**

for contributions to resource management and service provisioning for mobile edge networks

Vincent Tseng

for contributions to utility pattern mining and biomedical applications

Yaow-ming Chen

for contributions to grid-connected power converters for renewable energy applications

Tokyo Section

Hideaki Aochi

for contributions to three dimensional flash memories

Hideaki Ishii

for contributions to networked control of large-scale systems

Itsuro Morita

for contributions to large-capacity transmissions systems with high-speed optical signals

Jinhua She

for contributions to intelligent control of complex metallurgical processes

Shinji Yuasa

for contributions to MgO-based magnetic tunnel junctions

Takatoshi Tsujimura

for contributions to the development of organic-light-emitting diode systems

Uttar Pradesh Section

Suresh Srivastava

for contributions to power system security and stability

Yogesh Chauhan

for contributions to compact modeling of Si and GaN transistors

Victorian Section

Jianfei Cai

for contributions to multimedia transmission and content analysis

Wuhan Section

Lizhe Wang

for contributions to high performance computing in processing, analysis and applications of remote sensing imagery

Min Chen

for contributions to data-driven communication, caching, and computing

Xian Section

Guangming Shi

for contributions to image representation and image reconstruction

Hong Wang

for development, integration, and commercialization of novel dielectric ceramics and composites for passive integration

Jiandong Li

for leadership in heterogeneous self-organizing wireless networks

Jingdong Chen

for contributions to microphone array processing and speech enhancement in noisy and reverberant environments

Zhejiang Subsection

Fushuan Wen

for contributions to fault diagnosis in power grids

Zheng Xu

for contributions to control and modeling of modular multilevel converter based HVDC transmission systems

Zhengyu Lu

for contributions to DC-DC power conversion and control

R2 -Eastern USA

Annapolis Subsection

Jeffrey Piepmeier

for contributions to microwave radiometry to improve calibration, radio frequency interference filtering, and polarimetry

Baltimore Section

David Gracias

for contributions to three-dimensional assembly and origami engineering of nanostructured materials and devices

Columbus Section

Dong Xuan

for contributions to connected coverage in wireless networks

Jin Wang

for development of high density power converters and their use in electric cars

Ramteen Sioshansi

for contributions to energy storage in electric power systems

Xiaorui Wang

for contributions to power management of data center servers and embedded systems

Lehigh Valley Section

Nelson Tansu

for contributions to semiconductor photonics technologies

Northern Virginia Section

Paul Hershey

for application of data analytic to assist human decision-making

Philadelphia Section

James Gee

for contributions to medical image processing and analysis

Pittsburgh Section

Kalyan Sen

for the development and application of power flow control technology

Washington Section

Bruce Jacob

for contributions to computer memory design and analysis

Gang Qu

for contributions to hardware intellectual property protection and security

Le Lu

for contributions to machine learning for cancer detection and diagnosis

Louiqa Raschid

for contributions to data management, information integration and data mining

R3 -Southeastern USA

Atlanta Section

Alessandro Orso

for contributions to software testing and debugging

Ayanna Howard

for contributions to human-robot interaction systems

Wenke Lee

for contributions to machine-learning-based approaches to intrusion and botnet detection

Central North Carolina Section

Ahmed Ali

for leadership in high-speed analog-to-digital converter design and calibration

Central Virginia Section

Benton Calhoun

for contributions to sub-threshold integrated circuits and self-powered systems

Sebastian Elbaum

for contributions of testing techniques for evolving systems

Columbia Section

David Matolak

for contributions to wireless channel modeling and applications

Eastern North Carolina Section

Ismail Guvenc

for contributions to heterogeneous wireless networks and wireless localization

Ning Lu

for contributions to load modeling and control methods for providing demand side grid services

Florida West Coast Section

Dennis Killinger

for contributions to laser spectroscopy

Paul Sanberg

for contributions to stem cell therapies for neurodegenerative conditions

Gainesville Section

My Thai

for contributions to modeling, design, and optimization of networked systems

Prabhat Mishra

for contributions to system-on-chip validation and design automation of embedded systems

Yongpei Guan

for contributions to robust and stochastic optimization for power system operations

Huntsville Section

Michael Griffin

for leadership in space infrastructure and Space Shuttle, International Space Station, Hubble and other missions

Piedmont Section

Ganesh Venayagamoorthy

for contributions to the application of artificial intelligence to power systems

Richmond Section

Milos Manic

for contributions to machine learning based cybersecurity for critical infrastructures

Virginia Mountain Section

Kirk Cameron

for contributions to measurement and management of energy in high-performance-computing systems

R4 -Central USA

Central Illinois Section

Grigore Rosu

for contributions to runtime verification and programming language semantics

Svetlana Lazebnik

for contributions to computer vision

Tarek Abdelzaher

for contributions to cyber-physical systems and real-time computing

Central Indiana Section**Gesualdo Scutari**

for contributions to distributed optimization in signal processing and communications

Ninghui Li

for contributions to data privacy and security

Yung-hsiang Lu

for contributions to energy efficiency of computer systems

Chicago Section**Daniela Tuninetti**

for contributions to theory of repetition protocols and wireless interference management

Dongning Guo

for contributions to multi-user detection and estimation theory

Mahesh Swamy

for development of power electronics topologies

Yongyi Yang

for contributions to medical image recovery and analysis

Southeastern Michigan Section**Chandra Namuduri**

for contributions to power electronics for safe and energy efficient electric vehicles

Cynthia Finelli

for leadership and scholarship in engineering education

Issam El-naqa

for contributions to machine learning applications in medicine and imaging

Mohammad Nazmul Anwar

for contributions to the system-balanced-robust power electronics design methodology for electrified vehicles

Sandeep Pradhan

for contributions to coding for distributed compression and structured coding

Twin Cities Section**Bryan Root**

for leadership in improving semiconductor reliability test methods

R5 -Southwestern USA**Central Texas Section****Bhyrav Mutnury**

for contributions to signal integrity in complex data center systems

Deji Akinwande

for contributions to wafer-scale graphene synthesis and application to flexible devices

Dallas Section**Jianhui Wang**

for contributions to unit commitment and economic dispatch with renewable generation

Denver Section**Michael Wakin**

for contributions to sparsity-based signal processing and compressive sensing

Wenzhong Gao

for contributions to grid integration of wind power and electric vehicle technology

High Plains Section

Mingzhong Wu

for contributions to spintronics and magnetization

Houston Section

Daniel Jimenez

for contributions to neural branch prediction in microprocessor research and design

Lone Star Section

Chunjiang Qian

for contributions to control and estimation of nonlinear systems

Saint Louis Section

Bruno Sinopoli

for contributions to networked and secure control systems

R6 -Western USA

Central Coast Section

Yifeng Wu

for contributions to Gallium Nitride microwave and power conversion devices

Coastal Los Angeles Section

Chang-jin Kim

for research of surface-tension-based microelectromechanical systems

Craig Knoblock

for contributions to semantic data integration techniques

Danijela Cabric

for contributions to theory and practice of spectrum sensing and cognitive radio systems

Dejan Markovic

for contributions to low-power VLSI signal processing and neurotechnology

Paul Weiss

for contributions to nanoscience and specifically electronic transport in molecular systems

Yolanda Gil

for contributions to geoscience and scientific discovery with intelligent workflow systems

Los Alamos/Northern New Mexico Section

Valentin Jordanov

for contributions to real-time digital and analog pulse processing in radiation measurements

Metropolitan Los Angeles Section

Aaron Ames

for contributions to hybrid and safety-critical nonlinear control with demonstration on robotic systems

Alan Kleinsasser

for contributions to superconducting electronic devices, circuits, and systems

Andrey Matsko

for contributions to the development of microwave photonic oscillators

Animashree Anandkumar

for contributions to theory and applications in signal processing, machine learning, and artificial intelligence

Pietro Perona

for contributions to visual recognition algorithms and datasets

Monterey Bay Subsection

Leila Parsa

for contributions to control of multi-phase permanent magnet electrical drives

Lise Getoor

for contributions to machine learning and reasoning under uncertainty

Oakland-East Bay Section

Bronis De Supinski

for leadership in the design and use of large-scale computing systems

Roya Maboudian

for contributions to surface coatings and structural materials for microelectromechanical systems

Orange County Section

Athina Markopoulou

for contributions to network coding systems and network measurement

Peter Burke

for contributions to active and passive microwave devices

Sharad Mehrotra

for contributions to the fields of data management and multimedia information retrieval

Oregon Section

R Vannithamby

for contributions to resource allocation for cellular and internet of things technologies

Phoenix Section

Deepak Goyal

for contributions to fault isolation and failure analysis

Rudy Emrick

for contributions to the development of millimeter-wave communication systems

Sacramento Valley Section

Jasjit Suri

for contributions to computer-aided biomedical imaging diagnosis and its commercialization in atherosclerosis

John Owens

for contributions to heterogeneous parallel computing

San Diego Section

Edward Tiedemann

for innovation and standardization of digital cellular communications

Inyup Kang

for leadership in development of chip-set technologies for cellular communications

Katherine Morse

for contributions to standardization of simulation technologies

Tara Javidi

for contributions to stochastic resource allocation and active hypothesis testing

Vitaliy Lomakin

for contributions to theoretical and computational electromagnetics

San Francisco Section

Kimberly Keeton

for contributions to storage and memory systems

Martin Reddy

for contributions to conversational artificial intelligence

Santa Clara Valley Section

Achintya Bhowmik

for leadership in perceptual augmentation devices

Ali Keshavarzi

for contributions to low-power circuits and devices in scaled CMOS technologies

Calin Cascaval

for contributions to programming models for parallel machines and heterogeneous mobile devices

David Donoho

for contributions to sparse signal acquisition and processing

Eve Schooler

for contributions to multimedia protocols and internet standards

Evgeniy Gabrilovich

for contributions to web information retrieval technology

Gamal Refai-ahmed

for leadership in thermal management of electronics product development

Gurudatta Parulkar

for contributions to improving the architecture of the internet and software defined networking

Omkaram Nalamasu

for contributions to patterning solutions and advancing materials engineering for electronics, display, and energy

Yang Liu

for contributions to speech understanding and language learning technology

Seattle Section**Ivan Tashev**

for contributions to audio signal processing systems and algorithms for commercial microphone arrays

Michael Ernst

for contributions to software analysis, testing, and verification

Nachiappan Nagappan

for contributions to software reliability

Ruhi Sarikaya

for leadership in spoken-language-processing and conversational understanding systems

Thomas Zimmermann

for contributions to data science in software engineering, research and practice

Yifan Gong

for leadership in creating cloud speech recognition services in industry

Utah Section**David Allan**

for contributions to timing systems, and precision clocks

Rajeev Balasubramonian

for contributions to in-memory computation and memory interface design

R7 -Canada**Kingston Section**

Alireza Bakhshai

for contributions to the development of synchronization techniques for power electronics converters

Montreal Section**Akshay Rathore**

for contributions to the design and advancement of power electronics for drives and automotive industries

Roberto Morandotti

for contributions to integrated nonlinear and quantum optics

New Brunswick Section**Rongxing Lu**

for contributions to security and privacy in vehicular communications

Northern Canada Section**Yasser Mohamed**

for contributions to the control and dynamic analysis of microgrids and power electronic systems

Quebec Section**Sophie Larochelle**

for contributions to fiber devices and data transmission technologies

Southern Alberta Section**Hamidreza Zareipour**

for contributions to the modeling of energy storage for system operation and planning

Yingxu Wang

for contributions to real-time autonomous systems

Toronto Section**Andreas Moshovos**

for contributions to out-of-order processor microarchitecture and multiprocessor memory systems

Gene Cheung

for contributions to graph spectral image processing and interactive video streaming

Mohammad Uddin

for contributions to control techniques for AC motor drives

Natalie Enrightjerger

for contributions to networks-on-chip for many-core architectures

Timothy Barfoot

for contributions to mobile robot navigation

Xiaoping Zhang

for contributions to signal processing in finance

Vancouver Section**Alla Sheffer**

for contributions to mesh parameterization and hexahedral meshing

R8 -Europe, MEast, Africa**Austria Section****Bernhard Jakoby**

for contributions to fluidic sensor

Dieter Schmalstieg

for contributions to augmented reality

Benelux Section**Filip De Turck**

for contributions to network resource management and adaptive service delivery

Jacquelien Scherpen

for contributions to nonlinear model reduction and passivity-based control

Johan Nuyts

for contributions to theory and algorithms for image reconstruction in emission and transmission tomography

Nathan Van De Wouw

for contributions to hybrid, data-based and networked control

Wim Bogaerts

for contributions to design methodologies for silicon photonics components and circuits

Denmark Section**Poul Sorensen**

for contributions to wind power converter control and grid integration

Egypt Section**Salah Obayya**

for contributions to computational photonics

Finland Section**Enrique Acha**

for contributions to power electronics modelling and applications in electrical power systems

Mehdi Bennis

for contributions to resource optimization in heterogeneous and low-latency wireless networks

Tuomas Virtanen

for contributions to sound event detection and source separation

France Section**Claude Samson**

for contributions to mobile and underactuated mechanical systems control

Laurent Larger

for contributions to optoelectronic delay oscillators and neuromorphic processing applications

Lori Lamel

for contributions to automatic speech recognition

Stephane Mangin

for contributions to ultrafast magnetisation manipulation

Germany Section

Haris Gacanin

for development of operations and management systems for home broadband networks

Mehdi Tahoori

for contributions to resilient nanoscale integrated circuits

Stephan Ten Brink

for contributions to iterative detection and decoding

Wil Van Der Aalst

for contributions to process mining and workflow processes

Wolfgang Utschick

for contributions to signal processing algorithms for multi-antenna communications systems

Xiaoxiang Zhu

for contributions to artificial intelligence and data science in Earth observation and global urban mapping

Israel Section**Sharon Gannot**

for contributions to acoustical modelling and statistical learning in speech enhancement

Yakov Krasik

for contributions to plasma-based electron sources

Italy Section**Chiara Petrioli**

for contributions to wireless and underwater networks

Gabriella Cincotti

for contributions to planar photonic devices and beam diffraction in anisotropic media

Gianluca Antonelli

for contributions to modeling and control of underwater robots

Gianluigi Pillonetto

for contributions to kernel-based linear system identification

Giovanni Mazzanti

for contributions to high voltage direct current cable systems

Luciano Tarricone

for contributions to microwave interactions with living systems and biomedical applications

Luisa Verdoliva

for contribution to multimedia forensics

Marco Mellia

for contributions to Internet traffic analysis

Roberto Oboe

for contributions to remote motion control systems

Portugal Section

Joao Gama

for contributions to mining data streams

South Africa Section

Saurabh Sinha

for leading micro/nanoelectronics research and education in Africa

Spain Section

Enrique Herrera-viedma

for contributions to fuzzy decision systems and linguistic modeling

Jose Lozano

for contributions to the estimation of distribution algorithms in evolutionary computation

Jose Neira

for contributions to simultaneous localization and mapping (SLAM) for robot navigation

Oriol Gomis Bellmunt

for contributions to grid integration of renewable energy sources

Sergio Vazquez

for contributions to control techniques for power converters and drives

Sweden Section

Erik Strom

for contributions to reliable low latency communications and synchronization of code-division systems

Stefanos Kaxiras

for contributions to high-performance and power-efficient memory hierarchies

Zhinong Ying

for contributions to mobile terminal antenna technology

Switzerland Section

David Basin

for contributions to formal methods for information security

Matthias Grossglauser

for contributions to the modeling and analysis of network traffic and data

Turkey Section

Hilmi Demir

for contributions to semiconductor nanocrystal optoelectronics, colloidal nanophotonics, and lighting

United Arab Emirates Section

Ling Shao

for contributions to computer vision and representation learning

United Kingdom and Ireland Section

Ashwin Seshia

for contributions to resonant-based inertial and mode-localized sensors

Dragan Jovcic

for contributions to improvements in multi-terminal HVDC transmission grids and development of HVDC transformers

Gan Zheng

for contributions to optimization and design of multiuser multi-antenna communications

Hanyang Wang

for contributions to mobile terminal antennas

Honghai Liu

for contributions to theory and applications of human-machine systems

Jaafar M.h. Elmirghani

for contributions to energy-efficient communications

Jonathan Garibaldi

for contributions to computational intelligence techniques in data analysis and decision support

Julia Schnabel

for contributions to medical image computing

Patrick Wheeler

for contributions to matrix power converter technology

Robert Henderson

for contributions to solid-state single photon imaging

Stephen Hodges

for leadership in pervasive computing systems

Yi Huang

for contributions to rectenna technology

Zhongdong Wang

for contributions to insulating liquids and frequency response analysis methods for power transformers

Western Saudi Arabia Section**Wolfgang Heidrich**

for contributions to high dynamic range display and computational cameras