

2018 Newly Elevated Fellows

Pieter Abbeel

for contributions to apprenticeship and reinforcement learning for robotics and autonomous systems

Pamela Ann Abshire

for contributions to CMOS biosensors

Haithem Abu-rub

for contributions to power electronic converters for renewable energy applications

Erik Agrell

for contributions to coding and modulation in optical communications

Fauzia Ahmad

for contribution to through-the-wall radar imaging

Anastasia Ailamaki

for contributions to hardware-conscious database systems and scientific data management

Matteo Albani

for contributions to the uniform geometrical theory of diffraction

Andrew Alleyne

for contributions to the control of thermal management systems

Pietro Andreani

for contributions to CMOS integrated voltage-controlled oscillators

Walid Aref

for contributions to spatio-temporal database indexing and query processing

Kohtaro Asai

for contributions to video coding development and standardization

Hajime Asama

for contributions to distributed autonomous robotic systems

Bertan Bakkaloglu

for contributions to radio frequency circuits

Bijnan Bandyopadhyay

for contributions to discrete-time, multi-rate, output feedback sliding-mode control

2018 Newly Elevated Fellows

Paul Barford

for contributions to Internet measurement and security

N. Scott Barker

for contributions to millimeter-wave and terahertz micromachining

Erik Blasch

for leadership in aerospace information fusion systems

Glenn Boreman

for contributions to optical and infrared antenna technologies

Vicente Boria

for contributions to high-power microwave filters and multiplexers

Timothy Boykin

for contributions to atomistic models for semiconductor device simulation

Maurizio Bozzi

for contributions to substrate integrated waveguides and integrated periodic structures

Oliver Brock

for contributions to mobile manipulation and grasping

Alexander Bronstein

for contributions to three-dimensional geometric processing in imaging

Charles Bunting

for educational contributions to electromagnetic compatibility and reverberation chambers

Karen Butler-Purry

for contributions to expanding minority participation in power systems education

Marco Caccamo

for contributions to the theory and applications of hard real-time multicore computing

Yigang Cai

for innovations in high-speed wireless networks

Giuseppe Calafiore

for contributions to probabilistic methods for robust control design

2018 Newly Elevated Fellows

Jeffrey Calame

for contributions to high-power microwave and millimeter-wave amplifiers enabled by composite dielectric materials

Linda Camp

for research in human-centered risk and security

Mark Campbell

for contributions to control and estimation theory for autonomous systems

Gustau Camps-Valls

for contributions to machine learning in remote sensing

Emmanuel Candes

for contributions to sparse and low-rank signal and image processing

Leo Casey

for contributions to high-speed power electronic interfaces for grid-tied distributed resources

Sherman Chan

for contributions to power system modeling and analysis tools for protective relaying

Chip Hong Chang

for contributions to hardware security

Kun-Yung Chang

for contributions to transceivers for high-performance networking and high-density memories

Ni-Bin Chang

for contributions to computational techniques for the analysis of environmental sustainability

Tsung-Yung Chang

for application of SRAM technology to low-power and high-performance computing

Kuan-Neng Chen

for contributions to 3D integrated circuit and packaging technologies

Wen-Hua Chen

for contributions to the applications of nonlinear disturbance observer based control

Yi-Jan Emery Chen

for contributions to monolithic RF CMOS power amplifiers and transceiver frontends

2018 Newly Elevated Fellows

Yiran Chen

for contributions to spintronic memory

Po-Tai Cheng

for contributions to power converters for microgrid applications

Richard Chernock

for leadership in next generation digital TV

Yiu-Ming Cheung

for contributions to cluster analysis and visual computing

Carla Chiasserini

for contributions to energy efficiency and cooperation in wireless networks

Gianfranco Chicco

for contributions to data analytics for smart metering

Gary Christensen

for contributions to medical image registration and analysis

Oscar Cordon

for contributions to genetic and evolutionary fuzzy systems

Thomas Coughlin

for leadership in consumer electronics digital storage technology

Jian Dai

for contributions to reconfigurable and metamorphic mechanisms

Swaroop Darbha

for contributions to intelligent transportation systems and autonomous vehicles

Ewa Deelman

for contributions to scientific workflow management

Andreas Demosthenous

for contributions to integrated circuits for active medical devices

Jaydev Desai

for contributions to medical and swarm robotics

Po Dong

for contributions to silicon-based photonic devices and integrated circuits

2018 Newly Elevated Fellows

Qian Du

for contributions to hyperspectral data processing

Alan Edelman

for contributions to the development of technical-computing languages

Lieven Eeckhout

for contributions in computer architecture performance analysis and modeling

Karen Egiazarian

for contributions to image and video denoising and restoration

Daniel Ellis

for contributions to speech, audio, and music processing

Ehab El-Saadany

for contributions to distributed generation planning, operation and control

Fariba Fahroo

for contributions to computational optimal control theory

Liping Fang

for contributions to multiple participant-multiple objective decision making and decision support systems

Hany Farid

for contributions to digital forensics

Dario Farina

for contributions to neuromuscular electrophysiology and neurorehabilitation

Steven Feiner

for contributions to augmented reality and computer graphics

James Feltes

for contributions to modelling the dynamic response of power generation systems

Massimo Franceschetti

for contributions to random wireless networks

James Friend

for contributions to acoustics, microfluidics and microactuation

2018 Newly Elevated Fellows

Pascal Frossard

for contributions to adaptive image and video representation, coding and communication

Kevin Fu

for contributions to embedded and medical device security

Akira Fujiwara

for contributions to silicon single-electron devices

Thomas Furness

for leadership in virtual and augmented reality

Andrea Galtarossa

for contributions to low polarization mode dispersion fibers

Dave Garrett

for contributions to beam-forming architectures and implementations

Alexander Gelman

for contributions to technologies for streaming and controlling digital video

Mounir Ghogho

for contributions to synchronization algorithms for communication systems

Maria Gini

for contributions to multi-agent programming in robotics

Yihong Gong

for contributions to pattern recognition and multimedia content analysis

Stefano Grivet-Talocia

for contributions to passive macromodeling for signal and power integrity

Cuntai Guan

for contributions to brain-computer interfaces and applications

Xinping Guan

for contributions to stability analysis for time-delay fuzzy systems and intelligent control of nonlinear systems

Minyi Guo

for contributions to performance optimization and resource management of parallel and distributed systems

2018 Newly Elevated Fellows

Yongxin Guo

for contributions to wideband printed antennas

Jung-Ik Ha

for contribution to sensorless control of AC drives

Martin Haardt

for contributions to multi-user MIMO communications and tensor-based signal processing

Harald Haas

for leadership in the design of visible-light and wireless communication systems

Hashem Hashemian

for leadership in developing technologies for nuclear reactor monitoring

Haibo He

for contributions to adaptive learning

Tian He

for development and optimization of networked sensing systems

Jeffrey Herd

for leadership in the development of low-cost phased array technology

Yoshihito Hirano

for leadership in the development of 1.5-micron wind sensing lidar

Michel Houssa

for contributions to materials characterization for advanced MOSFETs

Naira Hovakimyan

for contributions to control with applications to aerospace and robotic systems

Jonathan How

for contributions to guidance and control of air and space vehicles

David Howe

for contributions to global time synchronization

David Hsu

for contributions to robot motion planning

2018 Newly Elevated Fellows

Biao Huang

for contributions to and application of Bayesian soft-sensing for control performance monitoring

Qingming Huang

for contributions to multimedia content analysis and visual perceptual processing

Pan Hui

for contributions to social-based opportunistic networks

Brad Hutchings

for contributions to CAD tools for reconfigurable computing

Jaroslav Hyneczek

for contributions to solid-state image sensors

Kullervo Hynynen

for contributions to image-guided therapeutic focused ultrasound

Leon Iasemidis

for developments in epileptic seizure prediction and closed-loop brain stimulation

Anil Jampala

for contributions to the utilization of synchrophasors in energy management systems

Somesh Jha

for contributions to the application of formal methods to security

Jiaya Jia

for contributions to deblurring techniques in computational photography

Lynette Jones

for contributions to tactile and thermal displays

Sergei Kalinin

for leadership in piezoresponse force microscopy for nanoscale imaging

George Karypis

for contributions to graph partitioning and data mining

Aleksandar Kavcic

for contributions to signal processing and coding in data storage

Noriko Kawakami

for contributions to large-capacity power converters and applications

2018 Newly Elevated Fellows

Thomas Kazior

for leadership in microwave and millimeter wave compound semiconductor technology and heterogeneous integration with silicon

Angelos Keromytis

for contributions to network security systems

Sung Kim

for contributions to the design of microfabricated neural prosthetic devices

Brian E.D. Kingsbury

for contributions to acoustic models for automatic speech recognition

Roberta Klatzky

for contributions to human visual, auditory, and haptic perception in robotics and virtual environments

Lang Klaus

for leadership in heterogeneous integration and microelectronic packaging

Xenofon Koutsoukos

for contributions to design of resilient cyber-physical systems

Michael Krames

for leadership in GaN-based light-emitting device physics and its commercialization

D. Richard Kuhn

for contributions to access control and combinatorial test methods

Ajay Kumar

for contributions to non-contact hand-based biometrics recognition

Isaac Lagnado

for leadership in the development of silicon-on-sapphire technology

Pablo Laguna Lasosa

for contributions to cardiac biomedical signal processing

Susan Land

for leadership in software product development

Jungwon Lee

for contributions to signal processing for cellular modems

2018 Newly Elevated Fellows

Riccardo Leonardi

for contributions to image and video compression and multimedia semantic content analysis

Hui Li

for contributions to bidirectional converters for utility applications and high efficiency photovoltaic converters

Qun Li

for contributions to ad-hoc network routing and sensor networks

Tao Li

for contributions to sustainable and power-efficient computer architectures

Zhuo Li

for contributions to physical synthesis and modeling of integrated circuits

Ben Liang

for contributions to mobility modeling and resource management in wireless networks

Jiao Li-cheng

for contributions to artificial neural networks and evolutionary computation

Chia-Wen Lin

for contributions to multimedia coding and editing

Wei Lin

for contributions to nonlinear control systems

Zhouchen Lin

for contributions to low-rank data modeling and image processing

Giuseppe Lipari

for contributions to reservation-based real-time scheduling

Chee Wee Liu

for contributions to high-mobility germanium and silicon-germanium MOSFETs

Jie Liu

for contributions to wireless sensing

Ming Liu

for contributions to the development of resistive non-volatile memories

2018 Newly Elevated Fellows

Shengyi Liu

for application of multifunctional power conversion and power source integration to aircraft

Guo-Quan Lu

for development of materials and packaging technologies for power electronics modules

Jie Lu

for contributions to fuzzy machine learning and decision support systems

Wei Lu

for contributions to development of neuromorphic systems

Yilong Lu

for contributions to array antenna techniques in radar systems

John Luginsland

for contributions to space-charge limited flow physics, coherent radiation sources, and computational plasma physics

Richard Lukaszewski

for contributions to the application of power electronic devices for variable frequency drives

Xiaobing Luo

for contributions to packaging of optoelectronic devices

Shugen Ma

for contributions to the design and control of environment-adaptive robots

Zhenqiang Ma

for contributions to flexible and biodegradable microwave electronics

Udaya Madawala

for contributions to power electronics for bi-directional wireless power transfer

Guoqiang Mao

for contributions to localization algorithms for wireless networks

Vladimir Marik

for leadership in industrial applications of cybernetics

Sonia Martinez

for contributions to the geometric mechanics and control

2018 Newly Elevated Fellows

Saverio Mascolo

for contributions to modeling and control of congestion in packet networks

Andrea Massa

for contributions to phased arrays and electromagnetic inverse scattering

Sanu Mathew

for leadership in computer arithmetic datapath and security circuits

Earl Mc Cune

for leadership in polar modulation circuits and signals

Paul Meaney

for contributions to microwave tomography and its translation to clinical use

Deepankar Medhi

for contributions to optimization and the design of computer-communication networks

Russell Meier

for contributions to global on-line engineering education

Tommaso Melodia

for contributions to underwater acoustic and multimedia networks

Abraham Mendelson

for contributions to power-aware architecture and value prediction for program execution

Olgica Milenkovic

for contributions to genomic data compression

Jelena Mistic

for contributions to modeling and performance evaluation in wireless communications

Andrea Montanari

for applications of statistical physics to coding theory

Mehul Motani

for contributions to wireless communications and sensor networks

Hideki Motoyama

for contributions to lightning protection and insulation coordination of electric power systems

2018 Newly Elevated Fellows

Saibal Mukhopadhyay

for contributions to energy-efficient and robust computing systems design

Chandra Nair

for contributions to network information theory

Girish Nair

for contributions to control and information in networked dynamical systems

Hans Peter Nee

for contributions to silicon carbide power electronics and modular multilevel converters

Silviu-Iulian Niculescu

for research on the effects of delays in system dynamics

Konstantina Nikita

for contributions to bioelectromagnetics and implantable antennas for medical applications

Barbara Oakley

for outreach through online engineering pedagogy

Hideo Ohno

for contributions to materials and device design for spintronics

Yew-Soon Ong

for contributions to memetic computation and applications

Hidetoshi Onodera

for contributions to variation-aware design and analysis of integrated circuits

Javier Ortega-Garcia

for contributions to biometrics for forensic speaker verification and signature recognition

Lawrence Ozarow

for contributions to capacity characterization of fading and feedback channels

Hitay Ozbay

for contributions to robust control for infinite dimensional systems

Philippe Paillet

for contributions to the understanding of radiation effects in electronics

2018 Newly Elevated Fellows

Patrick Panciatici

for contributions to power systems analysis software

Stefan Parkvall

for contributions to cellular standards

Jignesh Patel

for contributions to high-performance spatial data analysis methods

Constantinos S. Pattichis

for contributions to medical diagnostic and mobile health systems

Shanthi Pavan

for contributions to delta sigma modulators and analog filters

George Pavlou

for contributions to resource management and content-based networking

Joseph Pawlowski

for contributions to memory system interfaces

Peter Perkins

for contributions to touch current measurement and electric shock protection

Alexei Pilipetskii

for contributions to transoceanic fiber-optic transmission systems

Josien Pluim

for contributions to medical image analysis

Massimo Ponicino

for contributions to low-power circuits and systems

John Potter

for contributions to ice-ocean interaction, oceanography, and underwater communication

Paras Prasad

for contributions in biophotonics, nanophotonics and novel biomedical technology

Konstantinos Psounis

for contributions to multi-hop wireless networks

2018 Newly Elevated Fellows

Hairong Qi

for contributions to collaborative signal processing in sensor networks

Jianmin Qu

for contributions to design and reliability analysis for microelectronic packaging

Ronghai Qu

for contributions to flux modulations machines and wind generators

Tony Quek

for contributions to heterogeneous and wireless networks

CJ. Reddy

for leadership in simulation methods for antenna placement and co-site analysis

Jennifer Rexford

for contributions to network management and associated routing systems

Brian Rigling

for contributions to synthetic aperture radar imaging

Michael Riley

for contributions to automatic speech recognition using Weighted Finite-State Transducers

Kim Roberts

for contributions to digital signal processing for coherent optical communication systems

Justin Romberg

for contributions to compressive sensing

Luca Roselli

for contributions to sustainable radio-frequency modules for wireless sensor networks

Tajana Rosing

for contributions to power and reliability management of Systems-on-Chip

Eugeniusz Rosolowski

for contributions to education in power system modeling and protection

Badrinath Roysam

for contributions to image processing algorithms for biological microscopy

2018 Newly Elevated Fellows

Karen Rudie

for contributions to the supervisory control theory of discrete event systems

Kazuhiro Saitou

for contributions in computational assembly and disassembly design of mechanical products

Seiji Samukawa

for contributions to damage-free plasma processing for nano-device manufacturing

Kevin Sangston

for contributions to coherent detection of radar signals in clutter

Venkateswara Anand Sankaran

for leadership in power electronics and energy storage for electric vehicles

Rahul Sarpeshkar

for contributions to ultra low-power biomedical electronics

Ronan Sauleau

for contributions to lens and millimeter wave antennas

Hiroshi Sawada

for contributions to blind source separation of speech and audio signals

Dieter Scherer

for contributions to the design of oscillators and synthesized signal sources

Alex Schneider

for contribution to transmission and generation failure modeling

Clint Schow

for contributions to high bandwidth optical interconnects

Bjoern Schuller

for contributions to computer audition

Assaf Schuster

for contributions to cloud computing

Andrew Senior

for contributions to pattern recognition in speech, computer vision, and biometrics

2018 Newly Elevated Fellows

Sanjit Seshia

for contributions to formal methods for inductive synthesis and algorithmic verification

Shihab Shamma

for applications of signal processing to auditory neuroscience

Dinggang Shen

for contributions to medical image analysis

Riichiro Shirota

for contributions to the development of NAND flash memory

Jiwu Shu

for contributions to dependable, high-performance storage systems architecture

Hava Siegelmann

for contributions to neural computation

Lowell Smith

for contributions to ultrasound transducer technology for medical imaging

Gregory Snider

for contributions to single electron based computing technology

Yan Solihin

for contributions to shared cache hierarchies and secure processors

Min Song

for leadership in supporting wireless networking and radio spectrum access

Miguel Angel Sotelo Vazquez

for contributions to intelligent vehicles for road infrastructure inspection

Siddhartha Srinivasa

for contributions to robotic manipulation and human-robot interaction

Salvatore Stolfo

for contributions to machine learning-based computer security

Peter Stone

for contributions to reinforcement learning, multiagent systems, and robotics

2018 Newly Elevated Fellows

David Stork

for contributions to pattern recognition and image analysis

Weifeng Su

for contributions to multi-input multi-output wireless communications and cooperative networks

Rahul Sukthankar

for contributions to video understanding

Hong-Bo Sun

for contributions to laser nanofabrication and ultrafast spectroscopy

Hongbin Sun

for contributions to algorithms and technologies for energy management systems

Shuji Tanaka

for contributions to micro-electromechanical systems for acoustic wave devices, physical sensors, and power generation

Mark Tehranipoor

for contributions to integrated circuits security and trust

Juergen Teich

for contributions to hardware/software co-design for embedded systems

Marina Thottan

for leadership in high-speed internet-protocol networks

Yingli Tian

for contributions to automatic facial expression analysis and human activity understanding

Jocelyne Troccaz

for contributions to robotics and imaging for medical applications

John Tsotsos

for contributions to active vision and computational models of visual attention

Marcelo Valdes

for contributions to improving the safety and reliability of low voltage power systems

Matthew Valenti

for contributions to cooperative diversity and development of distributed turbo codes

2018 Newly Elevated Fellows

Victor Veliadis

for contributions to development of silicon carbide power devices

Giovanni Vigna

for contributions to Internet security and cybercrime prevention

Sergiy Vorobyov

for contributions to optimization in robust signal processing

Haixun Wang

for contributions to knowledge bases for text understanding

Li-C Wang

for contributions to statistical timing analysis for integrated circuits

Peng Wang

for contributions to power system reliability and hybrid AC/DC micro-grids

Xudong Wang

for contributions to wireless mesh networks

Yu Wang

for contributions to topology design and performance optimization in wireless networks

Robert Weikle

for contributions to millimeter-wave and submillimeter-wave electronics and instrumentation for terahertz frequencies

Daniel Weile

for contributions to computational electromagnetics

Mark Weiss

for advancements in computer science education

Stephen Welby

for leadership in defense and aerospace systems engineering

Thomas Weller

for contributions to modeling and design of passive microwave circuits and components

Qihao Weng

for contributions to urban remote sensing

2018 Newly Elevated Fellows

David Whelan

for leadership in space-based navigation, synchronization, and surveillance

Jean-Pierre Wigner

for contributions to surface modeling in passive microwave remote sensing

James Wilkinson

for contributions to integrated photonics

Laurie Williams

for contributions to reliable and secure software engineering

Stefan Winkler

for contributions to perceptual video quality measurement

Philip Winston

for development of standards in power system protection reliability

Stephen T. Wong

for leadership in drug discovery, systems biology, bioinformatics, and health analytics

Rebecca Wright

for contributions to applied cryptography and privacy

Shien-Yang Wu

for leadership in CMOS process integration

Huikai Xie

for contributions to micro-electromechanical optical scanning systems

Tao Xie

for contributions to software testing and analytics

Hao Xin

for contributions to electromagnetic metamaterials and 3D printing of metamaterial structures

Dong Xu

for contributions to recognition and retrieval of multimedia and biometric data

Jianbin Xu

for contributions to nanoscale electronic materials and devices

2018 Newly Elevated Fellows

Yang Yang

for contributions and leadership in wireless access and networking

Anthony Yen

for leadership in extreme-ultraviolet lithography for high volume manufacture of integrated circuits

Dong Yu

for contributions to context-dependent automatic speech recognition

Richard Yu

for contributions to mobility management and radio resource allocation in mobile wireless networks

Habib Zaidi

for contributions to quantitative multimodality molecular imaging

Changshui Zhang

for contributions to semi-supervised learning for signal processing

Lei Zhang

for contributions to sparsity-based image modeling and perceptual image quality assessment

Yanyong Zhang

for contributions to robust and efficient large-scale sensor networks

Zhensheng Zhang

for contributions to wireless ad-hoc and optical networks

Zhengming Zhao

for contributions to electromagnetic transient analysis and control of high-voltage high-power electronics conversion

Tong Zhou

for contributions to robust identification and estimation of control systems

Xiaofang Zhou

for advancements in database query processing

Peiyong Zhu

for leadership in wireless communications systems

Thomas Zwick

for contributions to millimeter wave transceivers