

COLUMBIA UNIVERSITY
THE FU FOUNDATION SCHOOL OF
ENGINEERING AND APPLIED SCIENCE

TWO THOUSAND TWELVE

Celebrating Faculty Excellence

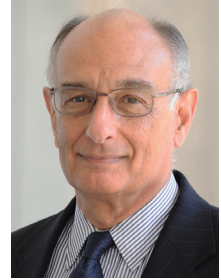
ACCLAIMING THE AWARDS, HONORS,
AND RECOGNITIONS THAT OUR FACULTY
RECEIVED DURING THE PAST YEAR



Excellence

Excellence

Introduction



Please join us in honoring the faculty highlighted within these pages for the recognitions they have received during the past academic year. We are proud to acknowledge faculty elections to the National Academy of Engineering, the Royal Society of Canada, and to numerous other professional societies, as well as recognitions that include a MacArthur Foundation Fellowship, Early Career Development Awards, and many other significant honors and prizes. In addition, we honor the holders of five new endowed chairs and are grateful to the donors who have made these chairs possible.

As we approach the 150th anniversary of the founding of our School in 1864, we are mindful of the many significant contributions our faculty has made over the decades. Generation after generation, our faculty members have passed along to our students both the knowledge and spirit of inquiry that have made them exceptional leaders in both scholarship and research in their respective fields.

In turn, our students are now becoming the engineering and applied science leaders of their generation, spurred on by our faculty's example, to tackle some of the most challenging problems of today in order to make the life of future generations better.

Donald Goldfarb
Interim Dean and
Alexander and Hermine Avanesians Professor
of Industrial Engineering and Operations Research



GORDANA VUNJAK-NOVAKOVIC

*The Mikati Foundation Professor
of Biomedical Engineering*

NATIONAL ACADEMY OF ENGINEERING

elected a member of the National Academy of Engineering
for her novel bioreactor systems and modeling approaches for
tissue engineering and regenerative medicine

Named Professors



JINGGUANG G. CHEN

Thayer Lindsley Professor of Engineering

CHEMICAL ENGINEERING



MARIA Q. FENG

Renwick Professor of Civil Engineering

CIVIL ENGINEERING AND ENGINEERING MECHANICS



GUILLERMO M. GALLEGO

Liu Family Professor of Industrial Engineering and Operations Research

INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH



FENIOSKY PEÑA-MORA

Edwin Howard Armstrong Professor of Civil Engineering and Engineering Mechanics

CIVIL ENGINEERING AND ENGINEERING MECHANICS



VENKAT VENKATASUBRAMANIAN

Samuel Ruben–Peter G. Viele Professor of Engineering

CHEMICAL ENGINEERING

Singular Honors



VLADIMIR VAPNIK

Professor, Computer Science

2012 BENJAMIN FRANKLIN MEDAL IN COMPUTER AND COGNITIVE SCIENCE

given by The Franklin Institute for his fundamental contributions to the understanding of machine learning, which allows computers to classify new data based on statistical models derived from earlier examples, and for his invention of widely used machine learning techniques
and

FRANK ROSENBLATT AWARD

given by the Institute of Electrical and Electronics Engineers (IEEE) for his pioneering work that became the foundation of a new research field known as “statistical learning theory”



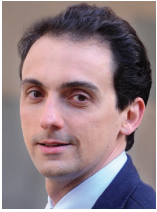
PONISSERIL SOMASUNDARAN

LaVon Duddleson Krumb Professor of Mineral Engineering

ROYAL SOCIETY OF CANADA

elected a Foreign Fellow of the Royal Society of Canada, the highest honor a scholar can achieve in the arts, humanities, and sciences in Canada

Faculty Early Career Development Awards



LUCA CARLONI

Associate Professor, Computer Science

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
COUNCIL ON ELECTRONIC DESIGN AUTOMATION (CEDA) EARLY
CAREER AWARD

to support his research to develop a new communication-based design methodology for distributed embedded systems

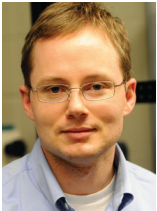


XI CHEN

Assistant Professor, Computer Science

NSF FACULTY EARLY CAREER DEVELOPMENT AWARD

to support his research on algorithmic game theory and economics and complexity theory



DIRK R. ENGLUND

Assistant Professor, Electrical Engineering

DARPA YOUNG FACULTY AWARD

to support his research on chip-integrated timing and inertial measurements

Faculty Early Career Development Awards



CHRIS A. MARIANETTI

Assistant Professor, Applied Physics and Applied Mathematics

NSF FACULTY EARLY CAREER DEVELOPMENT AWARD

to support his research on using quantum mechanical simulations to engineer thin film materials via strain



HAIM WAISMAN

*Assistant Professor, Civil Engineering
and Engineering Mechanics*

DEPARTMENT OF ENERGY EARLY CAREER RESEARCH AWARD

to support his research on developing reliable computational methods for predicting the mechanics of materials subjected to impact or blast loads



JUNFENG YANG

Assistant Professor, Computer Science

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH YOUNG INVESTIGATOR
RESEARCH PROGRAM AWARD

to support his research on concurrency attacks and defenses

Recognition/Achievement Awards



PETER N. BELHUMEUR

Professor, Computer Science

EDWIN O. WILSON BIODIVERSITY TECHNOLOGY PIONEER AWARD
given by the American Computer Museum for co-creating LeafSnap, an
electronic field guide for iPhones and iPads that identifies trees



SHIH-FU CHANG

*Richard Dicker Professor of Telecommunications, Electrical
Engineering; Professor of Computer Science; and Senior Vice Dean*

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
SIGNAL PROCESSING SOCIETY MERITORIOUS SERVICE AWARD
for extraordinary service contributions and outstanding leadership of the
IEEE Signal Processing Magazine



XI CHEN

Associate Professor, Earth and Environmental Engineering

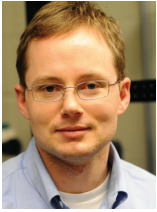
THOMAS J.R. HUGHES YOUNG INVESTIGATOR AWARD
given by the American Society of Mechanical Engineers (ASME) for special
achievement by young investigators in the field of applied mechanics

YOUNG INVESTIGATOR MEDAL, SOCIETY OF ENGINEERING SCIENCE (2011)
for a young researcher within 10 years of Ph.D. whose work already has had an impact in his/
her field within Engineering Science

and

BEST OUTSTANDING ACHIEVEMENT AWARD, HANYANG UNIVERSITY, KOREA

Recognition/Achievement Awards



DIRK R. ENGLUND

Assistant Professor, Electrical Engineering

IBM FACULTY AWARD

given to junior faculty at leading universities worldwide who show unusual promise to foster collaboration with IBM researchers



GUILLERMO M. GALLEGO

*Liu Family Professor of Industrial Engineering
and Operations Research*

INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH

2011 INFORMS REVENUE MANAGEMENT AND PRICING PRIZE

co-winner with Garret van Ryzin for his work on two papers: “Optimal Dynamic Pricing of Inventories with Stochastic Demand over Finite Horizons” and “A Multiproduct Dynamic Pricing Problem and Its Applications to Network Yield Management”



ROXANA GEAMBASU

Assistant Professor, Computer Science

WILLIAM CHEN DISSERTATION AWARD

given by the University of Washington for her dissertation, “Regaining Control over Cloud and Mobile Data”

Recognition/Achievement Awards

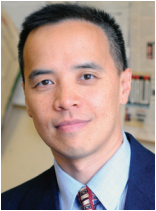


TONY JEBARA

Associate Professor, Computer Science

YAHOO FACULTY RESEARCH ENGAGEMENT PROGRAM

for his research on computational advertising, machine learning, and search and web mining



JASON NIEH

Associate Professor, Computer Science

IBM FACULTY AWARD

given to outstanding researchers at leading universities worldwide to foster collaboration with those in IBM research



FENIOSKY PEÑA-MORA

Edwin Howard Armstrong Professor of Civil Engineering and Engineering Mechanics, Civil Engineering and Engineering Mechanics

PIONEER AWARD IN EDUCATION

given by Great Minds in STEM™ at the Hispanic Engineer National Achievement Awards Conference (HENAAC) to recognize the achievements of the best and brightest engineers and scientists within the Hispanic community

Recognition/Achievement Awards



HENNING G. SCHULZRINNE

Julian Clarence Levi Professor, Computer Science

OAA AWARD FOR OUTSTANDING ACHIEVEMENT IN RESEARCH

given by the University of Massachusetts Computer Science Department
to distinguished alumni



FRANCESCO A. VOLPE

Assistant Professor, Applied Physics and Applied Mathematics

2012 TORKIL JENSEN AWARD

given by General Atomics Fusion Energy Research to support his research
on cancer therapy with fusion neutrons, an experimental topic outside the
areas usually covered by the DIII-D experimental program



WARD WHITT

*Wai T. Chang Professor of Industrial Engineering and Operations
Research, Industrial Engineering and Operations Research*

2011 INFORMS EXPOSITORY WRITING AWARD

given at the INFORMS National Meeting to an operations researcher/
management scientist whose publications demonstrate a consistently high
standard of expository writing

Election to Professional Societies



MICHAEL J. COLLINS

Vikram S. Pandit Professor, Computer Science

FOUNDING FELLOW, ASSOCIATION FOR COMPUTATIONAL LINGUISTICS
for his significant contributions to natural language parsing and
discriminative training



DONALD GOLDFARB

*Alexander and Hermine Avanesians Professor of Industrial
Engineering and Operations Research and Interim Dean*

FELLOW, SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS
(SIAM)

for his contributions to nonlinear, discrete, and convex optimization



JULIA B. HIRSCHBERG

Professor, Computer Science

FOUNDING FELLOW, ASSOCIATION FOR COMPUTATIONAL LINGUISTICS
for her significant contributions to intonation, discourse, text-to-speech
systems, and labeling standards for speech corpora



ANDREW LAINE

*Percy K. and Vida L. W. Hudson Professor of Biomedical
Engineering, Biomedical Engineering, and Professor of
Radiology, Physics*

ELECTED CHAIR, COUNCIL OF SOCIETIES, AMERICAN INSTITUTE FOR
MEDICAL AND BIOLOGICAL ENGINEERING (AIMBE)

Election to Professional Societies



KATHLEEN R. MCKEOWN

Henry and Gertrude Rothschild Professor, Computer Science

FOUNDING FELLOW, ASSOCIATION FOR COMPUTATIONAL LINGUISTICS
for her significant contributions to natural language generation and multi-
document summarization



VIVIAN FAYE MCNEILL

Associate Professor, Chemical Engineering

ELECTED TO BOARD OF DIRECTORS, AMERICAN ASSOCIATION FOR
AEROSOL RESEARCH



AH-HYUNG ALISSA PARK

*Lenfest Junior Professor in Applied Climate Science,
Earth and Environmental Engineering*

ELECTED CHAIR OF THE AREA 3 GROUP B—FLUIDIZATION AND
FLUID-PARTICLE SYSTEMS, PARTICLE TECHNOLOGY FORUM, AMERICAN
INSTITUTE OF CHEMICAL ENGINEERS (AIChE)



PAUL SAJDA

Professor, Biomedical Engineering, and Radiology, Physics

ELECTED FELLOW, INSTITUTE OF ELECTRICAL AND ELECTRONICS
ENGINEERS (IEEE)
for development of brain-machine interfaces for image and media search

Election to Professional Societies



PETER SCHLOSSER

Vinton Professor, Earth and Environmental Engineering

FELLOW, THE EXPLORERS CLUB,

the international multidisciplinary professional society that promotes the scientific exploration of land, sea, air, and space by supporting research and education in the physical, natural, and biological sciences



ANDREW W. SMYTH

Professor, Civil Engineering and Engineering Mechanics

MEMBER, BOARD OF GOVERNORS, ENGINEERING MECHANICS INSTITUTE (EMI),

a new institute of the American Society of Civil Engineers (ASCE) dedicated to serving the engineering community through the development and application of engineering mechanics



VENKAT VENKATASUBRAMANIAN

Samuel Ruben–Peter G. Viele Professor of Engineering, Chemical Engineering

FELLOW, AMERICAN INSTITUTE OF CHEMICAL ENGINEERS (AIChE)



GORDANA VUNJAK-NOVAKOVIC

The Mikati Foundation Professor, Biomedical Engineering

FELLOW, BIOMEDICAL ENGINEERING SOCIETY

Member, Continental Chapter Council, Tissue Engineering and Regenerative Medicine International Society

Notable Fellowships



XI CHEN

Assistant Professor, Computer Science

ALFRED P. SLOAN RESEARCH FELLOWSHIP

in recognition of and to support his work in algorithmic game theory and complexity theory



JUNFENG YANG

Assistant Professor, Computer Science

ALFRED P. SLOAN RESEARCH FELLOWSHIP

in recognition of and to support his research on frontiers in software systems



XI CHEN

Associate Professor, Earth and Environmental Engineering

JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE FELLOWSHIP

and

DISTINGUISHED COLLABORATOR FELLOWSHIP, MURDOCH UNIVERSITY,
AUSTRALIA

Notable Professional Recognitions



ALFRED V. AHO

Lawrence Gussman Professor, Computer Science

CHAIR, COMPUTER SCIENCE AND ENGINEERING SECTION, NATIONAL ACADEMY OF ENGINEERING



STEVEN M. BELLOVIN

Professor, Computer Science

CHIEF TECHNOLOGIST, FEDERAL TRADE COMMISSION



SIMON J.L. BILLINGE

Professor of Materials Science and of Applied Physics and Applied Mathematics, Applied Physics and Applied Mathematics

CO-EDITOR OF THE JOURNAL *ACTA CRYSTALLOGRAPHICA SECTION A: FOUNDATIONS OF CRYSTALLOGRAPHY*



LUCA CARLONI

Associate Professor, Computer Science

SELECTEE, NATIONAL ACADEMIES 2011 U.S. FRONTIERS OF ENGINEERING CONFERENCE

recognizing young engineers from industry, academia, and government who are performing exceptional engineering research and technical work

Notable Professional Recognitions



XI CHEN

Associate Professor, Earth and Environmental Engineering

SELECTEE, NATIONAL ACADEMIES 2012 U.S. FRONTIERS OF
ENGINEERING CONFERENCE

recognizing young engineers from industry, academia, and government
who are performing exceptional engineering research and technical work



ELIZABETH M.C. HILLMAN

Associate Professor, Biomedical Engineering

SELECTEE, NATIONAL ACADEMIES 2012 U.S. FRONTIERS OF
ENGINEERING CONFERENCE

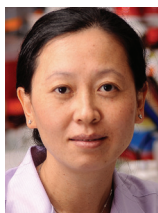
recognizing young engineers from industry, academia, and government
who are performing exceptional engineering research and technical work



ELISA F. KONOFAGOU

Associate Professor, Biomedical Engineering

MEMBER, BOARD OF GOVERNORS, AMERICAN INSTITUTE OF
ULTRASOUND IN MEDICINE



HELEN H. LU

Associate Professor, Biomedical Engineering

SPEAKER, NATIONAL ACADEMIES 2012 U.S. FRONTIERS OF
ENGINEERING CONFERENCE

Notable Professional Recognitions



VAN C. MOW

Stanley Dicker Professor, Biomedical Engineering

DISTINGUISHED VISITING PROFESSOR

University of California, San Diego

University of Hong Kong

ADVISER FOR BIOMEDICAL ENGINEERING, HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

DISTINGUISHED OVERSEAS CHINESE SCHOLARS' LECTURE, SHANGHAI JIAO TUNG UNIVERSITY MEDICAL SCHOOL



SAMUEL K. SIA

Associate Professor, Biomedical Engineering

MEMBER, EXTERNAL ADVISORY BOARD, CENTER FOR EMERGING AND NEGLECTED DISEASES, UNIVERSITY OF CALIFORNIA, BERKELEY



ANDREW W. SMYTH

Professor, Civil Engineering and Engineering Mechanics

INVITEE, NAE JAPAN-AMERICA FRONTIERS OF ENGINEERING SYMPOSIUM bringing together a select group of emerging engineering leaders from industry, academe, and government labs to discuss pioneering technical work and leading-edge research in various engineering fields and industry sectors



PONISSERIL SOMASUNDARAN

LaVon Duddleson Krumb Professor of Mineral Engineering, Earth and Environmental Engineering

MEMBER, EDITORIAL BOARD OF THE *INTERNATIONAL JOURNAL OF BIOSCIENCES AND TECHNOLOGY* AND ITS ASSOCIATED JOURNALS

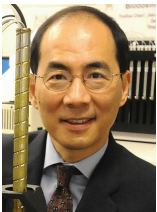
Notable Professional Recognitions



YANNIS TSIVIDIS

Charles Batchelor Professor, Electrical Engineering

HONORARY DEGREE, PROFESSOR *HONORIS CAUSA*, UNIVERSITY OF PATRAS, GREECE



Y. LAWRENCE YAO

Professor, Mechanical Engineering

EDITOR, *JOURNAL OF MANUFACTURING SCIENCE AND ENGINEERING*, AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)



GIL ZUSSMAN

Assistant Professor, Electrical Engineering

INVITEE, NAE FRONTIERS OF ENGINEERING EDUCATION (FOEE) SYMPOSIUM

for some of the nation's most engaged and innovative engineering educators, to recognize, reward, and promote effective engineering education through a dialogue within the emerging generation of innovative faculty

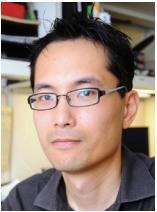
Special Recognition



SIMON J.L. BILLINGE

Professor of Materials Science and of Applied Physics and Applied Mathematics, Applied Physics and Applied Mathematics

HONORED IN 2011 AS ONE OF 24 OUTSTANDING IMMIGRANTS BY
CARNEGIE FOUNDATION OF NEW YORK



SAMUEL K. SIA

Associate Professor, Biomedical Engineering

MOST DOWNLOADED VIDEO FROM NATURE.COM



JOSEPH F. TRAUB

*Edwin Howard Armstrong Professor of Computer Science,
Computer Science*

CONTRIBUTOR, ORAL HISTORY COLLECTION

housed in the Computer History Museum, Mountain View, California

Best Paper



STEVEN M. BELLOVIN

Professor, Computer Science

BEST PAPER, 2011 PRIVACY LAW SCHOLARS CONFERENCE
for “A Study of Privacy Setting Errors in Online Social Networks,”
coauthored with Michelle Madejski and Maritza Johnson



SHIH-FU CHANG

Richard Dicker Professor of Telecommunications, Electrical Engineering; Professor of Computer Science; and Senior Vice Dean

BEST PAPER AWARD, ASSOCIATION FOR COMPUTING MACHINERY
(ACM) MULTIMEDIA CONFERENCE
for “Active Query Sensing for Mobile Location Search”



STEPHEN A. EDWARDS

Associate Professor, Computer Science

SELECTED “BEST OF *COMPUTER ARCHITECTURE LETTERS (CAL)*”
for “Cache Impacts of Datatype Acceleration,” coauthored with Martha
A. Kim



EITAN GRINSPUN

Associate Professor, Computer Science

COMMUNICATIONS OF THE ASSOCIATION FOR COMPUTING MACHINERY
(CACM) RESEARCH HIGHLIGHTS EDITORIAL BOARD
selected “Asynchronous Contact Mechanics,” to be published in *CACM
Research Highlights*, a publication containing “the most important research
results published in CS in recent years”

Best Paper



MARTHA A. KIM

Assistant Professor, Computer Science

SELECTED “BEST OF *COMPUTER ARCHITECTURE LETTERS (CAL)*”
for “Cache Impacts of Datatype Acceleration,” coauthored with Stephen
A. Edwards



ANGELOS D. KEROMYTIS

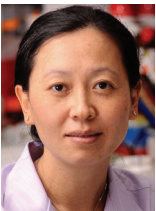
Associate Professor, Computer Science

BEST PAPER AWARD, *PROCEEDINGS OF THE 6TH INTERNATIONAL
CONFERENCE ON MALICIOUS AND UNWANTED SOFTWARE (MALWARE)*
for “ROP Payload Detection Using Speculative Code Execution,”
coauthored with Michalis Polychronakis

and

BEST PAPER AWARD, *PROCEEDINGS OF THE 6TH INTERNATIONAL WORKSHOP ON SECURITY
(IWSEC)*

for “REASSURE: A Self-Contained Mechanism for Healing Software Using Rescue Points,”
coauthored with Georgios Portokalidis



HELEN H. LU

Associate Professor, Biomedical Engineering

MOST DOWNLOADED PAPER AWARD, 2011 *ANNALS OF BIOMEDICAL
ENGINEERING*

for “Tissue Engineering Strategies for the Regeneration of Orthopedic
Interfaces,” coauthored with Siddarth D. Subramony, Margaret K.
Boushell, and Xinzhi Zhang

Best Paper



JASON NIEH

Associate Professor, Computer Science

BEST PAPER AWARD, 2012 *ASSOCIATION FOR COMPUTING MACHINERY (ACM) SPECIAL INTEREST GROUP ON COMPUTER SCIENCE EDUCATION (SIGCSE)*

for “Teaching Operating Systems Using Android,” coauthored with Jeremy Andrus

BEST PAPER AWARD, 2011 *ASSOCIATION FOR COMPUTING MACHINERY (ACM) SYMPOSIUM ON OPERATING SYSTEMS PRINCIPLES (SOSP)*

for “Cells: A Virtual Mobile Smartphone Architecture,” coauthored with Jeremy Andrus, Christoffer Dall, Alex Van’t Hof, and Oren Laadan

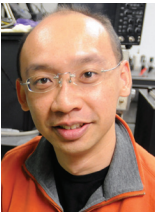


SALVATORE J. STOLFO

Professor, Computer Science

BEST PAPER, *INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) TECHNOLOGIES FOR HOMELAND SECURITY (HST) 2011*

for “Measuring the Human Factor of Cyber Security,” coauthored with B. Bowen and R. Devarajan



CHEE WEI WONG

Associate Professor, Mechanical Engineering

SELECTED AS COVER ARTICLE FOR *NATURE PHOTONICS*

for “Quantum Optics: Correlations on a Chip”



JOHN N. WRIGHT

Assistant Professor, Electrical Engineering

BEST PAPER AWARD, 2012 *CONFERENCE ON LEARNING TECHNOLOGY (COLT)*

for “Exact Recovery of Sparsely-Used Dictionaries,” coauthored with Huan Wang and Dan Spielman



MARIA CHUDNOVSKY

*Associate Professor, Industrial Engineering and
Operations Research*

MACARTHUR FOUNDATION FELLOWSHIP

given to talented individuals with exceptional creativity, promise for important future advances based on a track record of significant accomplishments, and potential for the fellowship to facilitate subsequent creative work; for investigating the fundamental principles of graph theory and laying the conceptual foundations for deepening connections between graph theory and other major branches of mathematics, including linear programming and geometry



MORTON B. FRIEDMAN

*Professor of Civil Engineering and Engineering Mechanics,
and of Applied Physics and Applied Mathematics, and
Senior Vice Dean Emeritus*

In recognition of and grateful appreciation for his lifelong devotion to Columbia's School of Engineering and Applied Science as a professor and senior vice dean, the School will be dedicating the new meeting space on the fifth floor of the S.W. Mudd building as the Morton B. Friedman Conference Room.

Since 1956, Columbia has been the academic and professional home of Morton B. Friedman. After receiving his B.S., M.S., and Eng.Sc.D. degrees from New York University, Dr. Friedman began his career as a research associate at NYU. In 1956, he was appointed an assistant professor in Columbia's Department of Civil Engineering and Engineering Mechanics. In 1966, he was appointed full professor, a position he still holds. In 1995, he was appointed vice dean, becoming senior vice dean in 2010, and senior vice dean emeritus in 2012.

During his career at Columbia, Professor Friedman founded the Division of Mathematical Methods, the precursor to the applied mathematics component of the present Department of Applied Physics and Applied Mathematics, where he is still a member of the faculty of that department. His professional specialty has been the application of advanced mathematical techniques to problems in applied mechanics. He and his students were the earliest developers of the so-called boundary element methods that have found widespread applications in many engineering disciplines.

As vice dean, Dr. Friedman has restructured undergraduate engineering education at Columbia in major ways—bringing engineering education into the first-year curriculum with project-based design and with discipline-specific professional courses, creating a minors program in more than 20 liberal arts subjects, and encouraging research opportunities with junior and senior faculty. From 1981 to 1995, he was chair of the Department of Civil Engineering and Engineering Mechanics and, from 1980 to 1991, also held the post of associate dean for instruction and research. In addition, he chaired the Executive Committee of the University Senate for several years.

A former Fulbright Professor in applied mathematics and Field Instrumentation Scholar for the American Institute of Physics, he was recognized for his outstanding teaching by the Society of Columbia Graduates, which honored him with their Great Teacher Award.



LE
MARTELEUR

“Columbia University’s Fu Foundation
School of Engineering and Applied
Science, as part of a world-class teaching
and research university, educates talented
students who aspire to become innovative,
socially responsible leaders in industry,
government, and academia.”

—MISSION STATEMENT

Excellence