University of Hawai‘i at Mānoa  
College of Engineering  
Faculty Research Interest Guide | Volume V

This publication presents a listing of faculty members and their research interests. A faculty member can be contacted:

- Directly via the telephone number or e-mail address listed next to his/her name  
- By calling his/her department directly (listed below)

Department Telephone Numbers

Dean’s Office ........................................................................................ (808) 956-7727  
Civil and Environmental Engineering ................................................ (808) 956-7550  
Electrical Engineering .......................................................................... (808) 956-7586  
Mechanical Engineering ...................................................................... (808) 956-7167  
Hawai‘i Center for Advanced Communications ................................. (808) 956-9687

Mailing Address

To correspond with a faculty member, please use the individual’s name and his/her department, followed by:

College of Engineering

University of Hawai‘i at Mānoa  
2540 Dole Street, Holmes Hall 240  
Honolulu, HI 96822

Overview: University of Hawai‘i at Mānoa College of Engineering

The University of Hawai‘i at Mānoa, established in 1907, began as a land-grant college of agriculture and mechanic arts. Engineering has been a major program of study at Mānoa since its founding. UH Mānoa has granted more than 10,000 engineering degrees, and many of the professional engineers practicing in industries, consulting firms, and governmental agencies throughout the state are graduates of UH Mānoa. The College offers baccalaureate, masters, and doctoral programs to over 1,000 students enrolled in civil, computer, electrical and mechanical engineering. UH Mānoa is ranked in the top 50 public universities in research expenditures by the National Science Foundation. The College’s faculty are actively engaged in government and industry-sponsored research that is national and international in scope. Many of the faculty have strong ties, including research projects, with academic institutions and industry in Asia and the Pacific Rim.
Peter E. Crouch
Dean
Professor
(808) 956-7727 | pcrouch@hawaii.edu

Interests: Research interests lie in control theory, nonlinear systems theory, and dynamical systems, their applications to problems in electrical, mechanical and aerospace engineering, semiconductor manufacturing, and related problems in numerical simulation.

• Fellow, Institute of Electrical and Electronics Engineers, 1996
• PhD, Applied Sciences, Harvard University, 1977
• MS, Control Theory, Warwick University, 1974
• BS, Engineering Science, Warwick University (England), 1973

(Also listed under Electrical Engineering)

Bruce E. Liebert
Interim Associate Dean for Academic Affairs
Associate Professor
(808) 956-0807 | liebert@hawaii.edu

Interests: Materials science and engineering. Applications of electrochemical techniques, such as impedance spectroscopy, to marine corrosion, lithium batteries, fuel cells, and heat exchangers; failure analysis involving design, fatigue, and environmental degradation of structural materials; solid-state electrochemistry.

• Regents’ Medal for Excellence in Teaching, 1990
• PhD, Mechanical Engineering, Stanford University, 1977
• MS, Materials Science and Engineering, Stanford University, 1972
• BS, Materials Science, San Jose State University, 1970

(Also listed under Mechanical Engineering)

Song K. Choi
Assistant Dean
(808) 956-6597 | schoi@hawaii.edu

Interests: Unmanned vehicles and systems, specializing in autonomous underwater vehicles, with emphasis in automatic learning control, vehicle and system dynamics and design, simulations, sensors, and enhanced graphic monitoring.

• PhD, Mechanical Engineering, University of Hawai‘i at Mānoa, 1995
• MS, Mechanical Engineering, Carnegie Mellon University, 1988
• BS, Mechanical Engineering, Worcester Polytechnic Institute, 1986

(Also listed under Electrical Engineering)

Tep Dobry
Director of Academic Affairs
(808) 956-2300 | tep@hawaii.edu

Interests: Digital electronics, computer architecture and computer software

• Chancellor’s Citation for Meritorious Teaching, 2006
• PhD, Computer Science, University of California, Berkeley, 1987
• BS, Electrical Engineering, Cornell University, 1975

(Also listed under Electrical Engineering)
Jill S.K. Nakatsu
Junior Specialist
(808) 956-2287 | jillkoba@hawaii.edu


• MS, Electrical Engineering, University of Hawai’i at Mānoa, 2012
• BS, Electrical Engineering, University of Hawai’i at Mānoa, 2006

Trevor C. Sorensen
Specialist
(808) 956-4715 | sorensen@hsfl.hawaii.edu

Interests: Astronautics, including space system design, space mission operations, spacecraft autonomy, astrodynamics, satellite remote sensing, lunar missions, computer applications, and spacecraft ground segment.

• Fellow, American Institute of Aeronautics and Astronautics, 2011
• DE, Aerospace Engineering, University of Kansas, 1979
• MS, Aerospace Engineering, University of Kansas, 1976
• BS, Aerospace Engineering, University of Kansas, 1973
A. Ricardo Archilla
Associate Professor  
(808) 956-3348 | archilla@hawaii.edu

*Interests:* Deterioration modeling in pavement engineering, applied statistics, traffic engineering, transportation infrastructure management systems, transportation systems analysis.
- PhD, Transportation Engineering, University of California, Berkeley, 2000
- MS, Transportation Engineering, University of Calgary, Calgary, Alberta, Canada, 1993
- BS, Civil Engineering, National University of San Juan, Argentina, 1989

Roger W. Babcock
Associate Professor  
(808) 956-7298 | rbabcock@hawaii.edu

*Interests:* Biological wastewater treatment, membrane bioreactors, bioaugmentation processes, wastewater recycling, fate and transport of contaminants in irrigation leachate through porous media, activated carbon adsorption and regeneration, genetic fingerprinting for assessing bacterial diversity and biological source tracking.
- PhD, Civil and Environmental Engineering, University of California, Los Angeles, 1991
- MS, Civil and Environmental Engineering, California Polytechnic State University, San Luis Obispo, 1989
- BS, Civil Engineering, University of California, Davis, 1987

Sayed M. Bateni
Assistant Professor  
(808) 956-4249 | smbateni@hawaii.edu

*Interests:* Earth remote sensing, land-atmosphere interaction, data assimilation: techniques, development and applications, optimization techniques and parameter estimation in hydrology, application of artificial intelligence methods.
- PhD, Civil and Environmental Engineering, Massachusetts Institute of Technology, 2011
- MS, Civil and Environmental Engineering, Sharif University of Technology, Tehran, 2005
- BS, Civil and Environmental Engineering, Isfahan University of Technology, 2003

Horst G. Brandes
Professor  
(808) 956-8969 | horst@hawaii.edu

*Interests:* Geotechnical engineering and marine geomechanics. Emphasis on offshore sediment mechanics, seabed processes and modeling, as well as seafloor sampling and testing. Fundamental soil testing and modeling, slope stability assessment, earthquake engineering and liquefaction, dam engineering, seepage modeling, soil-structure interaction, pavement engineering and numerical model development.
- PhD, Ocean Engineering, University of Rhode Island, 1992
- MS, Ocean Engineering, University of Rhode Island, 1984
- BS, Ocean Engineering, Florida Institute of Technology, 1982
Oceana Puananilei Francis
Assistant Professor
(808) 956-4249 | oceanaf@hawaii.edu

**Interests:** Coastal and ocean engineering, wind-generated waves, sustainable water and wastewater systems, flood control protection, meteorological and ocean processes on coastal infrastructure, development of sustainable coastal infrastructure affected by climate change and water shortage, design and construction, field measurements, and modeling.

- PhD, Atmospheric Science, University of Alaska, Fairbanks, 2012
- MS, Civil Engineering, University of Alaska, Anchorage, 2004
- BS, Civil Engineering, University of Alaska, Anchorage, 2002
- BS, Physics and Astronomy, University of Nebraska, Lincoln, 1995

Albert S. Kim
Associate Professor
(808) 956-3718 | albertsk@hawaii.edu

**Interests:** Environmental soft matter physics. Emphasis on the scientific and engineering aspects of particles, aggregates, and membranes investigated using theoretical and simulation approaches such as integral equation method, artificial neural network, Monte Carlo, molecular dynamics, Brownian dynamics, and Stokes dynamics.

- Regents’ Medal for Excellence in Research, 2006
- National Science Foundation CAREER Award, 2005
- PhD, Civil and Environmental Engineering, University of California, Los Angeles, 2000
- MS, Civil and Environmental Engineering, University of California, Los Angeles, 1997
- MS, Physics, Yonsei University, Korea, 1994
- BS, Physics, Kyung Hee University, Korea, 1991

David T. Ma
Associate Professor
(808) 956-7377 | tianwei@hawaii.edu

**Interests:** Smart structure technology, involving wireless sensor networks, health monitoring of structures, damage mechanics, adaptive seismic- and wind-control, stochastic dynamics, and risk and reliability analysis of structures, damping mechanisms and the development of new damping system/materials for civil structures, structural health monitoring via smart sensor networks, active sensing method for local damage detection and identification, and decentralized control of building structures.

- PhD, Mechanical Engineering, University of California, Santa Barbara, 2003
- MS, Electrical and Computer Engineering, University of California, Santa Barbara, 2003
- MS, Mechanical Engineering, University of Science and Technology Beijing, China, 1999
- BS, Naval Architecture, Shanghai Jiao Tong University, China, 1991
Phillip S.K. Ooi
Professor
(808) 956-8512 | ooi@hawaii.edu

**Interests:** Soil-structure interaction, including the geotechnical aspects of foundations, retaining structures, tunnels and pavements. Emphasis on field instrumentation to improve understanding of current analyses and design procedures, field and laboratory testing to develop models for important design parameters, and numerical simulation to compare analytical procedures/test validity of model parameters with field behavior.

- PhD, Civil Engineering, Virginia Polytechnic Institute & State University, 1991
- MS, Civil Engineering, Massachusetts Institute of Technology, 1984
- BSc, Civil Engineering, University of Leeds, U.K., 1983

Panagiotis D. Prevedouros
Professor
(808) 956-9698 | pdp@hawaii.edu

**Interests:** Traffic flow modeling and its impacts such as congestion, noise, pollution and in intelligent transportation systems and models.

- PhD, Civil Engineering, Northwestern University, 1990
- MS, Civil Engineering, Northwestern University, 1987
- BS, Civil Engineering, Aristotle University, Thessalonica, Greece, 1984

H. Ronald Riggs
Professor
(808) 956-6566 | riggs@hawaii.edu

**Interests:** Fluid-structure interaction, wave and tsunami forces on structures, hydroelasticity of floating structures, computational mechanics, and real-time monitoring of structural response. Emphasis on the computational simulation of structural response to fluid loading, whether it be ocean waves acting on floating structures or tsunamis/hurricane storm surge hitting coastal structures.

- PhD, Structural Engineering, University of California, Berkeley, 1981
- MS, Structural Engineering, University of California, Berkeley, 1976
- BS, Civil Engineering, California State University, Chico, 1975

Ian N. Robertson
Professor
(808) 956-6536 | ianrob@hawaii.edu

**Interests:** Performance of structures during seismic, tsunami, hurricane, blast and other extreme loading events; structural health monitoring of civil infrastructure; use of fiber reinforced polymers for retrofit of concrete structures; long-term behavior of reinforced and pre-stressed concrete structures; corrosion of reinforcing steel and galvanized light gauge steel.

- PhD, Civil Engineering, Rice University, 1990
- MS, Civil Engineering, Rice University, 1985
- BS, Civil Engineering, University of the Witwatersrand, Johannesburg, South Africa, 1978
Lin Shen  
Assistant Professor  
(808) 956-6561 | linshen@hawaii.edu  
**Interests:** Concrete rheology, sustainable concretes, aggregate packing, characterization of microstructure of cementitious materials, early age properties of concrete  
- Ph.D., Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, 2007  
- M.S., Civil Engineering, National University of Singapore, Singapore, 2002  
- B.S., Civil Engineering, Tongji University, China, 1999

Vir Amarjit Singh  
Professor  
(808) 956-3933 | asingh@hawaii.edu  
**Interests:** Automated site processes, economic and operational analysis of constructed facilities, hazardous waste landfill operations, surface mining operations, flexible construction systems / flexible manufacturing systems, process simulation, safety in rock excavation, fall protection, automated prefabrication, industrialized housing, value engineering, organization and planning, project control, contract administration, project management behavior, motivation, personality assessment, complexity and chaos theory, claims analysis, cost estimating, cost-schedule control systems / earned value analysis, project cost forecasting, scheduling, change management, management applications of chaos theory, and international construction.  
- Regents’ Medal for Excellence in Teaching, 2009  
- PhD, Civil Engineering, Purdue University, 1990  
- MEng, Civil Engineering, Texas A&M University, 1987  
- BTech, Civil Engineering, I.I.T. Delhi, 1976

Michelle H. Teng  
Associate Professor  
(808) 956-5060 | mteng@hawaii.edu  
**Interests:** Modeling and mitigation of natural hazards such as tsunamis, floods and hurricane generated storm surges. Emphasis on modeling and prediction of tsunami generation, propagation and run-up on coastal land; improving hydraulic design for highway bridges and culverts for flood mitigation; study submerged moving objects for naval applications; and develop renewable energy especially ocean wave energy.  
- PhD, Engineering Science, California Institute of Technology, 1990  
- MS, Environmental Science and Engineering, California Institute of Technology, 1987  
- BE, Engineering Mechanics, Tsinghua University, Beijing, China, 1985

Tao Yan  
Associate Professor  
(808) 956-6024 | taoyan@hawaii.edu  
**Interests:** Water and soil/sediment contamination. Emphasis on water biological quality, watershed protection, recreational (beach) water quality, pathogen detection, pollutant biodegradation, and soil/sediment bioremediation.  
- PhD, Civil Engineering, University of Minnesota, Minneapolis, 2004  
- MS, Environmental Engineering, Tsinghua University, Beijing, China, 2000  
- BS, Environmental Engineering, Wuhan University of Technology, Wuhan, China, 1997
Gürdal Arslan
Associate Professor
(808) 956-3432 | gurdal@hawaii.edu

**Interests:** Theoretical and computational tools to design cooperative systems, defined as systems of interacting (semi-)autonomous decision makers optimizing their own objectives based on local information yet accomplishing a global objective.

- National Science Foundation CAREER Award, 2006
- PhD, Electrical Engineering, University of Illinois at Urbana-Champaign, 2001
- MS, Electrical Engineering, Pennsylvania State University, 1996
- BS, Electrical Engineering, Istanbul Technical University, Turkey, 1990

Olga Boric-Lubecke
Professor
(808) 956-9648 | olgabl@hawaii.edu

**Interests:** High frequency electronics and non-invasive sensing of biomedical signals. Emphasis on silicon integrated circuit design and its applications to cost and power consumption reduction in current communications and military systems, as well as in enabling new technologies, such as GaN, that will make higher levels of integration possible for broad-band high power electronic systems. Non-invasive biomedical sensing addresses the needs of home care technologies, as well as personnel detection for military, search and rescue, and security applications.

- Fellow, Institute of Electrical and Electronics Engineers, 2015
- PhD, Electrical Engineering, University of California, Los Angeles, 1995
- MS, Electrical Engineering, California Institute of Technology, 1990
- BSc, Electrical Engineering, University of Belgrade, Yugoslavia, 1989

Peter E. Crouch
Professor
Dean
(See Dean’s Office)

Tep Dobry
Director of Academic Affairs
(See Dean’s Office)
Yingfei Dong
Associate Professor
(808) 956-3448 | yingfei@hawaii.edu

**Interests:** Computer networks, distributed systems, advanced computer architecture, and system performance evaluation, especially in computer network security, multimedia streaming and content distribution, secure Internet service, cable broadband networks, and distributed and parallel systems. Emphasis on computer networking, especially in the areas of computer network security, effective security schemes to stop unwanted traffic, construct collaborative defense schemes, and enable end systems with self-defense mechanisms, and multimedia applications, especially performance, quality, and security issues in large-scale video streaming on the Internet and cable broadband networks.

- PhD, Computer and Information Science, University of Minnesota, 2003
- Doctoral degree in Engineering, Tsinghua University, 1995
- MS, Computer Science, Harbin Institute of Technology, 1992
- BS, Computer Science, Harbin Institute of Technology, 1989

Matthias Fripp
Assistant Professor
(808) 956-3795 | mfripp@hawaii.edu

**Interests:** Technical and economic requirements for integrating large shares of renewable energy into the electric power system (on time scales ranging from minutes to decades). Optimal planning for power system generation and transmission capacity and reserves. Measuring demand response capability and calculating cost savings available from the use of “smart grid” technologies (reshaping demand to match available resources). Electrification of transport.

- PhD, Energy and Resources, University of California, Berkeley, 2008
- MS, Energy and Resources, University of California, Berkeley, 2003
- BS, Environmental Studies, Lewis & Clark College, 1999

N. Thomas Gaarder
Professor
(808) 956-7443 | gaarder@hawaii.edu

**Interests:** Communication and information theory with particular emphasis on multi-user communications.

- PhD, Electrical Engineering, Stanford University, 1965
- MS, Electrical Engineering, Stanford University, 1962
- BS, Electrical Engineering, University of Wisconsin, Madison, 1961

David Garmire
Associate Professor
(808) 956-7406 | garmire@hawaii.edu

**Interests:** Integration of efficient simulation algorithms, control techniques, and metrology devised into the design and operation of MEMS for the development of high-performance accelerometers, microscanner displays, and phase-shifting interferometers.

- Francis Davis Award of Excellence in Undergraduate Teaching, 2014
- PhD, Computer Science, University of California, Berkeley, 2007
- BS, Computer Science with a minor in physics, Carnegie Mellon University, 2000
- BS, Mathematics, Carnegie Mellon University, 2000
Anders Host-Madsen
Professor
(808) 956-2693 | ahm@hawaii.edu

**Interests:** Statistical signal processing, including detection and estimation theory and adaptive signal processing. Emphasis on wireless communications, in particular cross-layer design for wireless ad-hoc networks, information theory, including multi-user information theory and network information theory and detection and estimation of vital signs in wireless non-contact vital sign monitoring.

- Fellow, Institute of Electrical and Electronics Engineers, 2012
- PhD, Electrical and Computer Engineering, Carnegie Mellon University, 1993
- MSc, Electrical Engineering, Technical University of Denmark, 1990

Magdy F. Iskander
Professor
Director, Hawai’i Center for Advanced Communications

(See Hawai’i Center for Advanced Communications)

Aleksandar Kavčic
Professor
(808) 956-5174 | kavcic@hawaii.edu

**Interests:** Digital communications including modulation/demodulation, error correction codes, timing recovery. Emphasis on statistical signal processing, including detection and estimation theory and adaptive signal processing, information theory: capacity and capacity approaching codes, network information theory, wireless communications: multiple access and relay channels, channel modeling, code design and decoding, data storage: signal processing and coding for data storage devices, inter-chip communications: fast, efficient modulation/demodulation and coding/decoding for low-delay on-chip and inter-chip communications.

- Fellow, Institute of Electrical and Electronics Engineers, 2012
- PhD, Electrical and Computer Engineering, Carnegie Mellon University, 1998
- Dipl.-Ing., Electrical Engineering, Ruhr-University, Bochum, Germany, 1993

Anthony Kuh
Professor
(808) 956-7527 | kuh@hawaii.edu

**Interests:** Machine learning and neural networks, adaptive signal processing, sensor networks, communication networks, renewable energy and smart grids.

- National Science Foundation PYI Award, 1988
- Fellow, Institute of Electrical and Electronics Engineers, 1998
- PhD, Electrical Engineering, Princeton University, 1987
- MS, Electrical Engineering, Stanford University, 1980
- BS, Electrical Engineering and Computer Science, University of California, Berkeley, 1979
**Victor M. Lubecke**  
Professor  
(808) 956-4942 | lubecke@hawaii.edu  

**Interests:** Sensors, transducers, and integration, particularly involving high frequencies and MEMS. Emphasis on remote personnel sensing for national security and healthcare applications, heterogeneous integration of various IC/antenna/MEMS technologies for high frequency systems, and MEMS for harsh conditions and environments. Technology for monitoring endangered species.  
- PhD, Electrical Engineering, California Institute of Technology, 1995  
- MS, Electrical Engineering, California Institute of Technology, 1990  
- BS, Electrical Engineering, California State Polytechnic University, Pomona, 1986

**Vinod Malhotra**  
Associate Professor  
(808) 956-7609 | vinod@eng.hawaii.edu  

**Interests:** Wet and dry processes for passivation of GaAs and InP surfaces and surface-sensitive devices, such as HBTS, MSM photodetectors and VCSELs. Emphasis on novel low-damage ‘soft’ plasma processes for SiNx deposition using electron cyclotron resonance plasma enhanced chemical vapor deposition technique.  
- Regents’ Medal for Excellence in Teaching, 1991  
- PhD, Electrical Engineering, Colorado State University, 1987  
- MS, Electrical Engineering, Colorado State University, 1983

**Aaron T. Ohta**  
Associate Professor  
(808) 956-8196 | aohta@hawaii.edu  

**Interests:** Microelectromechanical systems (MEMS), nanoelectromechanical systems (NEMS), with an emphasis on microfluidics, optofluidics, and optoelectronic devices for biomedical applications such as improving laboratory and clinical diagnostics, aiding drug screening, and enabling fundamental microbiological research.  
- Regents’ Medal for Excellence in Research, 2012  
- PhD, Electrical Engineering, University of California, Berkeley, 2008  
- MS, Electrical Engineering, University of California, Los Angeles, 2004  
- BS, Electrical Engineering, University of Hawai‘i at Mānoa, 2003

**Todd R. Reed**  
Professor  
(808) 956-5309 | treed@hawaii.edu  

**Interests:** Signal, image and image sequence processing, multidimensional digital signal processing, and computer vision. Emphasis on the processing and coding of images and image sequences, the application of local frequency and local scale (wavelet) representations to phonocardiogram-based cardiac diagnosis, the application of local frequency representations in image processing and computer vision and segmentation and segmentation-based algorithms for image, image sequence and volumetric data processing and analysis.  
- PhD, Electrical Engineering, University of Minnesota, 1988  
- MS, Electrical Engineering, University of Minnesota, 1986  
- BS, Electrical Engineering, University of Minnesota, 1977
Narayana Prasad Santhanam  
Assistant Professor  
(808) 956-9741 | nsanthan@hawaii.edu

**Interests:** Statistical problems in biomedical applications, electrical engineering and computer science, information theory, statistical learning, signal processing and sparsity recovery, large alphabet problems, coding for communications, combinatorial and probabilistic problems. Emphasis on developing and systematizing theoretical and algorithmic underpinnings of certain higher dimensional problems common to these areas, applications to the analysis of gene regulatory networks, gene clustering, modeling and determination of populations of virus strains, channel estimation and modeling, economics of networks and classification tasks in text and biology.

- PhD, University of California, San Diego, 2006  
- MS, University of California, San Diego, 2003  
- BTech, Indian Institute of Technology, Madras, 2000

Galen H. Sasaki  
Associate Professor  
(808) 956-6103 | galens@hawaii.edu

**Interests:** Communication networks with an emphasis on optical and high speed networks optimization algorithms, and performance evaluation. Emphasis on switching architectures and algorithms, protection and restoration, network topologies and costs, and traffic analysis and control.

- National Science Foundation PYI Award, 1989  
- PhD, Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 1987  
- MS, Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, 1984  
- BS, Electrical Engineering, University of Hawai‘i at Mānoa, 1981

Wayne A. Shiroma  
Professor  
Co-Director, Hawai‘i Space Flight Laboratory  
(808) 956-7218 | wayne.shiroma@hawaii.edu

**Interests:** Novel architectures for next-generation communication and sensor systems that integrate high-speed devices, circuits, and antennas. Emphasis on nanosatellites and related enabling technologies such as self-phasing antenna arrays, for applications in responsive, distributed sensor networks for crisis management, disaster mitigation, and mobile communications.

- Regents’ Medal for Excellence in Teaching, 2003  
- PhD, Electrical Engineering, University of Colorado at Boulder, 1996  
- MEng, Electrical Engineering, Cornell University, 1987  
- BS, Electrical Engineering, University of Hawai‘i at Mānoa, 1986
Vassilis L. Syrmos
Professor
Vice President for Research and Innovation
(808) 956-5006 | syrmos@hawaii.edu

**Interests:** Geometric and algebraic approaches in linear system theory, computational algorithms methods for signal and image processing, robust/optimal filter design in systems, medical imaging, and prognostics and diagnostics methods related to condition based maintenance systems.

- PhD, Electrical Engineering, Georgia Institute of Technology, 1991
- Diploma in Electrical Engineering, Democritus University of Thrace, Greece, 1987

James R. Yee
Associate Professor
(808) 956-7576 | jyee@hawaii.edu

**Interests:** Computer communications networks, network optimization, stochastic models.

- PhD, Electrical Engineering and Computer Science, Massachusetts Institute of Technology, 1986
- SM, Operations Research, Massachusetts Institute of Technology, 1974
- BS, Electrical Engineering, The City College of New York, 1972
John S. Allen
Associate Professor
(808) 956-9693 | alleniii@hawaii.edu

Interests: Applications of acoustics to biomedical and underwater arenas. Emphasis on echolocation methods of dolphins and on swimmer and diver detection in harbors, molecular imaging including imaging soft plaque and biofilm infections causing deleterious effects within the cardiovascular system.

- PhD, Mechanical Engineering, University of Washington, 1997
- MS, Physics, Florida State University, 1992
- AB, Physics, Princeton University, 1988

Dilmurat Azimov
Assistant Professor
(808) 956-7176

Interests: Guidance, navigation and control design for autonomous space systems, trajectory design and optimization. Emphasis on development of on-board software tools, nonlinear dynamical models of control systems, analytical and numerical synthesis of optimal and extremal space trajectories, high-order optimality conditions in trajectory design, analytical integration methods in space dynamics and optimal control.

- DSc, Aerospace Engineering, Moscow Aviation Institute, 2008
- PhD, Mechanics, Russian University of Peoples’ Friendship, 1992
- MS, Mechanics, Tashkent State University, 1986

Peter J. Berkelman
Associate Professor
(808) 956-4435 | peterb@hawaii.edu

Interests: Human-robot physical interaction. Emphasis on tele-operated robotic minimally-invasive surgery, magnetic levitation systems for haptic interaction and robotic rehabilitation and surgical simulation, including physical modeling and simulation, novel kinematics, actuation, and sensing, and fast real-time control methods, human haptic (kinesthetic and tactile) perception and biomechanics.

- National Science Foundation CAREER Award, 2009
- PhD, Carnegie Mellon University, 1999
- MS, Mechanical Engineering, Massachusetts Institute of Technology, 1992
- BS, Mechanical Engineering, Massachusetts Institute of Technology, 1992
Brian Bingham
Associate Professor
(808) 956-7597 | bsb@hawaii.edu

**Interests:** Development of innovative tools to expand ocean science’s ability to explore, understand and protect the marine environment. Emphasis on precise underwater navigation, applications of autonomous vehicles and the integration of diverse sensors for environmental assessment.

- PhD, Mechanical Engineering, Massachusetts Institute of Technology, 2003
- MS, Mechanical Engineering, Massachusetts Institute of Technology, 1998
- BS, Mechanical Engineering, University of Missouri - Rolla, 1996

Beei-Huan Chao
Professor
(808) 956-2370 | bchao@eng.hawaii.edu

**Interests:** Energy conversion and chemically reactive flows and combustion phenomena. Emphasis on theoretical investigations of various flame behavior such as spontaneous ignition, extinction, fuel consumption rate, flame stability and pollutant formation, including development of technologies that can reduce/eliminate soot formation, and enhancement of fuel economy and safety issues related to the use of hydrogen as a clean fuel.

- Regents’ Medal for Excellence in Teaching, 2002
- PhD, Mechanical Engineering, Northwestern University, 1987
- MS, Mechanical Engineering, Northwestern University, 1983
- BS, Mechanical Engineering, National Taiwan University, 1978

Mehrdad N. Ghasemi Nejhad
Professor
(808) 956-7560 | nejhad@eng.hawaii.edu

**Interests:** Advanced materials and structures such as Composite Materials, Smart Structures, and Nanotechnology employing analytical, computational, and experimental techniques. Emphasis on design, analysis, manufacturing, and testing of nanodevices, nanomaterials, nanoresins, nanocomposites, hierarchical nanocomposites, nanosensors, nanoactuators, nanopositioning, piezoelectric materials as sensors and actuators, smart composite materials and structures with simultaneous precision positioning and vibration suppression, smart composite laser telescopes with nanopositioning and vibration isolation for precision imaging and data transfer, static and dynamic analytical and numerical modeling and simulation of smart structures, thermomechanical issues in advanced materials processing and manufacturing, and mechanical testing.

- Presidential Citation for Meritorious Teaching, 1998
- PhD, Mechanical Engineering, University of Delaware, 1992
- MS, Mechanical Engineering, University of Delaware, 1987
- BS, Mechanical Engineering, Sharif University of Technology, Iran, 1980
Reza Ghorbani
Associate Professor
(808) 956-2292  |  rezag@hawaii.edu

Interests: Design, dynamic modeling and analysis of electro-mechanical devices. Emphasis on novel actuators and sensors with applications in renewable energy generation and robotics, developing devices to convert the conventional, internal combustion engine vehicles to hybrid or plug-in hybrid, and developing cost effective energy extraction devices including in-stream river current, tidal and ocean energy generation.

- PhD, Mechanical Engineering, University of Manitoba, 2008
- MSc, Aerospace Engineering, Sharif University of Technology, Iran, 2002
- BSc, Aerospace Engineering, Sharif University of Technology, Iran, 2000

Lloyd H. Hihara
Professor
(808) 956-2365  |  hihara@eng.hawaii.edu

Interests: Corrosion and materials degradation. Emphasis on corrosion testing in diverse natural environments through test sites in numerous regions throughout Hawai‘i (having one of the most spatially diverse climates on Earth), atmospheric and underground corrosion of advanced materials, and development of corrosion technology such as corrosion sensors and novel ceramic-polymer coatings.

- National Science Foundation PYI Award, 1999
- Regents’ Medal for Excellence in Teaching, 1995
- PhD, Metallurgy, Massachusetts Institute of Technology, 1989
- SM, Mechanical Engineering, Massachusetts Institute of Technology, 1985
- BS, Mechanical Engineering, University of Hawai‘i at Mānoa, 1983

Marcelo H. Kobayashi
Professor
(808) 956-6579  |  marcelok@hawaii.edu

Interests: Computational Fluid Mechanics, Aeroacoustics and Dynamical Systems. Emphasis on modeling uncertainty using polynomial chaos according to Askey schemes, fluid-structure interaction, development of highly accurate numerical methods for the integration of the Navier-Stokes equations, sensitivity analysis in fluid flow using the adjoint variable formulation, characteristic based projection methods for all speed flows, formulation and solution of steady and unsteady viscous flows in two-dimensional domains using the concept of stream-function, battery electrochemistry and dynamics; study of sound propagation and scattering in vortical flows using analytical tools, extension of the acoustic analogy to sheared flows and study of the constituents of sound generation by multiple sound sources, such turbulence, inhomogeneities and irreversible entropic phenomena; and the investigation of the geometry and dynamics of constrained mechanical systems, formulation of the Navier-Stokes equations in manifolds with curvature, Birkhoffian mechanics, and particle motion in fluids, and proteomics.

- PhD, Mathematics, Technical University of Lisbon/IST, Portugal, 2003
- PhD, Mechanical Engineering, Technical University of Lisbon/IST, Portugal, 1994
- MS, Mechanical Engineering, Technical University of Lisbon/IST, Portugal, 1991
- BS, Mechanical Engineering, University of Brasilia, Brazil, 1988
Jingjing Li
Assistant Professor
(808) 956-6592 | lj8@hawaii.edu

Interests: Materials processing and manufacturing. Emphasis on the characterization of material behavior during manufacturing processes, computational and experimental mechanics of materials, and multi-scale material model development.

- PhD, Mechanical Engineering, University of Michigan, 2011
- MA, Statistics, University of Michigan, 2010
- MS, Materials Science and Engineering, Tsinghua University, China, 2005
- BS, Materials Science and Engineering, Beihang University, China, 2002

Bruce E. Liebert
Associate Professor
Interim Associate Dean for Academic Affairs
(See Dean’s Office)

Scott F. Miller
Associate Professor
(808) 956-7585 | scott20@hawaii.edu

Interests: Application of design and manufacturing science to develop surgical instruments, procedures, medical devices, and healthcare systems and tribology in friction stir manufacturing processes. Emphasis on heat transfer in biological tissue for thermal management of energy based surgical devices, design of conventional and minimally invasive surgical instruments, and structural integrity of stent geometry studied by finite element modeling and experimental methods, development of management systems for more efficient delivery of healthcare and improved patient safety, and the formulation of tribological models to better describe surface contact interaction between the tool and workpiece.

- PhD, Mechanical Engineering, University of Michigan, 2006
- MS, Mechanical Engineering, North Carolina State University, 2003
- BS, Mechanical Engineering, North Carolina State University, 2002
Weilin Qu  
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- PhD, Mechanical Engineering, Purdue University, 2004  
- MS, Engineering Thermophysics, Tsinghua University, China, 1997  
- BS, Engineering Thermophysics, Tsinghua University, China, 1994

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- PhD, Mechanical Engineering, Massachusetts Institute of Technology, 2011  
- MS, Mechanical Engineering, Massachusetts Institute of Technology, 2007  
- BS, Mechanical Engineering, University of Utah, 2005

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Interests: Colloid and interface sciences and their applications to areas of biomedical and biotechnological interest, such as biomembranes, biofluids, and bionanotechnology. Emphasis on biophysical studies of lung surfactant and its biomedical applications to infant and adult respiratory diseases, such as respiratory distress syndrome and asthma, characterization of self-assembled biomembranes (monolayers, bilayers and multilayers) using atomic force microscopy, and development of surface tension and contact angle measurement methodologies based on drop shape analysis.

- National Science Foundation CAREER Award, 2013  
- PhD, Mechanical and Industrial Engineering, University of Toronto, Canada, 2006  
- MS, Mechanical Engineering, University of Science and Technology, Beijing, China, 2001  
- BS, Mechanical Engineering, University of Science and Technology, Beijing, China, 1998
Magdy F. Iskander
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Interests: Computational electromagnetics and its applications in a wide variety of areas including wireless communications, radar technologies, industrial applications of RF technology in enhanced oil recovery, the RF drying and microwave sintering of honeycomb environmental ceramics products, and in the area of biomedical applications including cancer treatment and for devising innovative microwave techniques for medical diagnosis and imaging including computational techniques in optical scattering and absorption of aerosol agglomerates. Emphasis on ground penetrating radar technology and DSP discrimination algorithms for UXO detection and a telluric current methods for at-a-distance IED discrimination.

• Regents’ Medal for Excellence in Research, 2013
• Regents’ Medal for Excellence in Teaching, 2010
• Fellow, Institute of Electrical and Electronics Engineers, 1998
• PhD, University of Manitoba, Canada, 1975
• MS, University of Manitoba, Canada, 1972
• BS, Electrical Engineering, University of Alexandria, Egypt, 1969

(Also listed under Electrical Engineering)

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Interests: Electromagnetics and wireless communications. Emphasis on computational electromagnetics, antenna design, and propagation and channel prediction for modern wireless communications including new and efficient computational methods for complicated EM simulations, designed and simulated new antennas, development of new tools for accurate and efficient propagation prediction of advanced wireless communications, and development of DSP algorithms for the detection and discriminations of UXOs and IEDs.

• PhD, Electrical Engineering, Chongqing University, China, 1994