

FACULTY RESEARCH INTEREST GUIDE



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MĀNOA



FACULTY RESEARCH INTEREST GUIDE

University of Hawai'i at Mānoa

College of Engineering

Faculty Research Interest Guide

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)

For media inquires, contact the Marketing and Public Affairs Office at (808) 956-7584.

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
Hawaii Center for Advanced Communications	(808) 956-9687
Hawaii Space Flight Laboratory	(808) 956-7218

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 College of Engineering has launched thousands of successful careers in Hawai'i and throughout the world. Graduates occupy key roles with engineering firms, government agencies, defense contractors, and as entrepreneurs. Many of its 9,000 alumni have made significant engineering contributions to the state's infrastructure and are now set on accomplishing similar tasks abroad. The College's respect for the Hawaiian culture is reflected in its successful mentoring program for under-represented science and engineering students. The College has celebrated 100 years of engineering education at Mānoa, and is focused on becoming a major contributor to Hawai'i's renewable energy and sustainable future.

DEAN'S OFFICE



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.

- PhD, Applied Sciences, Harvard University, 1977
- MS, 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.

- 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
- MS, Mechanical Engineering, Carnegie Mellon University
- BS, Mechanical Engineering, Worcester Polytechnic Institute



Tep Dobry

Director of Academic Affairs

(808) 956-2300 | tep@hawaii.edu

Interests: Digital electronics, computer architecture and computer software

- PhD, Computer Science, University of California, Berkeley, 1987
- BS, Electrical Engineering, Cornell University, 1975

(Also listed under Electrical Engineering)



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



Horst G. Brandes

Associate 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



Edmond D.H. Cheng

Professor

(808) 956-6555 | edcheng@hawaii.edu

Interests: Hydraulics, surface-water hydrology and wind engineering. Emphasis on flood flow analysis/modeling, extreme wind simulation and regionalization.

- PhD, Civil Engineering, Utah State University, 1970
- BS, Hydraulics, National Taiwan University, 1961



Robert A. Grace

Professor

(808) 956-6628 | ragrace@hawaii.edu

Interests: Offshore and underwater engineering planning, design, construction, operation, maintenance and repair of ocean outfalls, artificial reefs, wave forces, and marine environments.

- PhD, Civil Engineering, Massachusetts Institute of Technology, 1966
- SM, Civil Engineering, Massachusetts Institute of Technology, 1962
- BESC, Civil Engineering, University of Western Ontario, Canada, 1960



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.

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



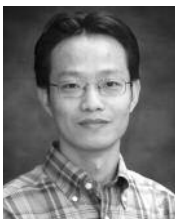
Clark C.K. Liu

Professor

(808) 956-7658 | liu@wiliki.eng.hawaii.edu

Interests: Groundwater hydrology and modeling, development and application of new modeling techniques for evaluation of sustainable yield of Hawaii basal aquifer. Watershed hydrology and modeling--watershed rainfall runoff model for the analysis of flood hydrograph and non-point source pollution is formulated based on linear systems theory and applied. Natural energy powered water desalination. Artificial upwelling and mixing, utilization of deep ocean water resources.

- PhD, Civil and Environmental Engineering, Cornell University, 1976
- MS, Civil Engineering, University of Mississippi, 1969
- BS, Agricultural/Water Resources Engineering, National Taiwan University, 1966



David T. Ma

Assistant 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
- MS, Electrical and Computer Engineering, University of California, Santa Barbara
- MS, Mechanical Engineering, University of Science and Technology Beijing, China
- BS, Naval Architecture, Shanghai Jiao Tong University, China



Peter G. Nicholson

Associate Professor

(808) 956-2378 | pnichols@hawaii.edu

Interests: Soil liquefaction, dynamic soil failures, engineering properties of tropical soils, enhancement/improvement of residual and alluvial tropical soils, constructive use of industrial waste as engineering materials and as soil improvement admixtures, cementation effects in calcareous soils, and hazard mapping using GIS.

- PhD, Civil Engineering, Stanford University, 1990
- MS, Civil Engineering, Stanford University, 1986
- BS, Civil Engineering, University of Utah, 1985
- BA, Geology and Geophysics, Yale University 1980



Phillip S.K. Ooi

Associate 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



Constantinos S. Papacostas

Professor

(808) 956-6538 | csp@hawaii.edu

Interests: Traffic operations, driver behavior, traffic simulations, air transportation, traffic safety, transportation noise, geographic information systems, mass transit, transportation and infrastructure planning, intelligent transportation systems, air quality and energy.

- PhD, 1974, Carnegie-Mellon University, 1974
- MS, Carnegie-Mellon University, 1971
- BE, Magna Cum Laude, Youngstown State University, 1969



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



Farshad Rajabipour

Assistant Professor

(808) 956-2377 | farshadr@hawaii.edu

Interests: Sustainable development of concrete infrastructure. Emphasis on development of green construction materials by utilizing recycled, waste, and byproduct components, improving durability and life-expectancy of concrete structures using non-destructive sensing, in-situ performance assessment, and life-cycle modeling, design of smart construction materials including self-curing and self-healing concrete, crack resistant concrete, and concrete with controlled hardening, development of controlled release technology for production of high-performance concrete containing chemical admixtures, modeling of mass transport and poromechanics for micro- and nano-porous media.

- PhD, Construction Materials, Purdue University, 2006
- MS, Construction Engineering and Management, Purdue University, 2003
- BS, Civil Engineering, Sharif University of Technology, Tehran, 2000



Chittaranjan Ray

Professor

(808) 956-9652 | cray@hawaii.edu

Interests: Water resources and environmental engineering: emphasis on the flow of water and the transport of chemicals and pathogens in the vadose zone and ground water systems, watershed modeling, interaction of surface water and ground water, ground water contamination monitoring, natural filtration of drinking water, and material flow analysis of water and wastes for islands.

- PhD, Civil Engineering, University of Illinois, Urbana, 1994
- MS, Civil Engineering, Texas Tech University, 1984
- MSc, Agricultural Engineering, University of Manitoba, Canada, 1982
- BS, Agricultural Engineering, Orissa University of Agriculture and Technology, India, 1980



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



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, leadership, 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.

- 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

Assistant 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, Minnesota 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

Associate 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 of personnel detection for military, search and rescue, and security applications

- 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

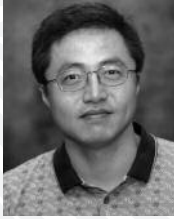
(See Dean's Office)



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



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

Assistant 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.

- 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



James W. Holm-Kennedy

Professor

(808) 956-6792 | jhk@pixi.com

Interests: Semiconductor device and sensor innovation. Emphasis on: electronic medical testing and reliability and electronic disease diagnostics and diagnostic systems suitable for physicians, including early cancer detection, heart infarct diagnostics and pathogen detection with identification in human, animal and plant hosts; novel classes of CMOS compatible Si electronic sensors directed at high sensitive magnetic, force and biosensing embodiments, suitable for remote sensing applications (field, space and satellite) as well as more conventional applications.

- PhD, Electrical Engineering, University of Minnesota, Minneapolis, 1968
- MS, Physics, University of Minnesota, Minneapolis, 1963
- BS, Physics, University of California, Riverside, 1960



ELECTRICAL ENGINEERING

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.

- PhD, Mathematics, Technical University of Denmark. 1993
- MSc, Electrical Engineering, Technical University of Denmark, 1990

Magdy F. Iskander

Professor

Director, Hawaii Center for Advanced Communications

(See Hawaii Center for Advanced Communications)

Aleksandar Kavčić

Associate 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.

- 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@spectra.eng.hawaii.edu

Interests: Machine learning and neural networks, adaptive signal processing, sensor networks, and communication networks. Emphasis on algorithms and applications for nonlinear kernel machines, applying reinforcement learning algorithms and approximate dynamic programming to networking and distributed detection, the modeling and performance analysis of large complex networks (i.e. sensor fusion networks, ad hoc networks, email networks), distributed learning algorithms, and nonlinear adaptive signal processing.

National Science Foundation PYI Award, 1988

- PhD, Electrical Engineering, Princeton University, 1987
- MS, Electrical Engineering, Stanford University, 1980
- BS, Electrical Engineering and Computer Science, University of California, Berkeley, 1979



Yingbin Liang

Assistant Professor

(808) 956-5633 | yingbinl@hawaii.edu

Interests: Security in wireless networks, relay networks and user-cooperative communications, wireless multi-antenna (MIMO) communications; resource allocation for wireless networks; network information theory; distributed detection and learning in sensor networks.

National Science Foundation CAREER Award, 2009

- PhD, Electrical Engineering, University of Illinois at Urbana-Champaign, 2005
- MS, Theoretical Physics, Tsinghua University, China, 1999
- BS, Physics, Tsinghua University, China, 1996



Victor M. Lubecke

Associate 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



Luca Macchiarulo

Assistant Professor

(808) 956-6494 | lucam@hawaii.edu

Interests: Globally pipelined design and adaptive latency insensitive protocols, throughput-centered physical design, network-on-chip analysis and design, thermal-aware multiprocessing, biochemical simulation with digital tools.

- PhD, Electrical Engineering, Politecnico di Torino, Italy, 1999
- MS, Electrical Engineering, Politecnico di Torino, Italy, 1995

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.

- PhD, Electrical Engineering, Colorado State University, 1987
- MS, Electrical Engineering, Colorado State University, 1983



Aaron T. Ohta

Assistant 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.

- 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 | prasadsn@gmail.com

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.

- 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, Hawaii 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.

- 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

(Also listed under Hawaii Space Flight Laboratory)



Vassilis L. Syrmos

Professor

Associate Vice Chancellor for Research and Graduate Education, UH Mānoa

(808) 956-0813 | 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, Massachusetts Institute of Technology, 1986
- SM, Massachusetts Institute of Technology, 1974
- BS, Electrical Engineering, City College of New York, 1972



ELECTRICAL ENGINEERING



David Y.Y. Yun

Professor

(808) 956-7627 | dyun@hawaii.edu

Interests: Advanced computing, computational intelligence and bio-medical informatics and engineering. Emphasis on super-computing and parallel processing, image and design intelligence, resource management methodology for constrained resource planning and scheduling, tele-health systems and remote telemedicine services.

- PhD, Computer Science and Applied Mathematics, Massachusetts Institute of Technology, 1973
- BS, Mathematics, Ohio State University, 1970



Xiangrong Zhou

Assistant Professor

(808) 956-6642 | xrzhou@spectra.eng.hawaii.edu

Interests: Computer architecture, embedded systems, hardware/software co-design, and reconfigurable computing. Emphasis on embedded platform design including low-power and high-performance hardware architecture and system software that could efficiently manage the multiprocessor hardware, and embedded systems integration including cyber-physical systems and wireless sensor networks.

- PhD, Electrical and Computer Engineering, University of Maryland, College Park, 2008
- BS, Automation, Tsinghua University, China, 1999

MECHANICAL ENGINEERING



John S. Allen

Assistant 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



Peter J. Berkelman

Assistant 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

Assistant 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.

- PhD, Mechanical Engineering, Northwestern University, 1987
- MS, Mechanical Engineering, Northwestern University, 1983
- BS, Mechanical Engineering, National Taiwan University, 1978

MECHANICAL ENGINEERING



Mehrdad N. Ghasemi Nejjhad

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.

- 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

Assistant 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.

- 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



Ronald H. Knapp

Professor

(808) 956-6592 | knapp@eng.hawaii.edu

Interests: Finite element models that describe the structural response and fatigue resistance of electrical/optical/mechanical cables for wire rope, synthetic rope and flexible pipe subjected to tension, twist, frictional bending, internal and external pressure and thermal loads, modeling the mechanical behavior of nano-ropes or nano-sized yarns, and assistive devices for disabled person focusing on the development of a universal transfer device that allows one person to move a disabled person between bed, wheelchair, bath, etc.

- PhD, Ocean Engineering, University of Hawai'i at Mānoa, 1973
- MS, Mechanical Engineering, California Institute of Technology, 1968
- BS, Mechanical Engineering, University of Hawai'i at Mānoa, 1967

MECHANICAL ENGINEERING

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



Bruce E. Liebert

Associate Professor

Interim Associate Dean for Academic Affairs

(See Dean's Office)



Scott F. Miller

Assistant 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

MECHANICAL ENGINEERING



Weilin Qu

Assistant Professor

(808) 956-6332 | qu@hawaii.edu

Interests: Micro-scale thermal/fluid transport phenomena, boiling and two-phase flow, and high-heat-flux thermal management. Emphasis on design and optimization of single-phase and two-phase micro-channel heat sinks for thermal management of high-heat-flux commercial/defense electronic devices, flow boiling of binary mixtures in micro-channels, liquid single-phase flow and flow boiling in micro-pin-fin arrays, and thermal/fluid transport phenomena associated with solar energy driven humidification-dehumidification (HDH) seawater desalination processes.

- PhD, Mechanical Engineering, Purdue University, 2004
- MS, Engineering Thermophysics, Tsinghua University, China, 1997
- BE, Engineering Thermophysics, Tsinghua University, China, 1994



Amit K. Sanyal

Assistant Professor

(808) 956-2142 | aksanyal@hawaii.edu

Interests: Mechanics, nonlinear dynamics and control. Emphasis on applications of advanced geometric and algebraic methods to practical problems in dynamics and control of mechanical and aerospace systems including applications to robotic spacecraft, autonomous aerial and underwater vehicles, and mobile robots in the presence of unknown or poorly known forces and parametric uncertainties employing robust nonlinear control and estimation techniques.

- PhD, Aerospace Engineering, University of Michigan, 2004
- MS, Mathematics, University of Michigan, 2004
- MS, Aerospace Engineering, Texas A & M University, 2001
- BTech, Aerospace Engineering, Indian Institute of Technology, Kanpur, India, 1999



Yi Zuo

Assistant Professor

(808) 956-7167 | yzuo@hawaii.edu

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.

- 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

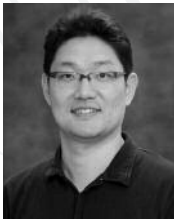
Director
Professor

(808) 956-3434 | magdy@hawaii.edu

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.

- 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)



Sungkyun Lim

Assistant Professor

(808) 956-0760 | limsungk@hawaii.edu

Interests: Analysis and design of antennas for wireless communications, electromagnetics, RF/microwave engineering, computational electromagnetics, and optimization methods. Emphasis on electrically small antennas, HF/VHF antennas, mobile antennas, meta-materials including electromagnetic bandgap materials and Artificial magnetic conductor materials, RFID technology including antennas and systems, genetic algorithms, particle swarm optimizations, and propagation modeling in non-line-of-sight environment.

- PhD, Electrical and Computer Engineering, University of Texas at Austin, 2007
- MS, Electrical and Computer Engineering, University of Texas at Austin, 2004
- BS, Electrical and Computer Engineering, Hanyang University, Seoul, Korea, 1999
- BS, Mathematics, Hanyang University, Seoul, Korea, 1999



Zhengqing Yun

Assistant Professor

(808) 956-0759 | zyun@hawaii.edu

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



HAWAII SPACE FLIGHT LABORATORY



Wayne A. Shiroma

Co-Director
Professor

(See Electrical Engineering)



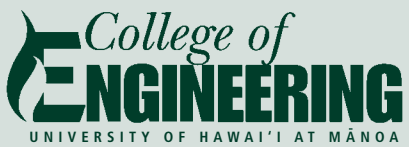
Trevor C. Sorensen

Specialist

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

- DE, Aerospace Engineering, University of Kansas
- MS, Aerospace Engineering, University of Kansas
- BS, Aerospace Engineering, University of Kansas



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