Vision Statement

We strive to be a community of scholars in which students are engaged in diverse learning experiences with faculty and staff who are devoted to student success and professional achievement.

Mission Statement

Through contemporary curricula, engaging pedagogy, student support, scholarship and applied research, we produce career-ready graduates prepared for a lifetime of professional achievement and intellectual growth.

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

Faculty / Staff

TABLE OF CONTENTS

Kevan Shafizadeh, Dean

We define student success as the ability to think critically, grow professionally, achieve goals, and contribute to the community. I am so proud of our staff and faculty who are dedicated to the advancement of student success in our college. Because of their talent, creativity, and personal interest in our students, our College of Engineering and Computer Science is a top employer destination for engineering, computer science and construction management leaders.

WELCOME!

Kevan Shafizadeh, Ph.D., P.E., T.E.

Dean

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Associate Dean, Student Affairs;
Professor, Computer Science

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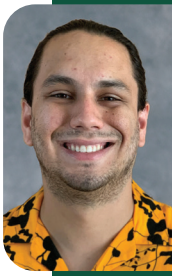

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MESA PROGRAM (MEP)

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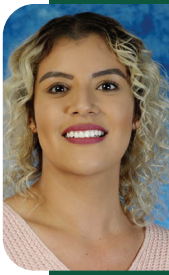

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COMPUTING, COMMUNICATIONS & ACADEMIC TECHNOLOGY SERVICES

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Ramzi J. Mahmood
Director

The Office of Water Programs (OWP), a unit of academic affairs, is a multidisciplinary center providing training, technical assistance, and applied research services for water resources and water quality disciplines. OWP's mission is to provide cost-effective solutions for protecting and enhancing water resources, public health, and the environment. OWP's training materials have supported the drinking water and wastewater professions for over 40 years, earning it an international reputation as a leader in this field.

State and local agencies fund applied research and engineering management projects in wastewater, stormwater, watershed planning, flood modeling, and groundwater. Through a federal grant, OWP serves as the US EPA Region 9 Environmental Finance Center (EFC) which supports rural, disadvantaged, and tribal communities throughout the west in financial planning and utilities asset management.

OWP staff collaborate with Sac State and other CSU faculty from engineering, natural sciences, public policy, and economics. OWP is currently the largest self-supported center in the CSU system with 50 full-time professionals and students. For more information please go to www.owp.csus.edu.

WATER PROGRAMS

Ghazan Khan,
Department Chair

Civil engineers design and maintain public works such as roads, bridges, water and sewage systems as well as public facilities like ports, railways, and airports. Civil engineers are instrumental in planning, analyzing, and designing the facilities that touch many aspects of our everyday lives—from the water we drink to the roads we use to get to work or school to the buildings where we live and work.

CIVIL ENGINEERING

CIVIL ENGINEERING

Masoud Ghodrat Abadi

Ph.D. Civil Engineering
Oregon State University '18
Assistant Professor

Teaching Interests

Transportation Engineering and Planning; Traffic Engineering and Design; Statistics for Engineers; Highway Geometric Design.

Areas of Scholarship

Transportation Safety and Human Factors; Traffic Control Devices and Technologies; Active Transportation.

Scholarship Statement

With the help of driving simulators, instrumented vehicles, and microsimulation software, I investigate the role of human factors on mobility and safety, considering alternative designs for vehicle automation and transportation infrastructure.

Selected Publication

Abadi, M.G. and Hurwitz, D. (2018) "Bicyclist's Perceived Level of Comfort in Dense Urban Environments: How do Ambient Traffic, Engineering Treatments, and Bicyclist Characteristics Relate?" *Journal of Sustainable Cities and Society*. Volume 40, pp. 101-109.

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Richard Armstrong, P.E.

Ph.D. Civil and Environmental Engineering
University of California, Davis '10
Assistant Professor

Teaching Interests

Earthquake Engineering; Computational Mechanics; and Dam Engineering.

Areas of Scholarship

Soil and Structural Dynamics; Soil-structure Interaction; Ground Motion Development; Computational Mechanics; and Dam Engineering.

Scholarship Statement

Developing and implementing analytical techniques that improve the ability to predict the response of civil infrastructure to earthquake loads means a more realistic assessment of performance and resilience can be made and lead to more targeted and calculated enhancements to civil-engineering systems.

Selected Publication

Armstrong, et al. (2014). Equivalent-static analysis of piled bridge abutments affected by earthquake-induced liquefaction. J. of Geotech. Geoenviron. Eng., ASCE, 140(8).

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CIVIL ENGINEERING

Cyrus Aryani, P.E., G.E.

Ph.D. Civil Engineering
Utah State University '84
Professor

Teaching Interests

Soil Mechanics; Foundation Engineering; Slope Stability Analysis and Landslide Stabilization; Soil Improvement; Retaining Structures; and Geosynthetics.

Areas of Scholarship

Shallow and Deep Foundations. Slope Stabilization; Ground Modification. Retaining Structures; Geosynthetics.

Scholarship Statement

Designing safe foundation systems for support of buildings and bridges; analysis and design of earth dams for reservoirs; design and improvement of levees for flood protection; stabilizing slopes and sites for construction purposes.

Selected Publication

A five-volume book series, *Geotechnical Engineering - Applied Soil Mechanics and Foundation Engineering* 2020-21 (Amazon.com). Analysis and design in geotechnical engineering with new developments and applications.

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CIVIL ENGINEERING

Zoi Dokou

Ph.D. Civil and Environmental Engineering
University of Vermont '08
Assistant Professor

Teaching Interests

Fluid Mechanics, Groundwater Hydrology, Water Resources Management, Contaminant Transport in the Subsurface

Areas of Scholarship

Ground-surface water interactions; Saltwater intrusion; Contaminant transport in the subsurface and in-situ remediation; Water resource optimization and Seasonal forecasting.

Scholarship Statement

People around the world are increasingly dependent on groundwater. I focus on understanding and predicting the behavior of groundwater systems and their interconnection with surface water using field measurements, remote sensing, laboratory experiments and numerical modeling to address questions related to water quantity, quality and sustainability.

Selected Publication

O. Tzoraki, Z. Dokou, et al. (2018) Assessing the efficiency of a coastal Managed Aquifer Recharge (MAR) system in Cyprus. *Science of the Total Environment, 626,* 875-886; doi.org/10.1016/j.scitotenv.2018.01.160

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CIVIL ENGINEERING

Julie Fogarty

Ph.D. Civil Engineering
University of Michigan '15
Assistant Professor

Teaching Interests

Structural analysis; Steel design; and Solid mechanics.

Areas of Scholarship

Design of Steel Structures; Earthquake Engineering; and Educational Tools.

Scholarship Statement

Understanding steel column behavior under extreme events is necessary for the safe and efficient design of steel structures. To improve this understanding, my research focuses on steel columns that have experienced local flange damage as well as those subjected to seismic loading.

Selected Publication

Fogarty, J. and El-Tawil, S. (2015) "Collapse Resistance of Steel Columns under Combined Axial and Lateral Loading" *J. of Structural Engineering.*

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CIVIL ENGINEERING

Jose E. Garcia

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University of Texas at Austin '18
Assistant Professor

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Phone (916) 278-4504
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Teaching Interests

Civil Engineering Materials, Concrete Durability, Reinforced Concrete Design, Concrete Repair

Areas of Scholarship

Concrete Durability; Novel Structural Materials; Ultra-High Performance Concrete; Cement and Concrete Chemistry; Concrete Repair

Scholarship Statement

My research focuses on identifying new ways to produce concrete that is more environmentally friendly, durable, and resilient. After water, concrete is the second most widely used substance in the world and small changes in concrete production can have a drastic impact on everyday life.

Selected Publication

Garcia, J. E.; Satrom, C. N.; Jirsa, J. O.; and Ghannoum, W. M., "Shear Strengthening of Concrete Girders Using Carbon Fiber-Reinforced Polymer Sheets and Anchors." *ACI Structural Journal,* 115 (4), pp. 1165-1174, 2018.

CIVIL ENGINEERING

Karen Lee Hansen

Ph.D. Civil Engineering
Stanford University '93
Professor

Teaching Interests

CE Professional Practice; Sustainable Design and Construction; Project Management and Innovative Project Delivery.

Areas of Scholarship

Civil Engineering Professional Practice; Sustainability and Infrastructure Resilience; Design Build and Integrated Project Delivery.

Scholarship Statement

I am highly motivated to communicate the value of C. E. and C. M. to those outside the profession as a way of elevating the public discussion regarding our decaying infrastructure and of attracting potential students.

Selected Publication

Hansen, Karen L. & Zenobia, Kent E. (2011). *Civil Engineer's Handbook of Professional Practice.* ASCE and John Wiley & Sons, Hoboken, NJ.

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Ghazan Khan

Ph.D. Civil and Environmental Engineering
University of Wisconsin, Madison '12
Professor
Chair, Department of Civil Engineering

Teaching Interests

Transportation Engineering: Planning, Operations, Design, and Safety; Geographic Information Systems (GIS); Statistics.

Areas of Scholarship

Autonomous Vehicle User Behavior, Roundabouts, Transportation Systems Design and Safety; Crash Data Analysis, Statistical Modeling in Transportation; Applications of GIS in Transportation Engineering.

Scholarship Statement

Approximately 35,000 people died in road crashes last year which is 96 fatalities everyday of the year. My research helps find the causes of these crashes and develop strategies to make our roads safe and efficient for all users.

Selected Publication

G. Khan, A. R. Bill, M. Chitturi, D. A. Noyce. "Horizontal Curves, Signs, and Safety." *Transportation Research Record*. TRB Washington D.C. 2012, Issue 2279, pp. 124-131. http://dx.doi.org/10.3141/2279-15.

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CIVIL ENGINEERING

Ramzi J. Mahmood, P.E.

Ph.D. Civil Engineering
Utah State University '88
Professor
Director of Office of Water Programs

Teaching Interests

Geo-Environmental Engineering; Engineering Statistics and Data Analysis; Transport Modeling.

Areas of Scholarship

Environmental Data Analysis; Decision Making; Highly Variable Data; Spatial Analysis; Numerical Methods and Solutions; Contaminated Site Characterization.

Scholarship Statement

My research group provides technical advice on water policy issues; assists in watershed planning; and performs modeling, data analysis, and cost assessments to help both the public and private sectors make informed decisions. My training group provides training for operators and managers of water and wastewater treatment plants.

Selected Publication

Quality Improvement Plans, Amman, Jordan, UNESCO'a Rehabilitation of Iraq's Higher Education System Project, October 27-29, '13.

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CIVIL ENGINEERING

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University of Texas, Austin '00
Professor

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Teaching Interests

Structural Concrete; Precast, Prestressed Concrete; Earthquake Engineering.

Areas of Scholarship

Accelerated Bridge Construction using Precast Bridge Elements and Systems; Seismic Connections for Precast Systems; Anchorage to Concrete.

Scholarship Statement

Accelerated Bridge Construction technologies are critical to rehabilitate, repair, or replace ~250,000 deficient bridges, many in seismic regions. My research develops seismic precast elements and systems as a prime solution to this problem.

Selected Publication

Restrepo, J. I., Tobolski, M. J., and Matsumoto, E. E., "Development of a Precast Bent Cap System for Seismic Regions," NCHRP Report 681, National Cooperative Highway Research Program, Washington, D.C., April '11, 116 pp.

CIVIL ENGINEERING

Saad M. Merayyan

Ph.D. Civil and Environmental Engineering
Wayne State University '01
Professor

Teaching Interests

Water Resources Infrastructure; Watershed Modeling and Management; Water Resources Planning.

Areas of Scholarship

Modeling of Water Resources Infrastructure; Watershed Modeling; Climate Change Impacts and Adaptation.

Scholarship Statement

My research is applied in nature and focuses on the design, analysis and modeling of water resources infrastructure. I am studying the impacts of climate change on hydrology, water supply and management, and developing adaptation strategies.

Selected Publication

Merayyan, S. and Safi, S. (2014) "Feasibility of Groundwater Banking under Various Hydrologic Conditions in California, USA," *Computational Water, Energy, and Environmental Engineering,* 3, 79-92. doi: 10.4236/cweee.2014.33009.

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Amir M. Motlagh

Ph.D. Civil and Environmental Engineering
University of Utah '16
Associate Professor

Teaching Interests

Environmental Engineering; Wastewater Treatment; Water Reuse; Environmental Microbiology.

Areas of Scholarship

Interface of environmental process engineering and environmental microbiology; Understand the microbial communities involved in environmental processes, Optimization of nutrient removal processes in wastewater treatment.

Scholarship Statement

Wastewater is the black gold in a new era of sustainability. My research focuses on biological wastewater treatment and resource recovery. It is so interesting to study what amazing jobs bacteria can accomplish in a very sustainable way!

Selected Publication

Motlagh, A. M., et al. (2017). Insights of phage-host interaction in hypersaline ecosystem through metagenomics analyses. *Frontiers in Microbiology*, 8: 352.

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CIVIL ENGINEERING

Cristina M. Poindexter, P.E.

Ph.D. Civil and Environmental Engineering
University of California, Berkeley '14
Associate Professor and
Graduate Coordinator

Teaching Interests

Fluid Mechanics; Hydrology; and Transport and Mixing in the Environment.

Areas of Scholarship

Wetland restoration and Wetland Accretion; Air-water and Land-atmosphere Gas Fluxes; and Water Flow Measurement Technology.

Scholarship Statement

Rising sea levels threaten low lying areas and infrastructure; wetlands can help mitigate these threats by accreting sediment and organic matter, and damping waves. My research identifies how wetland restoration projects can maximize these benefits.

Selected Publication

Poindexter, C. M., Baldocchi, D. D., Matthes, J. H., Knox, S. H., & Variano, E. A. (2016). The contribution of an overlooked transport process to a wetland's methane emissions. *Geophysical Research Letters,* 43(12), 6276-6284.

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Kimberly Scott-Hallet, P.E., S.E.

M.S. Structural Engineering and Mechanics
University of Washington, '98
Full-Time Lecturer

Teaching Interests

Statics, Mechanics of Materials, Structural Design Electives

Areas of Scholarship

Structural Analysis; Building Design; Construction Administration; Forensic Engineering and Building Collapse Analysis.

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CIVIL ENGINEERING

Kevan Shafizadeh, P. E., T.E., PTP, PTOE

University of Washington '02
Professor
Dean, College of Engineering and Computer Science

Teaching Interests

Transportation Engineering and Planning; Applied Engineering Statistics; Computer Applications in Civil Engineering.

Areas of Scholarship

Transportation Management and Facility Operations; Traffic Safety; Travel Behavior and Demand; Non-Motorized and Sustainable Transportation Planning.

Scholarship Statement

My research involves applying quantitative and statistical methods to analyze and evaluate various issues in transportation engineering and planning. I help to better understand how and why we travel from point A to point B.

Selected Publication

Schneider, R., Shafizadeh, K. and Handy, S. (2015). "Method to Adjust Institute of Transportation Engineers Vehicle Trip Generation Estimates in Smart-Growth Areas," *J. of Transport and Land Use, 8(1).*

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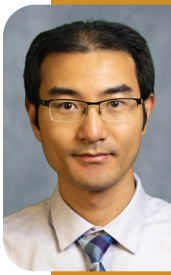
CIVIL ENGINEERING



Tongren Zhu

Ph.D, Civil and Environmental Engineering
University of Texas, Austin '17
Assistant Professor

Teaching Interests

Environmental Engineering, water and wastewater treatment, water chemistry

Areas of Scholarship

Physical-chemical processes of water and wastewater treatment; supplementary cementitious materials

Scholarship Statement

My research focuses on the analysis, modeling and design of the physicochemical processes in drinking water and wastewater treatment to improve the efficiency and sustainability of treatment processes. I am also interested in utilizing industrial byproducts to produce sustainable cementitious materials.

Selected Publication

Zhu, T., Lawler, D. F., Chen, Y., & Lau, B. L. (2016). Effects of natural organic matter and sulfidation on the flocculation and filtration of silver nanoparticles. Environmental Science: Nano, 3(6), 1436-1446.

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Computer Science is a systematic study of computing and its applications, ranging from its theoretical and algorithmic foundations to the cutting-edge technologies in many areas including computer architecture and engineering, computer graphics and games, computer networks and data communication, database systems, information assurance and security, intelligent systems, mobile and ubiquitous computing, system software, and software engineering.

COMPUTER SCIENCE

COMPUTER SCIENCE

Behnam S. Arad

Ph.D. Electrical Engineering
Louisiana State University '97
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Associate Dean, College of Engineering and Computer Science

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Office RVR 5044

Teaching Interests

Hardware Design and Validation using EDA tools; Computer architecture; Parallel computing.

Areas of Scholarship

Design of Power-efficient Hardware; Validation of Complex Embedded Systems; Hardware Security.

Scholarship Statement

My research focuses on the design of secure and power-efficient hardware. Energy efficiency and security are important design considerations for mobile devices.

Selected Publication

"Customized Intrusion Detection Based on a Database Audit Log", Thomas Le, Bill Mitchell, Behnam Arad. Proceedings of the 34th CATA Conference, pp. 117-126. March 2019.

"Design of a Power Aware Encryption Accelerator", Muhammad H. Pervaiz, Behnam Arad. Proceedings of 30th CAINE Conference, pp. 79-84, October 2017.

COMPUTER SCIENCE

Syed Badruddoja

Ph.D. Computer Science
University of North Texas '23
Assistant Professor

Teaching Interests

Computer Security, Computer Networks, Network Security, Blockchain, Operating Systems, Cryptography, Artificial Intelligence.

Areas of Scholarship

Cybersecurity, AI, Trustworthy AI, Blockchain, Decentralized Applications

Scholarship Statement

I plan to develop trustworthy AI algorithms using blockchain infrastructure. Blockchain promises to deter the mutability of records and can help AI algorithms to defend against poisoning attacks. Students participating in the scholarship program will study the literature and requirements of securing AI algorithms with blockchain.

Selected Publication

Badruddoja, S., Dantu, R., He, Y., Thompson, M., Salau, A., & Upadhyay, K. (2022, September). Making Smart Contracts Predict and Scale. In 2022 Fourth International Conference on Blockchain Computing and Applications (BCCA) (pp. 127-134).

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COMPUTER SCIENCE

Anna Baynes

Ph.D. Computer Science
University of Michigan '12
Associate Professor

Teaching Interests

Information Visualization, Algorithms, Software Engineering, Information Analytics

Areas of Scholarship

Information Visualization, Visual Analytics

Scholarship Statement

My research focuses on new techniques to improve analytics and visualization techniques for large data sets.

Selected Publication

A. Shaverdian, H. Zhou, H. V. Jagadish and G. Michailidis. A Graph Algebra for Visual Analytics, *Visualization and Data Analysis,* 2012.

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COMPUTER SCIENCE

Haiquan (Victor) Chen

Ph.D. Computer Science
Auburn University '11
Associate Professor and
Grad Coordinator

Teaching Interests

(No)SQL Databases; Data Analytics and Mining; Dynamic Webs, Data Science Education.

Areas of Scholarship

Machine Learning; Security on Location-based Social Networks; Cyber-Physical Systems.

Scholarship Statement

My goal is to develop scalable machine learning/secure algorithms for big data in urban spaces, including data sensing, management, analytics, and visualization, to tackle the issues that cities face.

Selected Publication

"Scaling up Markov Logic Probabilistic Inference for Social Graphs," *IEEE Transactions on Knowledge and Data Engineering (TKDE),* '16

"Leveraging Spatio-Temporal Redundancy for RFID Data Cleansing," ACM International Conference on Mgmt. of Data (SIGMOD), '10

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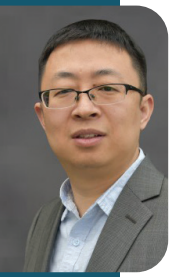

COMPUTER SCIENCE

Jun Dai

Ph.D. Information Sciences and Technology
The Pennsylvania State University '14
Associate Professor

Teaching Interests

Network Security; Computer Networking; Computer Forensics

Areas of Scholarship

Network and Distributed System Security; Big Data in Enterprise Cyber Security Space; Cloud Security; Mobile Security.

Scholarship Statement

Standing on the defense side of the cyber warfare, my research addresses emerging security concerns in large-scale networks or mobile systems. My work delivers macroscopic perspectives, and helps people identify new problems or get better solutions.

Selected Publication

Yulong Dong, Jun Dai, Xiaoyan Sun, "A Mobile Botnet That Meets Up at Twitter." SecureComm 2018.

Nuha Aldausari, Cui Zhang, Jun Dai, "Combining Design by Contract and Inference Rules of Programming Logic towards Software Reliability." SECRYPT 2018.

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COMPUTER SCIENCE

Nikrouz Faroughi

Ph.D. Electrical Engineering
Michigan State University '87
Professor

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Phone (916) 278-6799 Office RVR 3018G

Teaching Interests

Digital Logic; Computer Architecture.

Areas of Scholarship

Single and Multiprocessor Systems Architecture; Computer Security through Hardware.

Scholarship Statement

As more data are created, processed, and transmitted, both demand for more powerful computers and the possibility of unauthorized access to data increase. Hardware—better than software—can play a role in keeping digital systems secure.

Selected Publications

Textbook: "Digital Logic Design & Computer Organization, with computer architecture for security," McGraw-Hill Education, 2015.

"A Pipelined Salsal20 Encryption Hardware Accelerator," 2010 World Congress in Computer Science, Computer Engineering, and Applied Computing, Monte Carlo Resort & Casino, Las Vegas, Nevada, July 2010. *With student Dayah Iman.*

COMPUTER SCIENCE

V. Scott Gordon

Ph.D. Computer Science
Colorado State University '94
Professor

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Teaching Interests

Graphics Programming; Video Game Architecture; Artificial Intelligence; Computing Theory and Languages.

Areas of Scholarship

3D Graphics/GPU Shader Programming; Artificial Intelligence; Neural and Evolutionary Computation.

Scholarship Statement

My artificial intelligence research has focused on genetic algorithms, ant-colony optimization, game tree search, and neural networks. I am also interested in GPU shader programming and its application to 3D graphics, game engine architecture, and virtual reality.

Selected Publications

Textbook Series: "Computer Graphics Programming in OpenGL" (editions for C++ and Java), Mercury Learning, 2019.

Ray, Gordon, and Vaucher. "Evolving QWOP Gaits," 2014 Genetic and Evolutionary Computation Conference, Vancouver, BC.

COMPUTER SCIENCE

Ying Jin

Ph.D. Computer Science and Engineering
Arizona State University '04
Professor

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Teaching Interests

Database Design, Database System Implementation, Data structures; Algorithm Analysis.

Areas of Scholarship

Database Systems and Applications; Event and Rule Processing in Centralized and Distributed Environments; Data Security and Privacy.

Scholarship Statement

My research focuses on various aspects related to data management such as database system structuring and application design, and data security. It facilitates data-centric application design in an efficient, secure way.

Selected Publication

Y. Jin, V. Bharath, and J. Shah, "Active Rules in a Graph Database Environment", in the proceedings of the 35th International Conference on Computers and Their Applications, March 2020, San Francisco, California, USA.

COMPUTER SCIENCE

Ted Krovetz

Ph.D. Computer Science
University of California, Davis '00
Professor

Teaching Interests

Computer programming; Discrete mathematics; Design and Analysis of Algorithms; Compilers; Cryptography.

Areas of Scholarship

High-speed Provable Symmetric Cryptography, Authenticated Encryption, Universal Hashing, Specification and Implementation of Cryptographic Algorithms.

Scholarship Statement

My work focuses on making it harder to make mistakes when using cryptography and at the same time, making cryptography computationally less expensive. These two goals make good cryptography more attractive to use.

Selected Publications

Krovetz & Rogaway, The OCB authenticated-encryption algorithm, RFC 7253, IETF, 2014.

Krovetz & Rogaway, The software performance of authenticated-encryption modes, in *Fast Software Encryption* (FSE 2011), Springer, '11.

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COMPUTER SCIENCE

Pinar Muyan-Ozcelik

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University of California, Davis '14
Associate Professor

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Teaching Interests

Computer Games and Graphics; Mobile Computing; and GPU Computing.

Areas of Scholarship

GPU Computing; Autonomous Driving; Mobile Computing; and Artificial Intelligence.

Scholarship Statement

My main research interests revolve around GPU computing and autonomous driving. I have also been conducting research on mobile computing, artificial intelligence, and pedagogy-related areas.

Selected Publication

Benchmarking Deep Learning Frameworks and Investigating FPGA Deployment for Traffic Sign Classification and Detection, Zhongyi Lin, Matthew Yih, Jeffrey M. Ota, John D. Owens, and Pinar Muyan-Ozcelik, In *Journal of IEEE Transactions on Intelligent Vehicles* (T-IV), Volume 4, Issue 3, September 2019, pp. 385-395, doi: 10.1109/TIV.2019.2919458.

COMPUTER SCIENCE

Jinsong Ouyang

Ph.D. Computer Science and Engineering
University of New South Wales '97
Professor
Chair, Department of Computer Science

Teaching Interests

Distributed Systems; Data Structures and Algorithm Analysis; Operating Systems.

Areas of Scholarship

Distributed Systems Including Cloud Computing, Mobile and Ubiquitous Computing, and Computer Networks.

Scholarship Statement

My research has been in the areas of distributed systems and computer networks, especially focusing on manageability, dependability, and adaptability of distributed systems.

Selected Publication

T.J. Distler and J. Ouyang. "Clock Synchronization for Distributed Media Applications." *Software: Practice and Experience*, 37(14): 1489-1514, 2007.

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COMPUTER SCIENCE

Hady Ahmady Phoulady

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University of South Florida, '17
Assistant Professor

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Teaching Interests

Machine Learning, Algorithm Design and Analysis, Data Structures, Programming

Areas of Scholarship

Machine Learning, Digital Image Processing, Image Segmentation

Scholarship Statement

My research focuses on developing Computer-Aided Diagnosis systems to process medical images. The main goal of my research is to classify medical images, detect and segment regions of interest such as cells and nuclei in images and quantify diseases.

Selected Publication

Hady Ahmady Phoulady, Dmitry Goldgof, Lawrence O. Hall, and Peter R. Mouton. "A framework for nucleus and overlapping cytoplasm segmentation in cervical cytology extended depth of field and volume images." *Computerized Medical Imaging and Graphics,* 59, pp. 38-49, July 2017.

COMPUTER SCIENCE

Ahmed M. Salem

Ph.D. Computer Science
Florida Institute of Technology '01
Professor

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Teaching Interests

Software Engineering, Software Testing and Quality Assurance, System Requirements Engineering.

Areas of Scholarship

Requirements Specification and Design Modeling; Verification and Validation Methodology and Techniques; Information Assurance.

Scholarship Statement

Research is an essential component in advancing our university and community. With research, new ideas, theories, and techniques are discovered which will enable us to explore greater heights and to achieve further goals in teaching and learning.

Selected Publication

Ahmed M. Salem, Abrar A. Qureshi "Analysis of Inconsistencies in Object Oriented Metrics" *Journal of Software Engineering and Applications (JSEA)*, 2011.

Ghassan Shobaki

Ph.D. Computer Science
University of California, Davis '06
Associate Professor

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Teaching Interests

Compilers; Algorithms; Theory of Computation; Operating Systems.

Areas of Scholarship

Compiler Optimizations; Combinatorial Optimization Algorithms; System Performance.

Scholarship Statement

My current research focuses on using intelligent search techniques to find more precise solutions to compiler optimization problems and using parallel computing to make it possible to apply such search techniques within reasonable compile time.

Selected Publication

G. Shobaki, A. Kerbow, S. Mekhanoshin. "Optimiaing Occupancy and ILP on GPU Using a Combinatorial Approach." In *Proc. International Symposium on Code Generation and Optimization (CGO 2020)*, February 2020.

COMPUTER SCIENCE

Xiaoyan (Sherry) Sun

Ph.D. Information Sciences and Technology
Pennsylvania State University '16
Associate Professor and Computer Engineering Program Coordinator

Teaching Interests

Computer networks; Network Security; System Security.

Areas of Scholarship

Enterprise-level Network/Distributed System Security; Cloud Security; Cyber Situational Awareness; Vehicular Ad hoc Network (VANET); Intelligent Transportation System (ITS).

Scholarship Statement

Cyber security intelligence is a major motivation of my research; it requires support from both advanced security techniques and cyber situation knowledge integration.
I develop practical approaches or systems to address real-world cyber security problems.

Selected Publication

Sun, et al., "Using Bayesian Networks for Probabilistic Identification of Zero-day Attack Paths", IEEE Transactions on Information Forensics and Security (TIFS), 2018.

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COMPUTER SCIENCE

Bang Trang

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Pennsylvania State University '16
Assistant Professor

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Teaching Interests

Bioinformatics, Data Science, Computer Networks, Computer Organization.

Areas of Scholarship

scRNA-seq analysis, spatial transcriptomics analysis, pathway analysis, cancer subtyping

Scholarship Statement

My research focuses on single-cell RNA sequencing analysis which is driven by the immense potential of understanding cellular heterogeneity and its impact on biological systems. Through advanced computational techniques and innovative methodologies, I aim to unravel the intricacies of single-cell data, paving the way for novel insights into developmental biology and disease progression.

Selected Publication

Tran, B., Tran, D., Nguyen, H., Ro, S., & Nguyen, T. (2022). scCAN: single-cell clustering using autoencoder and network fusion. Nature Scientific Reports, 12(1), 1-10.

COMPUTER SCIENCE

Cui Zhang

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Nanjing University, China '86
Professor

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Teaching Interests

Programming Language Theories and Paradigms; Formal Methods for Secure Software Engineering; Software Architecture.

Areas of Scholarship

Formal Methods for Secure Software Engineering; Software Architecture; Programming Language Theories and Paradigms.

Scholarship Statement

Most of my recent research is related to secure software engineering, important to information assurance and security.

Selected Publications

White, B., Dai, J. and Zhang, C. (2018) "An early detection tool in Eclipse to support secure coding practices," *International Journal of Information Privacy, Security and Integrity,* Vol. 3, No. 4, pp. 284-309.

Gareth Figgiess,
Department Chair

Construction Management is the organization and direction of building projects. Construction Managers oversee the building of roads, bridges, buildings, and industrial facilities upon which we all depend.

CONSTRUCTION MANAGEMENT

CONSTRUCTION MANAGEMENT

Mikael Anderson, P.E.

M.S. Structural Engineering
University of California, Davis '98
Professor

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Teaching Interests

Engineering: Analysis and Design, Building/ Transportation; Construction Management: Labor and Equipment Productivity Analysis; Construction Safety: Federal & California OSHA Authorized Training Instructor.

Areas of Scholarship

Solar Decathlon Project: Design, Build and Test Full-scale Home to be Net Zero, Affordable, Sustainable, Aesthetic, and Water Conservation; Service Learning Projects: Hands-on Learning Projects for the Community.

Scholarship Statement

With a responsibility to prepare students for the work force, my scholarly work is focused on applied research and service learning projects to provide hands-on practical experience.

Selected Publication

Department of Energy 2015 Solar Decathlon Project Competition: co-principle investigator with Gareth Figgess Presentation, 2015.

Gareth Figgess

MBA Business Administration
California State University, Sacramento '11
Associate Professor
Chair, Department of
Construction Management

Teaching Interests

Heavy—Civil and General—Engineering Construction Cost-estimating and Management; Construction Surveying and Layout; Engineering Properties of Soils; Engineering Properties of Construction Materials.

Areas of Scholarship

Net-Zero Residential Construction - U.S. Department of Energy Solar Decathlon; Case-based Learning at the Undergraduate Level.

Scholarship Statement

My work has brought students together from several disciplines across campus to build a home that produces more energy than it consumes. Our work will advance the current methods of residential construction to a more energy-efficient standard.

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CONSTRUCTION MANAGEMENT

Karen Lee Hansen

Ph.D. Civil Engineering
Stanford University '93
Professor

Teaching Interests

C. E. Professional Practice; Sustainable Design and Construction; Project Management; Innovative Project Delivery.

Areas of Scholarship

Civil Engineering Professional Practice; Sustainability and Infrastructure Resilience; Design Build and Integrated Project Delivery.

Scholarship Statement

I am highly motivated to communicate the value of C. E. and C. M. to those outside the profession as a way of elevating the public discussion regarding our decaying infrastructure and of attracting potential students.

Selected Publication

Hansen, Karen L. & Zenobia, Kent E. (2011). *Civil Engineer's Handbook of Professional Practice.* ASCE and John Wiley & Sons, Hoboken, NJ.

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Jason Miller

MBA Business Administration
California Bapitist University '21
Assistant Professor

Teaching Interests

Construction Management, Project Management, Scheduling, and Estimating

Areas of Scholarship

Construction Ethics and Business Culture, and Construction Leadership

Scholarship Statement

I am focused on improving the industry to enhance the organizational culture and cultivate an inclusive, ethical, and sustainable environment.

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CONSTRUCTION MANAGEMENT

Atefeh Mohammadpour, P.E., PMP

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Pennsylvania State University '14
Assistant Professor

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Teaching Interests

Construction Surveying & Layout, Cost Estimating, Project Management and Planning, Construction Safety, and Sustainable Construction.

Areas of Scholarship

Artificial Intelligence Applications in Construction Industry, Sustainable Construction, and Construction Safety.

Scholarship Statement

As my interdisciplinary research interests have evolved over the years, I have focused on innovative approaches to using artificial intelligence, various aspects of sustainability, and preventive measures to improve safety in the construction industry.

Selected Publication

Mottahedi. Multi-linear regression models to predict the annual energy consumption of an office building with different shapes. Procedia engineering. 2015;118. doi:10.1016/j.proeng.2015.08.495

Tarek Salama
Ph.D. Building Engineering
Concordia University '18
Assistant Professor

Teaching Interests

Project Management; Modular Construction; Planning and Scheduling; Cost Estimating; Lean Construction; Building Information Modeling.

Areas of Scholarship

Optimized Planning and Scheduling for Modular and Offsite Construction; BIM and Lean tools for Modular Construction.

Scholarship Statement

With my research and industrial experience, I develop cross-disciplinary research topics in construction management, modular construction, and structural engineering. These cross-disciplinary topics allow students to explore the theoretical background and understand the links among abstract theories and real-world applications.

Selected Publication

Salama, et al., "Near Optimum Selection of Module Configuration for Efficient Modular Construction," *Automation in Construction Journal*, ISSN 0926-5805, 83, pp. 316-329, 2017.

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Mahyar Zarghami,
Department Chair

Electrical and Electronic Engineers design electrical systems that generate and distribute power for lighting and transportation, as well as electronic systems such as computers, sensors and controls for robots, cell phones, and other communication devices. Electrical and Electronic Engineers build the technology—very large to very small—on which modern civilization depends.

ELECTRICAL & ELECTRONIC ENGINEERING

ELECTRICAL & ELECTRONIC ENGINEERING

Jean-Pierre R. Bayard

Ph.D. Electrical Engineering
University of Massachusetts, Amherst '90
Professor

Teaching Interests

Circuits; Network Analysis, Electromagnetics

Areas of Scholarship

Use of technology in teaching and learning; Use of analytics for assessment.

Scholarship Statement

My research centers around the effective and evidence-based use of technology in teaching and learning: This includes the evaluation of new tools and their impact in the classroom and in other e-learning modalities and developing processes and methods for continuously evaluating the learning that takes place with these tools, while making the appropriate adjustments to increase student success.

Selected Publication

Kathy Fernandes, Brett Christie, Jean-Pierre Bayard & Leslie Kennedy, "Large-Scale Course Redesign: Putting Reflection Into Action," *Journal of Change: The Magazine of Higher Learning,* 51(3), pp 34 - 43, May 28, 2019.

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Dennis Dahlquist, P.E.

M.S. Biomedical Engineering
California State University, Sacramento '81
Full-time Lecturer

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Teaching Interests

Systems Design; Hardware and Software Systems; Circuits; Programmable Logic; Microprocessors and Micro-controllers; Incorporating Technology into Teaching Techniques.

Areas of Scholarship

Proven and Promising Course Redesign; Professional Engineering; Licensing and Review Courses; Center for Teaching and Learning Mentor to Help Faculty Incorporate Techniques and Technology into Teaching.

Scholarship Statement

I am looking for systems engineering solutions to today's problems and ways to help the community and industry provide better solutions to the challenging situations faced in today's world.

Selected Publication

Chancellor's Office proposal and grant for Proven Course Redesign for Engineering Electric Circuits using MIT's edX MOOC 6002.x course materials, 2013 to 2014.

Mohammed Eltayeb

Ph.D. Electrical Engineering
University of Akron '14
Associate Professor

Teaching Interests

Communication Systems; Wireless Systems; Digital Signal Processing; Computer Networks.

Areas of Scholarship

Analysis of Millimeter Wave Systems for 5G; Hybrid Precoding and Channel Estimation; Millimeter Wave Connected Vehicles.

Scholarship Statement

The abundance of bandwidth in the millimeter wave (mmWave) spectrum enables gigabit-per-second data rates for cellular and local area networks. My work revolves in the analysis and design of mmWave systems and their applications in cellular and vehicular networks.

Selected Publication

M. Eltayeb, J. Choi, T. Al-Naffouri, and R. Heath, ``Enhancing Secrecy with Multi-Antenna Transmission in Millimeter Wave Vehicular Communication Systems,'' *IEEE Transactions on Vehicular Technology,* no.99, pp.1-1, 2017.

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Amir Javan Khoshkholgh

Ph.D. Electrical Engineering
Polytechnic University of Turin, Italy '15
Assistant Professor

Teaching Interests

Electric circuits, Signals and systems, Electronics, Analog and mixed signal integrated circuits

Areas of Scholarship

Bioelectronics, Wearable and implantable medical devices, Bioinstrumentation, Signal acquisition and processing of human neurophysiology.

Scholarship Statement

Medical electronics and emerging point-of-care technologies have transformed the concept of public health. The development of wearable devices for continuously monitoring human biomarkers and intelligent implantable systems for delivering electroceutical therapies is the foundation for the prognosis and treatment of a broad spectrum of neurophysiological disorders

Selected Publication

Javan-Khoshkholgh A., & Farajidavar A. (2019). An Implantable Inductive Near-Field Communication System with 64 Channels for Acquisition of Gastrointestinal Bioelectrical Activity. Journal of Sensors. 19(12), e2810.

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Preetham B. Kumar

Ph.D. Electrical Engineering
Indian Institute of Technology (IIT)
Madras, India '93
Professor

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Teaching Interests

Electric Circuits; Electro-magnetics; Communication Systems; Wireless Systems; Digital Signal Processing (DSP); Microwave Engineering.

Areas of Scholarship

Design of RF and Microwave Systems for Wireless Applications; Broadband Antenna Array Design; Microwave Hyperthermia Systems for Adjuvant Cancer Treatment.

Scholarship Statement

The design of high frequency circuits and antennas for wireless systems, and the application of microwave and Radio frequency (RF) energy for cancer therapy by hyperthermia or heat treatment.

Selected Publications

B.P. Kumar, *Digital Signal Processing Laboratory,* CRC Press, 2nd Edition, January 2005.

U.S. Patent 6998930: Tabatchnick, Johnson, Kumar & Thakkar, "Miniaturized Planar Microstrip Balun," February 2006.

Milica Markovic

Ph.D. Electrical Engineering
University of Colorado, Boulder '97
Professor

Teaching Interests

Electromagnetics; Microwave Engineering; Antennas.

Areas of Scholarship

Modeling of High-efficiency Communication Circuits; Quasi-optical Circuits and Metamaterials.

Scholarship Statement

Microwave circuits and antennas enable communication devices to move around unobstructed by cables. My scholarship revolves around understanding how to make devices more efficient so that the batteries in devices last longer.

Selected Publication

Abulghasim, Mohanad, Justin Tabatchnick, and Milica Markovic. "Comparison of Embedded Coplanar Waveguide and Stripline for Multi-Layer Boards." in *Journal of Signal Integrity,* April 2019.

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ELECTRICAL & ELECTRONIC ENGINEERING

Praveen Meduri

Ph.D. Electrical Engineering
Old Dominion University '11
Associate Professor

Teaching Interests

Electronics, Circuit Design, Embedded Systems, Digital VLSI Design and Analog Integrated Circuits.

Areas of Scholarship

Analog and Digital VLSI Design, Ultra Low-power Subthreshold Logic Design, MEMS Design, Computer Aided Design of Integrated Circuits.

Scholarship Statement

My main research agenda is to apply rigorous mathematical techniques like global optimization algorithms to automate the design of Analog Subsystems. These analog subsystems find applications in fields ranging from MEMS inertial sensors to hearing-aid devices and other embedded systems.

Selected Publication

Praveen K. Meduri & Shirshak K. Dhali, A *Methodology For Automatic Transistor-Level Sizing Of CMOS OpAmps*, proceedings of IEEE 24th Int. Conference on VLSI Design, 2011.

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Rohollah Moghadam
Ph.D. Electrical Engineering
Missouri University of Science and Technology, '20
Assistant Professor

Teaching Interests

Control Systems, Neural Network, Machine Learning, Robotics, Embedded Systems Design

Areas of Scholarship

Systems and Control, Distributed Control of Multi-agent Systems, Cyber-physical Systems, Robot Decision and Control, Neural Network, Machine Learning in Feedback Control Systems, Reinforcement Learning, Embedded Systems

Scholarship Statement

Developing novel learning-based control approaches for complex feedback systems, designing and implementation of cooperative control for multi-robot applications and researching novel resilient control protocols for cyber-physical systems under cyber-attacks;

Selected Publications

R.Moghadam & Modares, "Resilient Autonomous Control of Distributed Multi-agent Systems in Contested Environments", IEEE Transaction on Cybernetics, 2019, 49(11), 3957-3967

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Zahra Najafi

Ph.D. Biomedical Engineering
University of Akron, Ohio '15
Assistant Professor

Teaching Interests

Embedded Systems; Digital Design and Analysis; Digital Signal Processing; Biomedical Instrumentation.

Areas of Scholarship

Wearable Monitors; Digital System Design; Biomedical Device Development.

Scholarship Statement

My research focuses on the field of embedded systems design, which is an integration of concepts from signal processing, computer programming, and electronics with the practical side of designing and implementing circuits for medical and wearables applications

Selected Publications

Mahajan A. and Najafi Z. (2017). Surgical Apparatus with Force Sensor for Extraction of Substances within the Body. US Patent Publication Number: 20170020541.

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Jing Pang

Ph.D. Electrical Engineering
Ohio University '03
Professor

Teaching Interests

Digital Design and Analysis; Microcomputers; Static Timing Analysis.

Areas of Scholarship

Digital Design; Microcomputers; Digital System Analysis.

Scholarship Statement

Most of my research revolves around trying to understand how digital design can be optimized for performance and cost. My discoveries help make digital design more affordable.

Selected Publications

J. Pang, "Variance Window Based Car License Plate Localization," *Journal of Computer and Communications,* 2014

J. Pang, "Remote Hand Motion Detection and Monitoring with Noise Reduction," Chapter 12, *IAENG Transactions on Engineering Technologies Lecture Notes in Electrical Engineering,* Vol. 170, Springer Publication, 2013.

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Tracy Toups

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Louisiana State University '15
Associate Professor

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Teaching Interests

Power: Quality, Theory, Systems, Protection, and Electronics.

Areas of Scholarship

Power quality of power systems and microgrids in the presence of non-sinusoidal and/or unbalanced voltages and currents; Advanced metering infrastructure's adoption of power quality identification and metering; Power quality issues with power electronics and protection devices.

Scholarship Statement

Power quality is an issue with the traditional power system's adoption of new technology. Investigating century-old power theories and standards will help us understand and create a more efficient and durable power system.

Selected Publication

Toups T.N., "Designing a Dynamic Balancing Compensator for Unbalanced Loads in a Three Phase Power System" IGESSC 2019.

Suresh Vadhva

Ph.D. Electrical and Computer Engineering
University of New Mexico '82
Professor

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Teaching Interests

Computer System Design; Computer Architecture and Organization; Digital Systems.

Areas of Scholarship

Smart Grid; Computer System Design and Architecture.

Scholarship Statement

My research focuses on Smart Grid, Computer Architection and System Design.

Selected Publication

Tatro, R., Vadhva, S., Kaur, Puneet, Shahpatel, Niral, Dixon, Jeremy, Alzanoon, & Karim. "Building to Grid (B2G) at the California Smart Grid Center." Presented at IEEE IRI International Conference, Las Vegas, NV. 2010.

Atousa Yazdani

Ph.D. Electrical Engineering
Missouri University of Science and Technology '09
Associate Professor

Teaching Interests

Electromechanics; Power Electronics; Power System.

Areas of Scholarship

Power Electronics and their Application in Power System; Power System Dynamic Analysis; Power Quality.

Scholarship Statement

I am interested in researching new methods for control and maintenance of the power grid, challenged by intermittent generation. Also, I am willing to work on implementation and optimization of possible solutions to enhance system reliability and quality of energy delivery.

Selected Publication

Yazdani, A.; Sepahvand, H.; Crow, M.L.; Ferdowsi, M.,"Fault Detection and Mitigation in Multilevel Converter STATCOMs," *IEEE Transactions on Industrial Electronics,* 2011, vol. 58, no. 4. pp. 1307-1315.

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Mahyar Zarghami

Ph.D. Electrical Engineering
Missouri University of Science and Technology '08
Professor
Chair, Department of Electrical and Electronic Engineering

Teaching Interests

Power system analysis; FACTS and HVDC; Power system dynamics and stability; Renewable energy systems.

Areas of Scholarship

Power system dynamics and stability, Applications of FACTS and HVDC in the operation and control of power systems; Integration of renewables in power systems; Modeling and simulation of transmission and distribution systems; Applications of synchronized measurements in wide-area control and protection of power systems.

Scholarship Statement

I am interested in improving the operation, control, and reliability of electric power systems through implementation of new technologies.

Selected Publication

"A Wide-Area Loss-Index based method for voltage instability protection," selected as one of the best conference papers in IEEE PES General Meeting, 2014.

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Troy D. Topping,
Department Chair

Mechanical engineers design complex systems of machinery and equipment used in transportation, manufacturing and energy production such as aircraft, earthbound vehicles, power generation plants, manufacturing equipment, food production, robotics, biomedical devices, computer systems and components. Mechanical engineers create the devices used in our everyday lives and design the technology that will define the future.

MECHANICAL ENGINEERING

Estelle M. Eke

Ph.D. Aeronautics and Astronautics
Rice University '85
Professor

Teaching Interests

Controls; Dynamics; Programming with Matlab and Simulink.

Areas of Scholarship

Controls; Dynamics; Modeling of Mechatronics Systems.

Scholarship Statement

Use of computer simulations and hands-on approaches to design control systems that satisfy some desired outcome are essential skills for engineers. For example, robots apply principles of controls in performing tasks that are hazardous to humans.

Selected Publication

Eniko T. Enikov and Estelle Eke, "Teaching a Classical Control System Course with Portable Student-owned Mechatronics Kits," *ASME 2012 International Mechanical Engineering Congress and Exposition,* Volume 5: Education and Globalization, 2012.

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Jose J. Granda

Ph.D. Mechanical Engineering
University of California, Davis '82
Professor

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Teaching Interests

Modeling and Simulation of Mechatronics and Control Systems; Dynamic Finite Elements Analysis of Rigid and Flexible Multi-body Systems; Vehicle Dynamics and Design (Ground and Space Vehicles).

Areas of Scholarship

Computer Simulation Methods to assist Engineers and Scientists; Dynamic Systems Design and Research; 3D Computer Models using Solid Modeling and Finite Elements; Bond Graph Modeling Technique as applied to Mechatronics and Control Systems.

Scholarship Statement

Computer models and simulations provide engineers and scientists with tools to understand complex systems before anything is built.

Selected Publication

Borutzky, & Granda "Bond Graph Modelling of Engineering Systems: Automating the Process for Modeling and Simulation of Mechatronics Systems," ISBN 978-1-4419-9367-0, 2011.

MECHANICAL ENGINEERING

Patrick Homen

M.S. M.E. Candidate California State University, Sacramento '16
B.S. Biological Sciences, University of California, Davis '79
Full-time Lecturer

Teaching Interests

Material Science; Engineering Mechanics; Composite Materials.
Named outstanding teacher by the College of Engineering and Computer Science in 2012 for his role advising Tau Beta Pi, the engineering honor society; Named their National Outstanding Advisor in 2009. www.csus.edu/sacstatenews/facultyexcellence/homen.html

Areas of Scholarship

Biomedical Engineering; Mechanical Engineering; Composite Materials.

Scholarship Statement

My scholarship curricula and research are focused on sustainability issues in society.

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Mariappan "Jawa" Jawaharlal

Ph.D. Mechanical Engineering
University of Massachusetts, Amherst '94
Professor
Associate Dean, College of Engineering and Computer Science

Teaching Interests

Engineering Mechanics, Machine Design, Mechanisms, Robotics, Biomimetics, and Engineering Entrepreneurship.

Areas of Scholarship

Biomimicry, Product design, Curriculum and Pedagogy.

Selected Publications

Jawaharlal, M., Vargas, G., and Gutierrez, L. "The Plant Kingdom in Engineering Design: Learning to Design from Trees." Proc. of the ASME 2017 Int. Mech. Engin. Congress & Exposition. Vol. 11: Systems, Design, and Complexity. Tampa, Florida, USA. Nov. 3–9, 2017.

Jawaharlal, M., Ellingwood, S., and Thokchom, K. "Life Centered Design Using Morphological Chart." Proc. of the ASME 2016 Int. Mech. Engin. Congress & Exposition. Vol. 11: *Systems, Design, and Complexity.* Phoenix, Arizona, USA. Nov. 11–17, 2016.

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MECHANICAL ENGINEERING

Akihiko Kumagai

Ph.D. Mechanical Engineering
University of Wisconsin, Milwaukee '93
Professor

Teaching Interests

Manufacturing Processes; Product Development; Industrial Controls and Automation.

Areas of Scholarship

Manufacturing; Robotics; Automation; Mechatrnoics; Medical devices.

Scholarship Statement

My scholarly work focuses on designing and developing mechanical systems for applications such as manufacturing, medical devices, miniature mechanisms, and space exploration.

Selected Publication

Mojica, J., Kumagai, A., and Marsh, S., "Vibration Suppression Drafting Arm for Tremor Patients," Proceedings of the ASME International Mechanical Engineering Congress and Exhibition, San Diego, CA, November, 2013, Paper No. IMECE2013-65217.

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Tim Marbach

Ph.D. Mechanical Engineering
University of Oklahoma '05
Professor

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Phone (916) 278-6089 Office RVR 4038

Teaching Interests

Thermodynamics and Thermal-Fluid Systems; Sustainable Energy Systems (Bioenergy, Solar Thermal, Geothermal, Energy Storage, etc.).

Areas of Scholarship

Food and Brewery Process Technology and Packaging; Sustainable Energy and Energy Efficiency; Heat and Fluid Flow.

Scholarship Statement

Current externally-funded research projects include appliance energy efficiency testing for the California Energy Commission and computational analysis of sprinter aerodynamics.

Selected Publication

Marbach, T.L., "Significant Learning in Renewable Energy," Proceedings of the 121st ASEE Annual Conference and Exhibition, Paper No. 8622, 2014.

MECHANICAL ENGINEERING

Alan Meier, P.E.

Ph.D. Metallurgical & Materials Engineering
Colorado School of Mines '94
Assistant Professor

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Teaching Interests

Materials Science and Engineering: Introduction to Materials, Physical Metallurgy, Mechanical Behavior, Ceramics, Materials Selection and Design, and Composites/Lightweight Materials.

Areas of Scholarship

Materials Engineering; Surfaces and Interfaces; Mechanical Behavior; Lightweight Materials; Failure Analysis.

Scholarship Statement

My research is based on understanding the relationships between processing, microstructure, and mechanical properties for ceramic brazing, general composite interfaces, surfaces, and bulk materials including wetting, reaction kinetics, microstructural characterization, and the evaluation of mechanical properties.

Selected Publication

Meier, et al. "Microstructural Development and Mechanical Properties for Reactive Air Brazing of ZTA to Ni Alloys Using Ag-CuO Braze Alloys", *Advanced Engineering Materials,* 16 [12] (2014).

Marcus Romani

M.S. Mechanical Engineering
California State University, Sacramento '05
Full-time Lecturer

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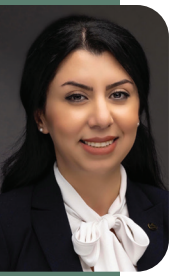
Teaching Interests

HVAC Analaysis and Design; Heat Transfer; Solar Thermal Systems.

Areas of Scholarship

Passive Solar Design for Buildings; Night Sky Radiative Cooling.



MECHANICAL ENGINEERING

Sarvenaz Sobhansarband

Ph.D. Mechanical Engineering
University of Texas, Dallas, '17
Assistant Professor

Teaching Interests

Thermal and Fluid Sciences, Applied Thermodynamics, Heat Transfer, Advanced Heat Transfer, HVAC

Areas of Scholarship

Solar Thermal, Thermal Energy Storage, Thermal Management Systems, Computational Fluid Dynamics, Thermal and Energy Analysis.

Scholarship Statement

My research work is in the area of thermal and fluid sciences, with the focus on solar thermal technologies and energy storage systems, as well as design/optimization of thermal management systems (TMS) for high power applications. These efforts include CFD/hybrid numerical modeling and experimental analysis.

Selected Publication

Pawar, V. R., & Sobhansarbandi, S. (2020). CFD modeling of a thermal energy storage based heat pipe evacuated tube solar collector. Journal of Energy Storage, 30, 101528.

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Professor
Graduate Coordinator

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Teaching Interests

Mechanical and Machine Design; Dynamics; Mechatronics; Tolerance Analysis; Computer Aided Design.

Areas of Scholarship

Manufacturing Technology.

Scholarship Statement

My research is in the area of generating new methods for converting CAD geometry into five-axis CNC tool paths. My research should make it easier to connect a desired surface geometry to the actual kinematics of the machine tool that will create the surface. I am also interested in finding new ways to interpret/teach tolerance analysis for product design.

Selected Publication

K. Sprott and B. Ravani, Cylindrical milling of ruled surfaces, *International Journal of Advanced Manufacturing Technology,* 2008; 38:649-56.

MECHANICAL ENGINEERING

Yong S. Suh

Ph.D. Mechanical Engineering
Rensselaer Polytechnic Institute '95
Professor

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Teaching Interests

Computer-Aided Design; Computer-Aided Manufacturing; Engineering Graphics; Machine Design; Design Theory and Methodology; Product Design.

Areas of Scholarship

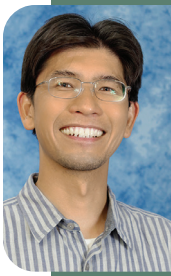
CAD/CAM Product Design; Computer-aided Design Automation, Shape and Geometric Modeling; Simulations; Computer graphics applications.

Scholarship Statement

Computer integrated design and manufacturing enhances the creativity of quality products, decreasing the costs of the product life-cycle and impact on the environment.

Selected Publication

Suh, "Development of educational software for beam loading analysis using pen-based user interfaces," *Journal of Computational Design and Engineering,* 1 (1), 2014.



Hong-Yue (Ray) Tang

Ph.D. Mechanical and Aeronautical Engineering '09
University of California, Davis
Assistant Professor

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Phone (916) 278-5294 Office RVR 5034

Teaching Interests

Manufacturing; Control Systems; Intelligent Systems; and Mechatronics.

Areas of Scholarship

Multi-physics modeling of complex systems; Energy systems; Sustainable technologies; and Manufacturing technologies: robotics, simulation, and automation.

Scholarship Statement

Effective use of resources is important. As engineers, we turn design ideas into reality to improve quality of life. My work focuses on design, manufacturing, and related areas to enable a sustainable future.

Selected Publication

Hong-Yue Tang, Anthony D. Santamaria, John Bachman, Jae Wan Park, "Vacuum-assisted Drying of Polymer Electrolyte Membrane Fuel Cell," *Applied Energy,* 107, pp. 264-270, 2013.

MECHANICAL ENGINEERING

Troy D. Topping

Ph.D. Materials Science and Engineering
University of California, Davis '12
Professor
Chair, Department of Mechanical Engineering

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Phone (916) 278-6658 Office RVR 4011

Teaching Interests

Engineering Materials; Mechanical Behavior of Materials; Synthesis, Processing and Characterization of Advanced Materials; Materials for Extreme Environments; Research Methods.

Areas of Scholarship

Nanostructured Aluminum Alloys and Their Composites; Thermomechanical Processing of Ultra-fine Grained Materials; Ultra-high Performance Materials for Extreme Environments; Powder Metallurgy.

Scholarship Statement

My research on developing ultra-high performance materials to be implemented for extreme applications such as vehicle armor, aerospace, and oil and gas exploration can save lives and conserve energy in the long term.

Selected Publication

L. Kurmanaeva, T. D. Topping, et al., "Strengthening mechanisms and deformation behavior of cryo-milled Al–Cu–Mg–Ag alloy," *Journal of Alloys and Compounds,* vol. 632, 2015.

Ilhan Tuzcu

Ph.D. Mechanical Engineering
Virginia Polytechnic Institute and State University '01
Professor

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Teaching Interests

Dynamics, Vibrations, Controls, Advanced Dynamics, Flight Dynamics, Aircraft Structures, Advanced Engineering Mathematics.

Areas of Scholarship

Dynamics and control of flexible aircraft and spacecraft, Thermoelasticity and its control, Stability and control theory.

Scholarship Statement

My research in the area of dynamics and control of flexible aircraft can help design more flexible, and hence, lighter aircraft, consuming less fuel. This results in more cost-efficient and environment-friendly flight.

Selected Publication

Tuzcu, I. and Nguyen, N, "Flutter of Maneuvering Aircraft," ASCE *Journal of Aerospace Engineering*, 28(4), 2015.

Rustin Vogt

Ph.D. Material Science Engineering
University of California, Davis '10
Professor

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Teaching Interests

Product Design and Manufacturing; Manufacturing Processes; Dynamics; Materials Science; Materials Selection in Design.

Areas of Scholarship

Experimental Characterization of Engineering Materials; Mechanical Behavior, Strain Rate and Fatigue; Composite Materials; Design for Manufacturability.

Scholarship Statement

My research focus is on characterization of composite materials for use in structural and high temperature applications, and design for manufacturability in the context of material selection in design.

Selected Publication

A. Wion, R. Vogt. "Acoustic Properties of Carbon Fiber in Percussive Instruments. American Society of Acoustics," presented at the 166th Meeting of the Acoustics Society of America. 2013.

Farshid Zabihian

Ph.D. Mechanical Engineering
Ryerson University '11
Associate Professor

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Teaching Interests

Thermodynamics; Advanced Thermodynamics; Power Plant Engineering; Renewable Energy Systems (Solar, geothermal, Bioenergy, and energy storage); Energy and Modern Life.

Areas of Scholarship

Biomass Power Generation Systems; Fuel Cells; Renewable Energy Systems (Solar, Wind, Ocean, etc.); Engineering Pedagogy.

Scholarship Statement

My research focus is on sustainable electricity generation including renewable energy resources and advanced/improved fossil fuel power plants through experimental and numerical approaches.

Selected Publication

Zabihian, F., Power Plant Engineering, CRC Press (Taylor & Francis Group), U.S.A., (about 1250-page textbook with 16 chapters and 362 figures), June 2021.

CIVIL ENGINEERING

PART-TIME FACULTY

Al Murib, Muhanned
Alderete, David J.
Arbor, Joy Tamara
Arrigo, Deanna L.
Asghari Mooneghi, Maryam
Bhuiyan, Nasima
Burns, Robert
Chaudlhuri, Debanik
Dosen, David M.
Ellis, Douglas
Gharachorloo, Arsalan
Granicher, Tod
Hakim, Hamid
Harrison, Alex
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Jin, Yujie
Jones Penn, Azizi H.
Kartoum, Allaoua
Kim, Changmo
Lamb, Steven
Lim, Seungwook (David)
Mahallati, Reza
Meyer, Scott E.
Monzon, Eric
Ouchida, Peter K.
Raghavendrachar, Madhwesh
Reggad, Naima
Rizvi, Hashim Raza
Rud, Jeffrey
Safi, Samsor
Salveson, Matthew
Scott-Hallet, Kimberly D.
Varela-Fontecha, Sebastian

COMPUTER SCIENCE

PART-TIME FACULTY

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Biel, Ruthann
Cantillo, Fernando
Chidella, Jagannadha
Cook, Devin
Elliot, Kenneth
Faroughi, Gita
Grove, Christopher B.
Hammon, Daniel

Hashemi, Hashem
Huang, Mei Ni
Kane, Gary J.
Mitchell, Bill
Mukarram, Abida
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Phillips, Matthew
Posnett, Daryl
Rajiyah, Harindra
Sabzevary, Iraj
Siddique, Maryam
Swamy, Shankar N
Tajlil, Holly

CONSTRUCTION MANAGEMENT

PART-TIME FACULTY

Amend, Matthew D.
Baker, John A.
Biery, John E.
Bushman, Carrie E.
Chand, Himanshu
Farshchi, Steven
Frandrup, Kurt
Gallion, Joel T.
Glankler, Kyle C.
Kutsar, Yevgeny
Leon, Adam
Liclican, Keoni L.
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Mansourirad, Zahra
Meier, Henry
Neumann, David A.
Obregon, Matthew
Parker, Nicholaus
Podva, Forest
Saelee, Gning H.
Sieberg, Pau
Snyder, Brett
Steiner, Neil
Waters-lopez, Ruth

ELECTRICAL & ELECTRONIC ENGINEERING

PART-TIME FACULTY

Aguilar Rudametkin, Sergio Isaac
Ahmad, Riaz
Burnside, Scott R.
Cloninger, Anna R.
Cottle, James G.
Dahlquist, Dennis L.
Kennedy, Sean Patrick
Khanabadi, Mojataba
Khazane, Nitish
Kleeburg, Travis
Landis, Lawrence
Levine, Neal F.
Lyons, Thomas
Mearns, James
Mensah-Bonsu, Chris
Moyer, Kristopher S.
Quilici, James
Rabi, Mohammad
Rahman, Masoud
Ravuri, RK
Rucker, Donald L.
Saghaimaroof, Maghsoud
Salahi, Amir
Shah, Jagat G.
Sidhu, Harpreet S.
Taheri, Monsour
Wekanda, Samuel

MECHANICAL ENGINEERING

PART-TIME FACULTY

Awni, Kahtan
Bell, Michael M.
Braden, David P.
Brummer, Eric L.
Chakroborty, Shyama P.
Chen, Wenying
Fernandez, Steven
Gloekler, Toby L.
Hahn, William D.
Homen, Patrick D.
Liu, Tien-I
Rajiyah, Harindra
Romani, Marcus J
Rowell, Michael Douglas

Sahragard-Monfared,
Gianmarco
Sandoval, Ignacio
Savarino, Christopher

INDEX

Our hope is that this book will help students guide their educational careers, that it will promote interdisciplinary discussions among the faculty, and that it will help foster productive connections among research, workforce, and industry.

This book has come about through the efforts of the College of Engineering and Computer Science's faculty and staff for the content; of Dean Kevan Shafizadeh for the inspiration and his aspiration for a strong engineering, computer science, and construction management community; of Cynda Dart for the project management; of Deborah Frost and Jesse Garcia for the graphic design; and of John Jones for the photographs.

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