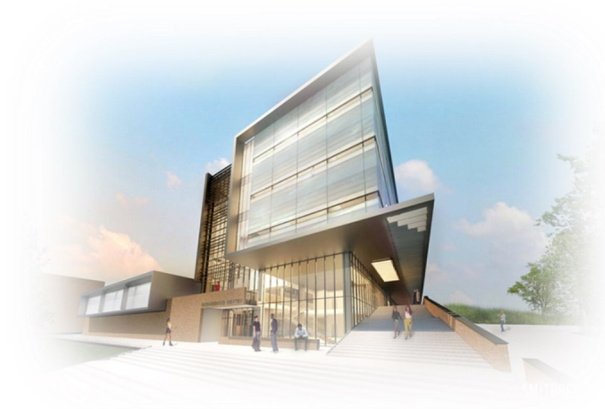


OAKLAND UNIVERSITY

SCHOOL OF ENGINEERING AND COMPUTER

FACULTY RESEARCH PROFILES

Winter 2014



Office of the Dean
School of Engineering and Computer Science
248 Dodge Hall of Engineering
2200 North Squirrel Road
Rochester, MI 48309-4478

Visit us at oakland.edu/secs
Phone: (248) 370-2217
Fax: (248) 370-4261
Email: secsdean@oakland.edu

EXPECTED FALL 2014

NEW FACULTY FOR THE FOLLOWING RESEARCH AREAS

Computer Science & Engineering

1— Software Engineering

1— Programming Languages

Electrical & Computer Engineering

1— Computer Architecture

Industrial & Systems Engineering

1— Product Lifecycle Management

Mechanical Engineering

1— Advanced Manufacturing Processes

1— CAD

Edited by Haroldeane Perzyk, CAP



Qian Zou
Ph.D.
Tsinghua University (China)

Associate Professor
Mechanical Engineering Department

Email: qzou@oakland.edu
Phone: (248) 370-2271
secs.oakland.edu/~qzou

Teaching

Statics and Dynamics; Mechanics of Materials; Analysis and Design of Mechanical Structures; Lubrication, Friction and Wear; Advanced Tribology

Research

Automotive Tribology, Wear and Scuffing - Modeling and Testing, Nanofluids, Lubrication Theory, Contact Mechanics Analysis. *"I perform fundamental and applied research for lowering frictional energy losses and enhancing reliability and durability of mechanical components."* Qian Zou, 2013

Selected Publications

1. "Friction and Wear Characteristics of Oil Based ZnO Nanofluids," *Tribology Transaction*, Vol. 56, No.2, p236-244, 2013
2. "Investigation of surface characteristics and tribological behavior of clutch plate materials," *Wear*, Vol. 302, No. 1-2, p1378-1383, 2013
3. "Evolution of Contact Characteristics during a Scuffing Process," *Tribology Transactions*, Vol.56, No.4, p58-64, 2013
4. "Study of the Motion of Floating Piston Pin against Pin Bore," *SAE Int. J. Engines*, 6(2), 2013
5. "Friction and Wear Characteristics of Water-Based ZnO and Al₂O₃ Nanofluids," *Tribology Transactions*, Volume 55, Issue 3, p345-350, 2012
6. "Study of the Effects of Austempering Temperature and Time on Scuffing Behavior of Austempered Ni-Mo-Cu Ductile Iron," *Wear*, Vol. 290-291, p99-105, 2012
7. "Scuffing Behavior of Gray Iron and 1080 Steel in Reciprocating and Rotational Sliding," *Wear*, Vol. 271, No. 9-10, pp. 1854-1861, July 29, 2011
8. "Wear Measurement of the Cylinder Liner of a Single Cylinder Diesel Engine Using a Replication Method," *Wear*, Vol. 268, No. 3-4, pp. 558-564, 2010

Welcome from the Dean

As Dean of the School of Engineering and Computer Science (SECS), I am committed to supporting the ad-



vancement of our faculty's research, which is not only disseminated to their colleagues worldwide, but also integrated into our curriculum for our students' benefit. Our applied research spans across a wide range of fields, including those related to national security, medical applications, the automotive industry, and military programs. You are invited

to explore this booklet as you investigate how our School of Engineering and Computer Science faculty can serve your research needs.

- Louay Chamra, Dean and Professor

About the School of Engineering and Computer Science

SECS comprises four departments:

- **Computer Science and Engineering**
- **Electrical and Computer Engineering**
- **Industrial and Systems Engineering**
- **Mechanical Engineering**

Approximately 1,400 undergraduate students and 450 graduate students are enrolled in SECS programs, which are administered at the B.S., M.S., and Ph.D. level. Also part of SECS is its SmartZone Business Incubator (oakland.edu/ouinc), which provides entrepreneurial resources and strategic business solutions to develop and commercialize intellectual property. The SmartZone Business Incubator is home to the Clean Energy Research Center (CERC). Primary contacts for the SmartZone Business Incubator are provided below.



Amy Butler
Executive Director
SmartZone Business Incubator
aabutler@oakland.edu
(248) 648-4800



Jim Leidel
Director of Clean Energy Systems
SmartZone Business Incubator
leidel@oakland.edu
(248) 648-4805

Lianxiang Yang
Ph.D.
University of Kassel (Germany)

Professor
Mechanical Engineering Department

Email: yang2@oakland.edu
Phone: (248) 370-2283



Teaching

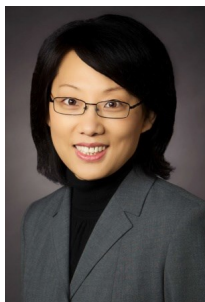
Optical Measurement and Quality Inspection; Advanced Optical Methods in Experimental Mechanics; Mechanics of Materials; Materials Properties

Research

Development and application of advanced optical techniques for experimental strain/stress analysis, nondestructive testing and material evaluation, vibration measurement, microstructure and MEMS measurement; and design validation and optimization. *"The high demands on product quality and reliability has led to the need for highly efficient measuring methods. Research on advanced optical techniques that are real time, whole-field and non-contact-based has a significant impact on improvement of product quality and reliability in automotive, aerospace, high tech and biomedical engineering."* Lianxiang Yang, 2013

Selected Publications

1. L.X. Yang, X. Xie, N. Xu and X. Chen, "Fast non-destructive testing under dynamic loading," Invited paper for *SPIE Newsroom*, in press, 2013.
2. X. Chen, L.X. Yang (corresponding author), N. Xu, and X. Xie, B. Sia and R. Xu, "Cluster approach based multi-camera digital image correlation: Methodology and its application in large area high temperature measurement," Accepted by *Optics & Laser Technology*, in press 2013
3. M.Y. Hung, L.X. Yang and Y. H. Huang, "NDE Techniques: Shearography - a book chapter for Non-Destructive Evaluation of Polymer Matrix Composites: Methods and applications," *Woodhead Publishing Ltd*, ISBN 0-85709-344-4, June 2013
4. X. Xie, L.X. Yang (corresponding author), N. Xu and X. Chen, "Michelson interferometer based spatial phase shift shearography, *Applied Optics*, Vol. 52 (17), p.4063 - 4071, June 2013



Xia Wang
Ph.D.
Rensselaer Polytechnic Institute

Associate Professor
Mechanical Engineering Department

Email: wang@oakland.edu
Phone: (248) 370-2224
secs.oakland.edu/~wang

Teaching

Thermodynamics; Heat Transfer; Fluids Mechanics; Energy Systems Analysis; Fuel Cells; Batteries for EV and HEV

Research

Thermal Management of Battery Systems; Fuel Cell Modeling, Design and Diagnostics; Biomass Pellets Properties Characterization and Optimization; Turbulent Boundary Layers with Separation; Forced Convection Turbulent Boundary Layers.

Selected Publications

1. K. Inman and X. Wang, "In-Situ Temperature Measurement on Cathode GDL in PEMFC Using an Optical Fiber Temperature Sensor," *Journal of Electrochemical Society*, Vol. 160, Issue 6, F496-F500, 2013
2. S. Bazinski and X. Wang, "Applying Lumped Capacitance Method to Calculate Heat Rates in the Charge/Discharge of Prismatic Lithium Cells in Natural Convection," *ECS Transactions*, Vol. 45, Issue 29, pp: 75-84, 2013
3. S. Bazinski and X. Wang, "Determining Entropic Coefficient of the LFP Prismatic Cell at Various Temperature and Charge/Discharge States," *ECS Transactions*, Vol. 45, Issue 29, pp:85-92, 2013
4. J. Clement and X., Wang, "Experimental Investigation of Pulsating Heat Pipe Performance with regard to Fuel Cell Cooling Application," *Journal of Applied Thermal Engineering*, Vol. 50, Issue 1, pp.268-274, 2013
5. E. Petrach, I. Abu-Isa and X. Wang, "Percolation threshold study of a plastic-elastomeric matrix based composite material for bipolar plates in proton exchange membrane fuel cells," *Journal of Composite Materials*, Vol. 46, No. 23, pp.2959-2971, 2012
6. Z. Shi, and X. Wang, "Pore Structure Modeling of Flow in Gas Diffusion Layers of Proton Exchange Membrane Fuel Cells," *ASME Journal of Fuel Cell Science and Technology*, Vol. 9, 021001-021007, 2012

School of Engineering and Computer Science

Dean's Office

Dean Louay Chamra	(248) 370-2217
Associate Dean Lorenzo Smith	(248) 370-2233

Office Assistants

<u>Dean's Office</u>	
Jane Dietrich	(248) 370-2217
Haroldeane Perzyk	(248) 370-2233

<u>Computer Science and Engineering</u>	
Debbie Valla	(248) 370-2200

<u>Electrical and Computer Engineering</u>	
Markhanna McBurrows	(248) 370-2177

<u>Industrial and Systems Engineering</u>	
Maureen Callaghan	(248) 370-2989

<u>Mechanical Engineering</u>	
Brenda Bond	(248) 370-2210

<u>FAJRI</u>	
Linda Tuckfield	(248) 370-3780

<u>UG Advising Office</u>	
Marlene McKean	(248) 370-2201

UG Advisers

Carmen Etienne, Director	(248) 370-2201
Pat Bennett	(248) 370-2201
Jason Pennington	(248) 370-2201

Director of Development

Richard Rachner	(248) 508-7575
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SmartZone Business Incubator

Stephen Kent, Finance and Operations Coordinator	(248) 648-4800
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Debatosh Debnath
 Ph.D.
 Kyushu Institute of Technology (Japan)

Associate Professor
 Computer Science and Engineering Department

Email: debnath@oakland.edu
 Phone: (248) 370-2701

Teaching

Computer Architecture, Microprocessor-Based Systems, Logic Synthesis for Digital Systems, and Computer Networks

Research

Design and Optimization of Digital Circuits; CAD for Field-Programmable Devices; Decision Diagrams and Their Applications in VLSI CAD; Innovative Applications of FPGAs

Selected Publications

1. "Embedded Software Implementation of a Key Agreement Protocol Using 160-bit Elliptic Curve," *International Journal of Computers and Their Applications*, 2010
2. "Synthesis of Easily Testable AND-EXOR Networks," *International Journal of Computers and Their Applications*, 2011



Lorenzo M. Smith
 Ph.D.
 Michigan State University

Associate Dean
 Professor
 School of Engineering and Computer Science

Email: LSmith8@oakland.edu
 Phone: (248) 370-2233

Teaching

Mechanics of Materials; Statics, Dynamics; Mechanics of Sheet Metal Forming; Materials Properties

Research

Experimental analysis of sheet metal distortion in stamping processes; biomechanics; draw bead simulations; failure criteria in sheet metal; material property characterization. "Most of my research revolves around trying to understand how to stretch and bend sheet metal without tearing it. My discoveries help make your new car purchases more affordable and your new car driving experience safer." Lorenzo M. Smith, 2013

Selected Publications

1. L.M. Smith, Y.J. Zhou, D.J. Zhou, C. Du, and C. Wanintradul, "A New Experimental Test Apparatus for Angle Binder Draw Bead Simulations," *Journal of Materials Processing Technology*, 209, 2009
2. L.M. Smith, C. Wanintradul, W. Yang, and S. Jiang, "A New Experimental Approach for Obtaining Diffuse-Strain Flow Stress Curves," *J. of Mtls. Processing Tech.*, 209, 2009
3. X. Sun and L.M. Smith, "External heating closed-volume thermally activated tube forming: A fundamentally new approach for hydroforming thick-walled tubes," *Journal of Manufacturing Processes*, Vol. 12, Issue 2, 2010
4. L. Stewart, L.M. Smith and N. Hall, "A Numerical Investigation of Breast Compression: A Computer Aided Design Approach for Prescribing Boundary Conditions," *IEEE Trans. in Biomed. Eng.*, Issue 99, 2011
5. L. Brown and L. M. Smith, "A Simple Transversely Isotropic Hyperelastic Constitutive Model Suitable for Finite Element Analysis of Fiber Reinforced Elastomers," *Journal of Engineering Materials and Technology*, Vol. 133, 2011



James David Schall

Ph.D.
North Carolina State University

Assistant Professor
Mechanical Engineering Department

Email: schall@oakland.edu
Phone: (248) 370-2870

Teaching

Electromechanical Systems; Materials Properties and Processes; Polymer Materials; Polymer Processing

Research

Molecular simulation of tribology; Molecular simulation of diamond and diamondlike carbon films; Experimental and theoretical measurement of thermal and tribological properties of nanofluids; Hydrogen embrittlement of wind turbine bearings; Nanoindentation of graphene and graphane films; Development of interatomic potentials

Selected Publications

1. "The Effects of Interface Structure and Polymerization on the Friction of Model Self-Assembled Monolayers," *Tribology Letters*, 2011
2. "Interdisciplinary Sophomore Design at Oakland University," *ASEE North Central & Illinois-Indiana Section Conference*, 2011
3. "AERIM Automotive-themed REU Program: Organization, Activities, Outcome and Lessons Learned," *ASEE Annual Conference and Exposition*, 2011
4. "Evaluation of Thermal Conductivity and Viscosity of Water-based Al₂O₃ Nanofluids," *Society of Hispanic Professional Engineers Conference*, 2010
5. "Modeling Materials in Contact," *American Vacuum Society Annual Meeting*, 2010

Laura Dinsmoor

M.S.
Oakland University

Special Instructor
Computer Science and Engineering Department

Email: dinsmoor@oakland.edu
Phone: (248) 370-4591

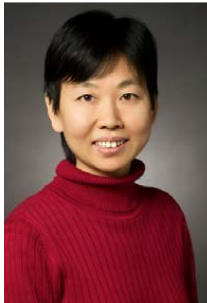


Teaching

Computer Problem Solving in Computer Science; Introduction to Computer Programming

Research

Computer Science Education; Increasing recruitment of women into Computer Science degrees. "*(I am) involved with National Center for Women & Information Technology (NCWIT), Michigan Celebration of Women in Computing (MICWIC) and outreach activities to encourage young women and girls to explore opportunities in the computer science field.*" Laura Dinsmoor, 2013



Huirong Fu
Ph.D.
Nanyang Technological University

Associate Professor
Computer Science and Engineering Department

Email: fu@oakland.edu
Phone: (248) 370-4456

Teaching

Introduction to Computer Networks, Advanced Computer Communication, Information Security Practice, and Information Security

Research

Information Assurance and Security; Wireless and Mobile Networks; Sensor Networks; Networks / Protocols / Applications; Internet Data Ctr; Multimedia Communication Systems; Resource Management and Quality of Service (QoS)

Selected Publications

1. Qing Wang, Supeng Leng, Huirong Fu, and Yan Zhang, "An IEEE 802.11p-based Multi-channel MAC Scheme with Channel Coordination for Vehicular Ad Hoc Networks," *IEEE Trans. on Intelligent Transportation Systems*, accepted.
2. Hesiri D. Weerasinghe, Raymond Tackett, and Huirong Fu, "Verifying Position and Velocity for Vehicular Ad-Hoc Networks," *Wiley Security and Communication Networks (SCN)*, vol. 4, no. 7, pp 785-791, 2011.
3. Supeng Leng, Huirong Fu, Qing Wang, and Yan Zhang, "Medium Access Control in Vehicular Ad Hoc Networks," *Wiley Wireless Communications and Mobile Computing*, vol. 11, pp.796-812, 2011.
4. Supeng Leng, Liren Zhang, Huirong Fu, and Jianjun Yang, "A Novel Location Service Protocol Based on K-Hop Clustering for Mobile Ad Hoc Networks," *IEEE Transactions on Vehicular Technology*, vol. 56, no. 2, pp. 810-817, 2007.



Brian P. Sangeorzan
Ph.D.
University of Wisconsin, Madison

Professor
Mechanical Engineering Department

Email: bsangeor@oakland.edu
Phone: (248) 370-2236

Teaching

Fluid Mechanics; Heat Transfer; Thermodynamics, Combustion, Nuclear Power Plants

Research

Internal Combustion Engines; Instrumentation and Optical Diagnostics; High-Speed Motion Photography; Heat Transfer and Fluid Mechanics in Thermal Systems. "Engine efficiency is often limited by component temperatures. Understanding and optimizing thermal processes are important steps toward improving engine efficiency." Brian Sangeorzan, 2013

Selected Publications

1. "Development of an Optical Sensor for Temperature Measurement and Water Droplet Detection in PEMFC Gas Channels," *ASME Energy Sustainability Conference and Fuel Cell Conference*, 2011
2. "A Relevant, Automotive-Themed Experiment that Teaches Fundamental Flow Rate Concepts and Experimental Uncertainty," *ASME Annual Conference and Exposition*, 2011
3. B. Sangeorzan and Y. Barber, "Development of an AMESim-Based Engine Thermal Management Model to Predict Piston and Oil Temperatures," *SAE International Congress and Exposition*, SAE Paper No. 2011-01-0647, 2011
4. "Design of an Optical Thermal Sensor for Proton Detection of a Proton Exchange Membrane Fuel Cell Using Phosphor Thermometry," *Journal of Power Sources*, 2011
5. "In-plane Temperature Measurement and Water Droplet Detection of a Proton Exchange Membrane Fuel Cell Using Phosphor Thermometry - Initial Development," *ASME 8th International Fuel Cell Science, Engineering and Technology Conference*, 2010



Sayed A. Nassar
Ph.D.
University of Cincinnati

Professor and Director of FAJRI
Mechanical Engineering Department

Email: nassar@oakland.edu
Phone: (248) 370-3781

Teaching

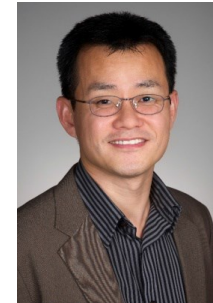
Mechanical System Design, Engineering Mechanics, Elasticity, Fasteners and Bolted Joints, Mechanics of Materials. Finite Elements, Vibrations

Research

Solid mechanics, Fastening and Joining, Laminated Composites, Experimental Mechanics, NDE

Selected Publications

1. S.A. Nassar and M. Ganganala, "Effect of Separating Load Eccentricity on the Clamp Load Loss in a Bolted Joint Using a Strain Hardening Model," *Journal of Pressure Vessel Technology*, vol. 133, pp. 021206-1~8, 2011
2. X. Yang, S.A. Nassar, and Z. Wu, "Criterion for Preventing Self-Loosening of Preloaded Cap Screws Under Transverse Cyclic Excitation," *Journal of Vibrations and Acoustics-ASME Transactions*, vol. 133, pp. 041013-1~11, 2011
3. Z. Wu, S.A. Nassar and X. Yang, "Pullout Performance of Self-Tapping Medical Screws," *Journal of Biomechanical Engineering-ASME Transactions*, vol. 133, pp. 111002-1~9, 2011
4. A.M. Zaki, S. A. Nassar, and X. Yang, "Effect of Conical Angle and Thread Pitch on the Self-Loosening Performance of Preloaded Countersunk-Head Bolts," *J. of Pressure Vessel Tech -ASME Trans.*, 134,1, pp. 021210-1~8, 2012
5. A.A. Allkelani, S. A. Nassar and B.A. Housari, "Formulation of Elastic Interaction Between Bolts During the Tightening of Flat-Face Gasketed Joints," *Journal of Mechanical Design-ASME Transactions*, Vol. 131/021004-1~9 2009
6. S.A. Nassar and V., Virupaksha, "Effect of Adhesive Thickness and Properties on the Biaxial Interfacial Shear Stresses in Bonded Joints Using a Continuum Mixture Model," *Journal of Engineering Materials and Technology-ASME Transactions*, vol.131/ 021015-1~9, 2009



Dae-Kyoo Kim
Ph.D.
Colorado State University

Associate Professor
Computer Science and Engineering Department

Email: kim2@oakland.edu
Phone: (248) 370-2863

Teaching

Object-Oriented Programming; Software Engineering and Practice; Fundamentals of Software Modeling; Software Prototyping and Validation; Software Engineering

Research

Software Design and Specification; Pattern-Based Software Development; Aspect-Oriented Design; Access Control Modeling; Smart Grid Data Modeling. "My research focuses developing high quality software systems with less cost. Quality software is more reliable, maintainable, and secure." Dae-Kyoo Kim, 2013

Selected Publications

1. "A Feature-Based Approach for Modeling Role-Based Access Control Systems," *Journal of Systems and Software* 84(12), 2011
2. "Verification of Structural Pattern Conformance Using Logic Programming," *Journal of Universal Computer Science* 16(17), 2010
3. "Quality-Driven Architecture Development Using Architectural Tactics," *Journal of Systems and Software* 82(8), 2009
4. "Evaluating Pattern Conformance of UML Models: A Divide-and-Conquer Approach and Case Studies", *Software Quality Journal* 16(3), 2008.
5. "An Approach to Precisely Specifying the Problem Domain of Design Patterns," *Journal of Visual Languages and Computing* 18(6), 2007.
6. "A UML-Based Pattern Specification Technique," *IEEE Transactions on Software Engineering* 30(3), 2004



Lunjin Lu
Ph.D.
University of Birmingham (London)

Associate Professor and Interim Chair
Computer Science and Engineering Department

Email: l2lu@oakland.edu
Phone: (248) 370-2225

Teaching

Programming languages, Theory of computation, Object Oriented Programming, Data structures, Parallel & concurrent programming

Research

Software verification; Static Program analysis; Programming languages; Constraint and logic programming

Selected Publications

1. "A Polymorphic Type Dependency Analysis for Logic Programs," *New Generation Computing*
2. "Simplifying Negative Goals Using Typed Existence Properties," *ACTA Journal of computes and Applications*
3. "Verification of Structural Pattern Conformance Using Logic Programming," *Journal of Universal Computer Science* 2010
4. "A Feature-based Approach for Modeling Role-Based Access Control Systems," *Journal of systems and Software (SCIE indexed)*
5. "Required Behavior of UML Sequence Diagrams: Semantics and Refinement," *16th IEEE International Conference on Engineering of Complex Computer Systems (ICECCS)*



Zissimos P. Mourelatos
Ph.D.
University of Michigan

Professor and Chair
John F. Dodge Chair of Engineering
Mechanical Engineering Department

Email: mourelat@oakland.edu
Phone: (248) 370-2210
Web: secs.oakland.edu/~mourelat

Teaching

Design under Uncertainty; Reliability Methods; Vibrations and Controls; Random Vibrations; Noise, Vibration and Harshness (NVH)

Research

Design and Decision Making under Uncertainty; Reliability, Safety and Quality; Probabilistic Methods; Reliability-Based Design Optimization; Model Validation and Verification; Design Optimization of Large-Scale Vibratory Systems; Random Vibrations; Noise, Vibration and Harshness (NVH); Bearing Lubrication; I.C. Engine Dynamics. "(I am) a nationally and internationally recognized expert in engineering design and automotive R&D with substantial contributions in reliability methods, quality, and safety, as well as in engine design and dynamics." Zissimos Mourelatos, 2013

Selected Publications

1. D. Drignei, Z. P. Mourelatos, M. Kokkolaras, and V. Pandey, "A Variable-size Local Domain Approach for Increased Design Confidence in Simulation-based Optimization," *Structural and Multidisciplinary Optimization*, 46(1), 83-92, 2012
2. E. Nikolaidis, Z. P. Mourelatos, and V. Pandey, "Design Decisions under Uncertainty with Limited Information," *CRC Press, Taylor & Francis Group*, London, UK, 525 pages, ISBN 978-0-415-49247-8, 2011
3. A. Singh, Z. P. Mourelatos, and J. Li, "Design for Lifecycle Cost using Time-Dependent Reliability," *ASME Journal of Mechanical Design*, 132(9), 2010.
4. G. Zhang, E. Nikolaidis, and Z. P. Mourelatos, "An Efficient Re-Analysis Methodology for Probabilistic Vibration of Large-Scale Structures," *ASME Journal of Mechanical Design*, 131(5), 2009.
5. J. Li, Z. P. Mourelatos, F. G. Schwarze, J. V. Rozenbaum, "Prediction of Automotive Side Swing Door Closing Effort," *SAE International Journal of Passenger Cars – Mechanical Systems*, 2(1), 271-284, 2009.



Keyu Li
Ph.D.
Johns Hopkins University

Professor
Mechanical Engineering Department

Email: kli@oakland.edu
Phone: (248) 370-2862

Teaching

Engineering Mechanics; Mechanics of Materials; Materials Science; Stress Analysis; Optical Methods

Research

Optical Techniques for Measurements of Strains and Stresses; Smart Materials to Measure Permanent Deformations and Residual Stresses Induced from Manufacturing Processes; Material Evaluation and Characterization; FEM Modeling of Material Behavior and Structural Mechanics; FEM Simulation of Manufacturing Processes such as Quenching; Noncontacting Methods for Dynamic and Vibration Measurement; Fatigue, Creep and Fracture Mechanics; Tribology Modeling

Selected Publications

1. "Numerical Simulation and Experimental Validation of Residual Stresses in Water-Quenched Aluminum Alloy Castings," *Journal of Materials Engineering and Performance*, 2011
2. "Characterization of Residual Stresses in SIC Based Tiles," *35th International Conference and Exposition on Advanced Ceramics & Composites*, 2011
3. "An Experimental Study of Heat Transfer in Aluminum Alloy Casting During Water Quenching," *J. of Materials Processing Technology*, 2010
4. "FEA Simulation of Induction Hardening and Residual Stress of Auto Components," *SAE Transactions*, 2010
5. "An Experimental Analysis of Improved Mechanical Properties Achieved During the Tempering of Parking Gears," *SAE Trans*, 2010

Khalid Mahmood
Ph.D.
Tokyo Institute of Technology, Japan

Visiting Assistant Professor
Department of Computer Science & Engineering

Email: mahmood@oakland.edu
Phone: (248) 370-3542



Teaching

Object Oriented Programming; Advanced Web Design and Applications; Computer Networks; Interactive Web Systems; Software Project Management.

Research

"My research is on Semantics based Sensor Web, Semantic based Information Security & Data Loss Prevention and Semantic Web based analytics. The research aims at collaboration of machines (computers, sensors, handheld devices) to perform decisions (for example evidence based medicine decision support system using research literature present on machines and data present on sensors in environment) by understanding the semantics (synonymy, polysemy and context) of our natural language & environment." Khalid Mahmood, 2013

Selected Publications

1. Mahmood K., X.D. Lu, Y. Horikoshi and K. Mori, "Autonomous Pull-Push Community Construction Technology for High-Assurance," *IEICE Trans. on INFO. & SYST.*, Vol.E92-D, No.10, pp.1836-1846, 2009.
2. Mahmood K., X. Lu, K. Mori, "Autonomous Community Construction Technology to Achieve Service Assurance in ADCS," *IEICE Trans. on INFO. & SYST.*, vol. E91-D, No. 9, pp. 2259-2266, Sept. 2008.
3. Takahashi H., Mahmood K., K. Mori, "Autonomous L3 Cache Technology for High Responsiveness," *IPSJ Transaction; Journal of Information Processing Japan*, Vol.20 No.2, 2012.
4. Mahmood K., Hironao Takahashi, Yasukai Arakawa "Gateway Access Permission Technology for High Assurance," *32nd International Conference on Distributed Computing Systems Workshops, China*, 2012.



Jerry E. Marsh
M.S.
Oakland University

Special Instructor
Computer Science and Engineering Department

Email: marsh@oakland.edu
Phone: (248) 370-2239

Teaching

Computer Problem Solving in Engineering and Computer Science; Introduction to Computer Programming; Online Education

Research

"I develop innovative ways to introduce problem solving and computer programming techniques to Engineering and Computer Science students, using online delivery methods." Jerry Marsh, 2013

Selected Publications

Darrin M. Hanna, Jerry E. Marsh, and Richard E. Haskell, "How to Produce Students Who Can Solve Problems using Computers Instead of Computers that Create Problems for Students in Engineering," *ASEE 2002 North Central Section Conference, Oakland University, Rochester, MI*, April 5-6, 2002.

Michael A. Latcha
Ph.D.
Wayne State University

Associate Professor
Mechanical Engineering Department

Email: latcha@oakland.edu
Phone: (248) 370-2203



Teaching

CADrafting; statics; dynamics, vibrations; mechanics of materials; machine design, numerical methods

Research

Research interests: Modeling of multi-body dynamic systems; structural, numerical and viscothermal acoustics; vibrations; computational mechanics; machine design; numerical methods

Selected Publications

1. "AERIM Automotive-themed REU Program: Organization, Activities, Outcome and Lessons Learned," *ASEE Annual conference and Exposition*, 2011
2. "International Research Experience for Engineering Students in China in the Area of Fuel Cells," *ASEE Annual Conference and Exposition*, 2011



Krzysztof Kobus
Ph.D.
Oakland University

Associate Professor, Director of Outreach and Recruitment, School of Engineering and Computer Science (SECS), Director of Engineering and Energy Education, OUInc Clean Energy Research Center (CERC), OU Center for Excellence in Teaching and Learning (CETL) Faculty Fellow

Email: cjkobus@oakland.edu
Phone: (248) 370-2489

Teaching

Alternative Energy Systems, Energy Management, Thermal Engineering, Fluid Mechanics and Heat Transfer, Fluid and Thermal System Design, Engineering Mechanics, Dynamics, Fundamentals of Nuclear Engineering

- Recipient of the 2013 Dr. Wilbert J. McKeachie International Poster Prize for best poster at the 7th Annual OU-Windsor Conference on Teaching and Learning, May 2, 2013.
- Best Overall Paper Award, American Society of Engineering Education (ASEE) North Central Section Annual Conference, 2001.

Research

Clean Energy Applied Research; Energy Efficiency, Energy Management, Transient and Unstable Behavior in Two-Phase Evaporating and Condensing Flow; Single and Multitube Systems; Combined Forced and Natural Convective Heat Transfer; Boundary Layer Theory; Analytical and Experimental Techniques Associated with Steady-State and Time Varying Fluid and Thermal Systems, Components, and Processes. *"One of my research areas is in energy efficiency in maintaining our standard of living, but minimizing the environmental footprint necessary to do so. The biggest challenge to humanity has historically been survival, but now is sustainability and that affects everything and everyone."* Krzysztof Kobus, 2013

Selected Publications

1. Kobus, C.J., ., "Utilizing The Integral Technique To Determine The Similarity Variable In Classical Heat Transfer Problems – One Dimensional Heat Conduction In A Finite Or Semi-Infinite Solid," *Proceedings of the 2013 American Society of Mechanical Engineers (ASME) Summer Heat Transfer Conference*, July 14-19, Minneapolis, MN



Sebnem Onsay
M.S.
Oakland University

Special Instructor
Computer Science Department

Email: onsay@oakland.edu
Phone: (248) 370-4590

Teaching

Object Oriented Computing 2, computer Problem Solving, computer Programming, Ruby for Web Developers, Intro to C Programming and Unix

Research

New Effective Teaching Tools and Techniques for Object oriented programming and its applications in multidisciplinary areas. *"I am mainly focusing on changing some of the teaching techniques to improve understanding of Object Oriented Programming languages. One of the goals is to increase interest for Computer Science from other disciplines. Studying the effects of different variables such as including more technology use, social media...etc. Improving some of our teaching techniques will help students grasp better understanding in some of the more challenging concepts."* Sebnem Onsay, 2013

Selected Publications

1. "Object-Oriented SEA Modeling (OO-SEA)," *Proceedings of SAE Noise and Vibration Conference, Traverse City, MI*, Paper# 2003-01-1551, May 2003.
2. "The Concept of SuperSub in Object Oriented SEA Modeling (OO-SEA)," *Proceedings of Noise-Con 2003, Cleveland, Ohio*, June-2003.
- "Object-Oriented SEA Modeling: A Modular Approach," *AutoSEA 2nd User Conference*, Troy, MI, April-2002.
3. "Event Driven Approach to Programming using C#," *Oakland University Computer Science and Engineering Department for "Women in Engineering" summer program report*, 2004 and 2005.



Nilesch Patel
Ph.D.
Wayne State University

Associate Professor
Computer Science and Engineering Department

Email: patel@oakland.edu
Phone: (248) 370-2247

Teaching

Software Engineering, Mobile Computing, Smart phone application development, Pattern Recognition and Data mining

Research

Data mining and knowledge discovery, Pattern Recognition, Image processing, Multimedia Information systems, Distributed and Multicore Computing, Embedded Software Engineering, Mobile Computing, Bioinformatics, Telematics and Automotive Computing

Selected Publications

1. "From Centralized to Distributed Decision Tree Induction using CHAID and Fisher's Linear Discriminate Function Algorithms," *Journal of Intelligent Decision Technologies*, 2011
2. "Multi-label Classification Method for Multimedia Tagging," *International Journal of Multimedia Data Engineering Management*, 2010
3. "Minimum Steiner Tree for Automatic SQL Query Generation Applied on a Medical Record Database," *IEEE International Workshop on Wenservices in Healthcare*, 2010
4. "Multi Camera Multi Object Tracking using Block Search over Epipolar Geometry," *NUiCone*, 2010



Ching Long Ko
Ph.D.
University of Oklahoma

Associate Professor
Mechanical Engineering Department

Email: ko@oakland.edu
Phone: (248) 370-2694

Teaching

Engineering Mechanics; Finite Element Analysis; Mechanics of Materials; Fluid Mechanics

Research

Mechanics of Composite Materials and Structural Design; Finite-Element Analysis of the Metal-Forming Process; Computational Fluid Mechanics and Numerical Heat-Transfer Analysis; Vibration Analysis of Plate and Shell Structures; Hot-wire and LDA Measurements in Fluid Flows; Analytical Modeling of Fluid-Structure Interaction; Dynamics and Nonlinear Vibration; Impact Dynamics and Plasticity

Selected Publications

1. "Conjugate Heat Transfer Analysis of Laminar Pipe Flows with Convective Boundary Conditions," in preparation, *International Journal of Heat and Mass Transfer*
2. "A Semi-Analytical Method and a Time-Dependent Finite Element Method for the Vibration Analyses of Beams with Viscous Damping," in preparation, *International Journal of Engineering Science*



Laila Guessous
Ph.D.
University of Michigan

Associate Professor
Mechanical Engineering Department

Email: guessous@oakland.edu
Phone: (248) 370-2183

Teaching

Fluid Mechanics; Heat Transfer; Computational Fluid Dynamics; Thermodynamics; Numerical Methods

Research

Computational fluid dynamics and computational heat transfer; Thermal modeling of wear and scuffing processes; Simulation and modeling of pulsating flows with emphasis on heat transfer enhancement; Computational investigation and optimization of wind turbine farm layouts using spectral Element Methods. *"My research interests lie in the areas of computational fluid dynamics and computational heat transfer. I strive to use numerical tools to improve our understanding and modeling of various fluid/thermal problems, including wind turbines, engine flows, and problems related to wear and scuffing of materials."* Laila Guessous, 2013

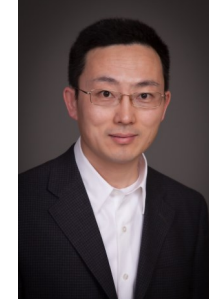
Selected Publications

1. R. Zhang, L. Guessous and G. Barber, "Investigation of the validity of the Carslaw and Jaeger thermal theory under different working conditions," *Tribology Transactions*, 55: 1-11, 2012
2. J. D. Tobon, C. Silverstein, J. Rueda, L. Guessous, and L. Yang, "A Study of Anisotropy and Post-Necking Local Fracture Strain of Advanced High Strength Steel with the Utilization of Digital Image Correlation," *SAE Int. J. Mater. Manuf.* 4(1):1099-1106, 2011.
3. J. Han, R. Zhang, O. O. Ajayi, G.C. Barber, Q. Zou, L. Guessous, D. Schall, S. Alnabulsi, "Scuffing behavior of gray iron and 1080 steel in reciprocating and rotational sliding," *Wear*, 271, pp. 1854-1861, 2011
4. X. Zhu, L. Guessous, and G. Barber, "Numerical Investigation of the Evolution of the Heat Partition Factor During Bolt Tightening," *Tribology Transactions*, 54: 1, 122-131, 2011

Guangzhi Qu
Ph.D.
University of Arizona

Associate Professor
Computer Science and Engineering Department

Email: gqu@oakland.edu
Phone: (248) 370-2690



Teaching

Operating Systems; Wireless Networking; Network Security; System Administration; Data Mining; Machine Learning

Research

Data Mining; Machine Learning; Healthcare Computing; Information and Network Security; Discrete Event Simulation; Graph Databases

Selected Publications

1. "Local Analgesia Adverse Effects Prediction using Multi-label Classification," *Neurocomputing*, vol. 92, pp. 18-27, 2012.
2. "Complex Networks Properties Analysis for Mobile Ad hoc Networks," *IET Communications*, vol. 6, Issue 4, pp.370-380, 2012.
3. "Bucket Learning: Improving Model Quality through Enhancing Local Patterns, Knowledge-based System," *Available online* 2 October, 2011, ISSN 0950-7051, 10.1016/j.knosys.2011.09.013.
4. "A Weighted-Graph-Based Approach for Diversifying Search Results," *International Journal on Knowledge and Web Intelligence*, 2011 - Vol. 2, No.1 pp. 15-35.
5. "Neuropathic Pain Scale Based Clustering for Subgroup Analysis in Pain Medicine," *IEEE the 9th International Conference on Machine Learning and Applications*, 2010.



Ishwar Sethi
Ph.D.
Indian Institute of Technology (Kharagpur)

Professor
Computer Science and Engineering Department

Email: isethi@oakland.edu
Phone: (248) 370-2820

Teaching

Intro Computing with Excel, Computer Vision, Data mining, Machine Learning, Pattern Recognition, and Research Methods

Research

Data Mining; Text, Image and Video Databases; Neural Networks Design & Applications; # Motion Analysis & Object Tracking; Document Image Processing; Pattern Recognition; Machine Learning

Selected Publications

1. "From Centralized to Distributed Decision Tree Induction using CHAID and Fisher's Linear Discriminate Function Algorithms," *Journal of Intelligent Decision Technologies*, 2011
2. "Multilabel Classification Method for Multimedia Tagging," *International Journal of Multimedia Data Engineering Management*, 2010
3. "An Architecture for Collaborative Translational Research Utilizing the Honest Broker System," *Special Session on Intelligent Healthcare Information Management in Conjunction with KES-IIMS*, 2010
4. "Multi-agent Framework based on Web Service in Medical Data Quality Improvement for e-Healthcare Information Systems," *Special Session on Intelligent Healthcare Information Management in Conjunction with KES-IIMS*, 2010
5. "Neuropathic Pain Scale Based Clustering for Subgroup Analysis in Pain Medicine," *9th IEEE Conference on Machine Learning and Applications*, 2010

Randy J. Gu
Ph.D.
State University of New York, Buffalo

Professor
Mechanical Engineering Department

Email: gu@oakland.edu
Phone: (248) 370-2235



Teaching

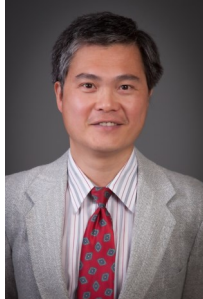
Computer-Aided Design, Mechanical Computer-Aided Engineering, Engineering Mechanics, Mechanics of Materials, Finite Element Method

Research

Finite Element Applications, Mechanical Computer-Aided Engineering, Experimental/Theoretical Studies of Contact Problems, Material Behavior Modeling, Inverse Problems. "Mathematically formulating engineering problems involving both theoretical foundation and experimental measurements and developing numerical algorithm to solve such problems." Randy Gu, 2013

Selected Publications

1. R. J. Gu and G. Barber, "Determination of True Dimensional Quality and Build Errors Using Coordinate Measurement Data," *ASME Journal of Manufacturing Science and Engineering*, Vol. 121, pp. 749-755, Nov. 1999
2. R. J. Gu and M. Shillor, "Thermal and Wear Analysis of An Elastic Beam in Sliding Contact," *Int. J. of Solids & Structures*, V. 38(14), pp. 2323-2333, 2001
3. R. J. Gu, M. Shillor, G. Barber, and T. C. Jen, "Thermal Analysis of Grinding Processes," *Math and Computer Modelling*, 39/9-10, pp. 991-1003, May 2004
4. A. V. Nulkar, R. Gu and P. Murty, "Finite Element Analysis of Tube Hydroforming in Non-Symmetrical Dies," *The 8th International Conference on Numerical Simulation of 3d Sheet Metal Forming Processes (NUMISHEET 2011)*, – Vol. 1383, pp. 661-668, August 22, 2011
5. J. Song and R. J. Gu, "A Finite Element Based Methodology for Inverse Problem of Determining Contact Forces Using Measured Displacements," *Inverse Problems in Science and Engineering*, , 1-15, Dec. 2011



Yin-ping (Daniel) Chang
Ph.D.
The Pennsylvania State University

Associate Professor
Mechanical Engineering Department

Email: ychang@oakland.edu
Phone: (248) 370-2209

Teaching

Statics; Dynamics; CAD/CAM/CAE; Kinematics and Mechanisms; Vibrations; Controls; Vehicle Dynamics; Tire/Terrain Mechanics; Vehicle System Design

Research

Vehicle Dynamics; Tire/Terrain Mechanics; NVH; Vibrations; Control; Kinematics and Mechanisms; Machine Design; Solid Mechanics; Finite Element Analysis; Multi-Body Contact-Impact modeling; Optimization.
“Machine Design, Vehicle Dynamics and Tire/Terrain Mechanics research will improve vehicle’s riding comfortability and increase its safety and stability.” Yin-Ping Chang, 2013

Selected Publications

1. D. Wu and Y.P. Chang, “Dynamic Analysis and Simulation of a Double Transition Shift Automatic Continuous Variable Transmission,” accepted to be published in *International Journal of Vehicle Performance*, 2013
2. Y.P. Chang, and I. Her, 2008, “A Virtual Cam Method for Locating Instant Centers of Kinematically Indeterminate Linkages,” *ASME Journal of Mechanical Design*, Volume 130, Issue 6, p. 062304, June 2008
3. J. Iqbal, Y.P. Chang, and M.S. Qatu, “Optimization of Frequencies of A Two-Span Shaft System Joined With A Hinge,” *International Journal of Vehicle Noise and Vibration*, Vol. 4, No. 4, pp.317–338, 2008
4. Y.P. Chang, “Tyre Vertical Transmissibility Transient Response Analysis,” *International Journal of Vehicle Noise and Vibration*, Vol. 2, No. 3, pp.191–208, 2006,
5. M. Sirafi, Y.P. Chang and M.S. Qatu, “Robustness of Mount Systems for Idle NVH, Part I: Centre of Gravity (CG) Mounts,” *International Journal of Vehicle Noise and Vibration*, Vol. 2, No. 4, pp.317–333 2006,

Tao Shu
Ph.D. University of Arizona

Assistant Professor
Computer Science and Engineering Department

Email: shu@oakland.edu
Phone: (248) 370-2137



Teaching

Computer Networks, Wireless Networking, Network Security

Research

Security and performance issues in wireless networking systems, with strong emphasis on system architecture, protocol design, and performance optimization

Selected Publications

1. Tao Shu and Marwan Krunz, “Finding the cheapest route in profit-driven opportunistic spectrum access networks: A truthful mechanism design approach,” *IEEE/ACM Transactions on Networking (ToN)*, accepted, 2011
2. Tao Shu and Marwan Krunz, “Exploiting microscopic spectrum opportunities in cognitive radio networks via coordinated channel access,” *IEEE Transactions on Mobile Computing (TMC)*, vol. 9, no. 11, pp. 1522-1534 2010
3. Tao Shu, Marwan Krunz, and Sisi Liu, “Secure data collection in wireless sensor networks using randomized dispersive routes,” *IEEE Transactions on Mobile Computing (TMC)*, vol. 9, no. 7, pp. 941-954, 2010.
4. Tao Shu and Marwan Krunz, “Coverage-time optimization for clustered wireless sensor networks: A power-balancing approach,” *IEEE/ACM Transactions on Networking (ToN)*, vol. 18, no. 1, pp. 202-215, 2010.
5. Tao Shu and Marwan Krunz, “Throughput-efficient sequential channel sensing and probing in cognitive radio networks under sensing errors,” *Proc. of the ACM MobiCom Conference, Beijing, China*, 2009.



Mohammad-Reza Siadat

Ph.D.
Wayne State University

Associate Professor
Computer Science and Engineering Department

Email: siadat@oakland.edu
Phone: (248) 370-2230

Teaching

Visual Computing; Advanced Visual Computing; Pattern Recognition and Machine Learning; Computer Problem Solving; Design and Analysis of Algorithms

Research

Research interests include Medical Signal and Image Processing, Computational Anatomy & Physiology and Medical Informatics. The goals are utilization of the wealth of available medical data to the fullest for data-driven and patient-specific diagnosis, treatment planning and prognosis.

Selected Publications

1. "Simulation to Analyze Feature Selection Methods Utilizing Gene Ontology for Gene Expression Classification," *Journal of Biomedical Informatics*, in press, 2013.
2. "Comparison Improved Feature Selection by Incorporating Gene Similarity into the LASSO," *International Journal of Knowledge Discovery in Bioinformatics*, vol. 3, no. 1, pp. 1-19, 2012.
3. "Novel Application of Statistical Methods to Identify Urinary Incontinence Risk Factors," *The Journal of Advances in Urology*, vol. 2012, pp. 1-8, 2012.
4. "A Novel Rule Infusion Technique for Generating Simulated Binary Data to Validate Data Mining Methods," *International Conference on BioMedical Engineering and Informatics*, October 2012.
5. "Negative BOLD Response and Serotonin Concentration within Rostral Subgenual Portion of the Anterior Cingulate Cortex for the Long-Allele Carriers during Perceptual Processing of Emotional Tasks," *SPIE Medical Imaging Symposium*, Feb. 2012.

Bhushan L. Bhatt

Ph.D.
Oakland University

Professor
Mechanical Engineering Department

Email: bhatt@oakland.edu
Phone: (248) 370-2657



Teaching

Thermodynamics; fluid mechanics; heat transfer; fluid and thermal systems design

Research

Thermal-hydrodynamics of two-phase flows, and electronic component cooling. "My research is in the area of time dependent characteristics of two-phase condensing and evaporating flows, which is important, partly, in the safe operation of conventional as well as nuclear power plants." Bhushan Bhatt, 2013

Selected Publications

1. D. Stiles and B.L.Bhatt, "An Investigation into the Transient Response Characteristics of Condensing Flow Inside a Tube in Downflow," Proceedings of the 13th international Heat Transfer Conference, Sydney, Australia, *Bagell House Inc.*, 13-18 August, 2006,
2. B.L.Bhatt, "Onset of Water Hammer Phenomenon Following Flow Surge Characteristics in Tube-Type Condensing Flows," *Proceedings of the FEDSM-M'03, 4th ASME- JSME Joint Fluids Engineering Conference*, Honolulu, Hawaii, USA, July 6-11, 2003
3. B. L. Bhatt, "Onset of Water Hammer Phenomenon Following Flow Surge Characteristics in Tube-Type Condensing Flows," *Proceeding of the FEDSM '03, 4th SAME-JSME Joint Fluids Engineering Conference*, Honolulu, Hawaii, USA, July 6-11, 2003



Gary Barber
Ph.D.
University of Michigan

Professor
Mechanical Engineering Department

Email: barber@oakland.edu
Phone: (248) 370-2184

Teaching

Properties of Materials; Material Properties and Processes; Lubrication, Friction and Wear; Machine Design

Research

Director, Automotive Tribology Center; Tribology of Engine Cylinder Kits; Engine Valve Wear, Effect of Tool Wear on the Surface Topography of Machined Surfaces

Selected Publications

1. "Scuffing Behavior of Gray Iron and 1080 steel in Reciprocating and Rotational Sliding," *Journal of Wear of Materials Conference*, 2011
2. "Effect of Material Microstructure on Scuffing Behavior of Ferrous Alloys," *SAE Congress*, 2011
3. "Investigation of Scuffing Resistance of Heat Treated 8625 Alloy Steel Under Lubricated Conditions," *SAE Congress*, 2011
4. "Numerical Investigation of Temperature Distribution in a Bolted Joint for Different Bolt and Workpiece Material Combinations," *STLE Annual Meeting*, 2011
5. "Evaluation of the Convective Heat Transfer Coefficient for Minimum Quantity Lubrication," *Journal of Industrial Lubrication and Tribology*, 2012

Gautam B. Singh
Ph.D.
Wayne State University

Associate Professor
Computer Science and Engineering

Email: singh@oakland.edu
Phone: (248) 370-2129
Web: secs.oakland.edu/~singh



Teaching

Database Design and Implementation, Bioinformatics, Computer Forensics, Senior Design Project

Research

Knowledge Representation, Innovation and Discovery; Cyber Laws, Forensics and Computer Crimes; Intellectual Property Identification and Management; Bioinformatics; Parallel Computing and Algorithms

Selected Publications

1. "Learning Information Patterns in Biological Databases - Stochastic Data Mining," *Data Mining and Knowledge Discovery Handbook*, 2010
2. "Modified SACO Algorithm for Productive Emergence," *International Journal of Computers and Their Applications*, 2010
3. "Comparing Performance of Support Vector Machines and Markov Models for Early Detection of Automotive Crashes," *IEEE International Conference on Computing Intelligence*, 2010.
4. "Using Hidden Markov Models In Vehicular Crash Detection," *IEEE Transactions on Vehicular Technology*, 2009
5. "Component-Based Approach for Educating Students in Bioinformatics," *IEEE Transactions on Education*, 2009.
6. "Mathematical model to predict regions of chromatin attachment to the nuclear matrix," *Nucleic Acid Research*, 1997



Ching-Seh Wu
Ph.D.
Texas A&M University

Assistant Professor
Computer Science and Engineering Department

Email: cwu@oakland.edu
Phone: (248) 370-2214
Web: secs.oakland.edu/~cwu/

Teaching

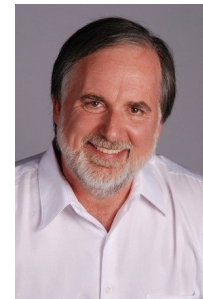
Database Systems; Object Oriented Programming; Web Services and Cloud Computing, Advanced Web Design and Applications; Software Testing and Verification, System Analysis & Design

Research

Web Services and Cloud Computing in Healthcare; Web/Cloud Services Workflow Composition and Optimization; Heterogeneously Distributed Data Integration; Software Engineering for Web/Cloud Services; Development and Testing on Critical Software Systems. "One of the most important issues in e-Healthcare information systems is to optimize the medical data quality of healthcare workflow extracted from distributed and heterogeneous environments, which can extremely improve diagnostic and treatment decision making. My research explores solutions for e-healthcare and software development in the Cloud." Ching-She Wu, 2013

Selected Publications

1. C. Wu and I. Khoury, "Optimizing Medical Data Quality Based on Multi-agent Web Service Framework," *IEEE - Transactions on Information Technology in Biomedicine*, 2012
2. C. Wu and I. Khoury, "Trade-Off Analysis on QoS-Aware Dynamic Web Service Composition with Evolutionary Optimization," *Journal of Advances in Information Sciences and Service Sciences*, 2012
3. C. Wu and C. Huang, "The Test Path Generation from State-based Polymorphic Interaction Graph for Object-Oriented Software," *10th International Conference on Information Technology : New Generations*, Las Vegas, Nevada, USA., April 15-17, 2013



Christian C. Wagner
Ph.D.
Michigan State University

Associate Professor
Industrial and Systems Engineering Department

Email: wagner@oakland.edu
Phone: (248) 370-2215
Web: drchriswagner.com

Teaching

Advanced Web Design, Artificial Intelligence, Artificial Intelligence in Manufacturing, E-Commerce and ERP using SAP and Dynamics, Introduction to Industrial and Systems Engineering, Statistical Quality Analysis, Systems Engineering

Research

Artificial Intelligence Techniques in Manufacturing; Natural Language Understanding; Web based PLM Systems, Artificial Intelligence and Learning Mechanisms; Cognitive Database Systems; Spiritual Engineering

Selected Publications

1. C.C. Wagner and A. Fisk, "Innovative BOM Approaches to Improve Data," (2012 in preparation)
2. C.C. Wagner and D. Kijek, "Multi-disciplinary Linguistic Knowledge Acquisition," (2012 in preparation)
3. M. Del Rose, and C. Wagner, "Research.Consumption.Survey on Classifying Human Actions Through Visual Sensor," *Artificial Intelligence Review*, Springer, May 2011
4. M. Del Rose, C. Wagner, and P. Frederick, "Evidence Feed Forward Hidden Markov Model: A New Type of Hidden Markov Model," *International Journal of Artificial Intelligence and Applications (IJAI)*, Vol. 2., No.1, January 2011
5. Keynote Address: "Finding Customers in a Global Marketplace," *First International Business Conference*, Dearborn, Michigan, 2008
6. Keynote Address: "Methods for African and American Business Interactions," *African American Business Conference*, Detroit, Michigan, 2007



Robert P. Van Til
Ph.D.
Northwestern University

Pawley Professor of Lean Studies
Chair
Industrial and Systems Engineering Department

Email: vantil@oakland.edu
Phone: (248) 370-2211

Teaching

Flexible and Lean Manufacturing Systems, Robotic Systems, Lean Principles and Application, Senior Design, Introduction to Industrial and Systems Engineering

Research

Analytical and simulation modeling of manufacturing systems, application of lean to manufacturing and healthcare, Product Lifecycle Management (PLM)

Selected Publications

1. S. Sengupta, T. White, K. Das and R. Van Til, "Analysis of a New Signal for Bottleneck Identification and Loss Allocation to Individual Machines," *International Journal of Industrial and Systems Engineering* (to appear)
2. M. Deneweth, S. Sengupta and R. Van Til, "Evaluating Supply Chains Based on Cost and Associated Risk," *Proc. of the Industrial and Systems Engineering Research Conf.*, 2012
3. T. White, S. Sengupta and R. Van Til, "Analysis of a New Signal for Bottleneck Detection using Higher Order Statistics based on Inter-Departure Time Data," *Proc. of the Industrial & Systems Engineering Research Conf.*, 2012
4. S. Sengupta, K. Das, R.P. Van Til and M. Deneweth, "A Better Approach To Modeling Emergency Care Service," Proceedings of the Winter Simulation Conference, 2011
5. S. Sengupta, T. White and R.P. Van Til, "A New Approach for the Allocation of Production Loss Due to Individual Machines," *International Journal of Industrial Engineering*, 2010

Jie Yang
Ph.D.
Stevens Institute of Technology

Assistant Professor
Computer Science and Engineering Department

Email: yang@oakland.edu
Phone: (248) 370-2246



Teaching

Introduction to Computer Networks, Wireless Systems Security, Wireless Networks and Mobile Computing, and Data Structures and Algorithms

Research

Cyber Security and Privacy: wireless security, secure localization, security in smart grids and cloud computing; Mobile and Pervasive computing; Wireless Localization Systems; Wireless and Sensor Networks; Cellular Networks

Selected Publications

1. J. Yang, S. Sidhom, G. Chandrasekaran, T. Vu, H. Liu, N. Cecan, Y. Chen, M. Gruteser and R. P. Martin, "Sensing Driver Phone Use with Acoustic Ranging Through Car Speakers," *IEEE Transactions on Mobile Computing (IEEE TMC)*, 2012.
2. J. Yang, Y. Chen, W. Trappe and J. Cheng, "Detection and Localization of Multiple Spoofing Attackers in Wireless Networks," *IEEE Transactions on Parallel & Distributed Systems (IEEE TPDS)*, 2012.
3. J. Yang and Y. Chen, "Towards Attack Resistant Localization under Infrastructure Attacks," *Security and Communication Networks (SCN)*, Wiley, May, 2011.
4. J. Yang, Y. Chen and J. Cheng, *Improving Localization Accuracy of RSS-Based Localization Methods in Indoor Environments*, Ad Hoc & Sensor Wireless Networks, an International Journal (AHSWN), vol.11 , no.3-4 , pp.307-329, 2011.
5. Y. Chen, J. Yang, W. Trappe and R. P. Martin, "Detecting and Localizing Identity-Based Attacks in Wireless and Sensor Networks," *IEEE Transactions on Vehicular Technology (IEEE TVT)*, vol.59, no.5, pp.2418-2434, Jun. 2010.



Wenjin Zhou
Ph.D.
Brown University

Assistant Professor
Computer Science and Engineering Department

Email: wzhou@oakland.edu
Phone: (248) 370-2208

Teaching

Human Computer Interaction, Scientific Visualization, Biomedical Image Analysis, Computational Neuroscience, Bioinformatics

Research

Interdisciplinary and collaborative research on powerful computational models, algorithms, image analysis and interactive visualization tools for medical imaging, brain and life science

Selected Publications

1. "DoubleAx: *In-vivo* Axon Measurement in the Human Corpus Callosum Using Angular Double-PFG MRI." *Organization for Human Brain Mapping (OHBM) Annual Meeting*, 2013.
2. "Visualizing tractography metrics of cortical-connectivity integrity in diffusion imaging." *International Society for Magnetic Resonance in Medicine-ISMIRM*, 2012.
2. "Measurement of axon radii distribution in orientationally unknown tissue using angular double-pulsed gradient spin echo (double-PGSE) NMR." *International Society for Magnetic Resonance in Medicine-ISMIRM*, 2011.
3. "Quantitative diffusion tensor imaging tractography metrics are associated with cognitive performance among HIV-infected patients." *Brain Imaging and Behavior*, 4:68–79, 2010.
4. "Inferring microstructural properties using angular double pulsed gradient spin echo NMR in orientationally unknown tissue." *Computational Diffusion MRI (CDMRI) Workshop at International Conference on Medical Image Computing and Computer-Assisted Intervention-MICCAI*, 2010.
5. "Haptics-assisted 3D lasso drawing for tracts-of-interest selection in DTI visualization." *IEEE Visualization Poster Compendium*, 2008.

Sankar Sengupta
Ph.D.
Clemson University

Associate Professor
Industrial and Systems Engineering Department

Email: sengupta@oakland.edu
Phone: (248) 370-2218



Teaching

Production Systems and Work Flow Analysis; Computer Simulations Discrete Events; Manufacturing Processes; Quality

Research

Application of OR methods to Manufacturing Systems Design and Control; Quality Control; Design Methodologies for Product Design; CIM

Selected Publications

1. S. Sengupta, and R.P. Davis, "Heuristic procedure for resolving a production planning model of an FMS," *Computers & Industrial Engineering*, Volume 30, Issue 2, April 1996, Pages 161–170
2. S. Sengupta, R.P. Davis, W.G. Ferrell, "Production planning and control in a JIT environment," *Applied Mathematical Modelling*, Volume 17, Issue 1, January 1993, Pages 41–46,



Michael P. Polis
Ph.D.
Purdue University

Professor
Industrial and Systems Engineering Department

Email: polis@oakland.edu
Phone: (248) 370-2743

Teaching

Circuits; modeling and statistical methods; controls; operations research

Research

Identification, estimation and control of distributed parameter systems, that is systems described by partial differential or delay equations. Transportation systems, and particularly in optimization and signaling for subway systems. Parametric approach to robust control. Smart-grid problems relating to optimizing the electric power grid of the future. *"This research enables systems to work more efficiently."* Michael Polis, 2013

Selected Publications

1. L.Y. Wang, M.P. Polis, G.G. Yin, W. Chen, Y. Fu, and C.C. Mi, "Battery Cell Identification and Estimation Using String Terminal Voltage Measurements," *IEEE Trans. on Vehicular Technology*, 61 (2012), no. 7, pp. 2925-2935
2. I. Kolmanovsky, I. Sivergina, and M.P. Polis, "Identification of Heat Flux in a Quasi-static Thermoelastic System," *ASME Journal of Dynamic Systems, Measurement and Control*, 128 (2006), no. 3, 608-616
3. A. Dontchev, M. P. Polis and V. Veliov, "On the Effect of Neglecting Sensor Dynamics in Parameter Identification," *SIAM Journal on Control and Optimization*, 38 (2000), no. 4, 1309-1321
4. H.H. Hoang, M.P. Polis, A. Haurie, "Reducing energy consumption through trajectory optimization for a Metro network," *IEEE Trans. Automatic Control*, AC-20 (1975), no. 5, 590-595 (named the "Best Paper", IEEE Transactions on Automatic Control 1974 – 1975).

Hoda Abdel-Aty-Zohdy
Ph.D.
University of Waterloo (Canada)

John F. Dodge Endowed Chair Professor of Engineering, Director of the Microelectronics & Bio-Inspired Systems Design Lab, Electrical and Computer Engineering Department, Professor

Email: zohdyhsa@oakland.edu
Phone: (248) 370-2243



Teaching

Electronic Materials and Devices; Electronic Circuit Design; Integrated Circuits and Devices

Research

Director of the Microelectronics & Bio-Inspired Systems Design Lab; biotechnology with intelligent signal processing on integrated chips for medical; wireless accurate Classification applications, on sub-micro-electronics

Selected Publications

1. "Chemical Absorbate Detection on Graphene by Applying Electronic Structure Calculations to Energy Minimized Molecular Models," *Symposium on Graphene Nanomaterials and Neural Interfaces*, 2011
2. "Cognitive Information Processing Using H/W Spiking Neural Networks," *45th Conference of the Institute for Statistical Studies and Research (ISSR)*, 2010
3. "Sampling Spiking Neural Network Electronic Nose on a Tiny Chi," *Proceedings of the IEEE MWSCAS*, 2010
4. "Hyper-Fuzzy Modeling and Control for Bio-Inspired Radar Processing," *Proceedings from the IEEE National Aerospace & Electronics Conference, NAECON*, 2010
5. "Spiking Neural Network E-NOSE Classifier Chip," *Proceedings of the IEEE National Aerospace & Electronics Conference, NAECON*, 2010
6. "A Renewable Energy Primer: Myths, Reality, Business and Social Perception," *Europe's Premier Wind Energy Conference*, 2010



Daniel N. Aloï
Ph.D.
Ohio University

Professor and Chair
Electrical and Computer Engineering Department

Email: aloï@oakland.edu
Phone: (248) 370-2177

Teaching

Antennas, Electromagnetics, Communications & Global Navigation Satellite Systems

Research

Research Director of the Applied EMAG & Wireless Lab (AEWL); Applied Electromagnetics, Antenna Design, Antenna Measurements, Antenna Modeling

Selected Publications

1. "Top-Loaded UWB Monopole Antenna for Automotive Applications," *2012 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Chicago, IL, USA, July 8-13, 2012.
2. "Single-Pin Dual-Band Patch Antenna for GPS and SDARS Applications," *2012 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Chicago, IL, USA, July 8-13, 2012.
3. "A 4-shaped 2x2 Multi-Standard Compact MIMO Antenna System for LTE Mobile Handsets," *IEEE Proceedings on IET Microwaves, Antennas & Propagation*, accepted for publication on February 27, 2012.
4. "An Active Tri-band (AMPS/PCS/GPS) Antenna with Enhanced Cellular-to-GPS Isolation for Automotive Applications," *Microwave and Optical Technology Letters*, Volume 53, Issue 8, Page(s): 1764-1767, August 2011. doi: 10.1002/mop.26117.
5. "Comparative Analysis of Single-Channel Direction Finding Algorithms for Automotive Applications at 2400 MHz in a Complex Reflecting Environment," *Physical Communications*, Volume 3, Issue 1. Page(s): 19-27, March 2010. doi: 10.1016/j.phycom.2009.08.002

Barbara Oakley
Ph.D.
Oakland University

Associate Professor
Industrial and Systems Engineering Department

Email: oakley@oakland.edu
Phone: (248) 370-2435
Web: www2.oakland.edu/users/Oakley



Teaching

Probability and statistics, neuroscience, bioengineering, electrical circuits, thermodynamics and electromagnetics; Specialize in collaborative learning approaches and online learning

Research

Pathological altruism and altruism bias; Translational research that provides simple ways to understand how to learn math, science, engineering and technology more easily, using insights from neuroscience and cognitive psychology. "*Pathological altruism and altruism bias: I use scientific perspectives and insight to better understand how good intentions can lead to bad outcomes.*" **Learning:** *I write insidiously readable popular books and research articles that provide deep, yet practical insight into learning based on neuroscience and cognitive psychology.*" Barbara Oakley, 2013



Megan Conrad
Ph.D.
Marquette University

Assistant Professor
Industrial and Systems Engineering Department

Email: conrad@oakland.edu
Phone: (248) 370-4896

Teaching

Ergonomics; Human Factors Engineering

Research

Ergonomics, Neuromechanics; Rehabilitation Engineering

Selected Publications

1. M.O. Conrad and D.G. Kamper, "Isokinetic strength and power deficits in the hand following stroke." *Clin Neurophys* 123(6). p. 1200-6, 2012
2. M.O. Conrad, R.A. Scheidt, B.D. Schmit, "Effects of wrist tendon vibration on targeted upper-arm movements in poststroke hemiparesis," *Neurorehabil Neural Repair* 25(1), p. 61-70, 2011.
3. M.O. Conrad, R.A. Scheidt, B. Schmit, "Effects of wrist tendon vibration on arm tracking in people poststroke," *J Neurophysiol* 106(3) p 1480-8, 2011.

Ka Chai Cheok,
Ph.D.
Oakland University

Professor
Electrical and Computer Engineering Department

Email: cheok@oakland.edu
Phone: (248) 370-2232



Teaching

Automotive Mechatronics; Microcomputer-based Control Systems; Electric Drive Systems; Adaptive Control Systems; Intelligent Control Systems; Autonomous Vehicle Systems

Research

Basic theoretical research on control and estimation, signal and image processing, computational intelligence and decisions. Exploratory experiments in embedded controls and mechatronics; virtual & physical simulators; autonomous mobile robots; positioning & navigation system. Applications to self-navigating unmanned ground vehicles and omnidirectional vehicles, auto-lane centering automobile system, mine-detection robots, and automated IR cancer detection system. *"My academic research strives to grasp deep insights of the subjects and extend their potential so they can be developed into useful tools. I work with professionals and entrepreneurs to bring these ideas to meaningful real world applications."* K.C. Cheok, 2013

Selected Publications

1. "Design and Implementation of Low-Cost Mobile Robot for Mine Detection," *2012 NDIA Ground Vehicle Systems Engineering and Technology Symposium (GVSETS) - Robotic Systems (RS) Mini-Symposium*, Troy, MI, August 14-16, 2012.
2. "Adaptive Backstepping Control based on Estimation of Dominant Parameters for Brushless DC Motor," *ICGST International Conference on Computer Science and Engineering, CSE-Dubai-12*, Dubai, UAE, 16-18 Jul 2012.
3. "Comparison of Optimal Path Planning Algorithms for an Autonomous Mobile Robot," *The 3rd Annual IEEE International Conference on Technologies for Practical Robot Applications*, Woburn, MA, USA, from April 11-12, 2011.



Manohar Das
Ph.D.
Colorado State University

Professor
Electrical and Computer Engineering Department

Email: das@oakland.edu
Phone: (248) 370-2237

Teaching

Digital Signal Processing, Digital Image Processing, Communication Systems, Signals and Systems, Power Electronics, System Optimization

Research

Adaptive Signal Processing and Control, Digital Signal and Image Processing, Data Compression, Pattern Recognition, System Modeling and Identification. "Research in adaptive signal processing and control involves development of filtering, detection, identification and control algorithms in presence of uncertainties and incomplete information about a process or system" Manohar Das, 2013

Selected Publications

1. Gu and Das, "Backstepping Control Design for Vehicle Active Restraint Systems," *ASME Transactions on Dynamic Systems, Measurements and Control*, 2013.
2. AlSharif and Das, "A Time-varying Transfer Function Model for Modeling the Charging Process of a Lithium-ion Battery," *Proceedings of 2013 IEEE EnergyTech Conference*, Cleveland, Ohio, 2013.
3. Chaudhry and Das, "Adaptive Control of Indoor Temperature in a Building Using a Desirable Reference Temperature Profile," *Proceedings of 56th IEEE International Midwest Symposium on Circuits and Systems*, 2013.
4. Sloboda and Das, "A Simple Sleep Stage Identification Technique for Incorporation in Inexpensive Electronic Sleep Screening Devices," *Proceedings of 2011 IEEE National Aerospace and Electronics Conference (NAECON 2011)*, Dayton, Ohio, August 2011.
5. Kedar-Dongarkar and Das, "Driver Classification for Optimization of Energy Usage in a Vehicle," *Proceedings of 2012 Conference on Systems Engineering Research*, St. Louis, Missouri, March, 2012

Mohamed A. Zohdy
Ph.D.
University of Waterloo (Canada)

Professor
Electrical and Computer Engineering Department

Email: zohdyma@oakland.edu
Phone: (248) 370-2234



Teaching

Signal and Linear Systems Analysis; Optimal Control Theory; Automatic Control Systems

Research

Advanced control and estimation, intelligent pattern information processing, neural, fuzzy, evolutionary systems, chaos control, smart simulation, hybrid systems. Potential extensions to government, industry; recent seed funds on Fuel Cell modeling and control for transportation, hold considerable promise for improving vehicle energy supply

Selected Publications

1. "Application of HyperFuzzy Modeling and Control for Bioinspired Systems," *ICCAE*, 2011
2. "Unscented Kalman Filters for Continuous Phase FSK Equalizations," *ICII*, 2011
3. "Modeling Nonlinear Systems using Multiple Piecewise Linear Equations," *Nonlinear Analysis and Modeling and Control*, 2010
4. "An Accurate Model of Polyglutamine," *Proteins Structure Function and Bioinformatics*, 2010
5. "Robust Motion Control of Biped Walking Robot," *WSEA Trans Systems and Control*, 2010



Jing Tang
Ph.D.
University of Illinois, Urbana

Assistant Professor
Electrical and Computer Engineering Department

Email: jtang@oakland.edu
Phone: (248) 370-2245

Teaching

Biomedical Imaging; Digital Image Processing; Digital Signal Processing

Research

Image reconstruction, evaluation, and analysis in emission computed tomography. "To develop and improve medical imaging techniques to advance clinical diagnosis and disease treatment." Jing Tang, 2013

Selected Publications

1. A. Rahmim and J. Tang, "Noise propagation in resolution modeled PET imaging and its impact on detectability," *Phys. Med. Bio.*, 58 (19), 6945-6968, 2013
2. A. Rahmim, J. Tang, and H. Zaidi, "Four-dimensional image reconstruction strategies in cardiac-gated and respiratory-gated PET imaging," *PET Clinics*, 8, 51-67, 2013
3. J. Tang, W. P. Segars, T.-S. Lee, X. He, A. Rahmim, and B. M. W. Tsui, "Quantitative study of cardiac motion estimation and abnormality classification in emission tomography," *Med. Eng. Phys.*, 33 (5), 563-572, 2011
4. J. Tang, T.-S. Lee, X. He, W. P. Segars, and B. M. W. Tsui, "Comparing 3D OS-EM and 4D RBI-MAP-EM reconstruction algorithms for cardiac motion abnormality classification using a motion observer," *IEEE Trans. Nucl. Sci.*, 57 (5), 2571-2577, 2010
5. J. Tang, H. Kuwabara, D. F. Wong, and A. Rahmim, "Direct 4D reconstruction of parametric brain images incorporating anato-functional joint entropy," *Phys. Med. Biol.*, 55 (15), 4261-4272, 2010
6. A. Rahmim, J. Tang, and H. Zaidi, "Four-dimensional image reconstruction strategies in dynamic PET: Beyond conventional independent frame reconstruction," *Med. Phys.*, 36 (8), 3654-70, 2009

Brian Dean
Ph.D.
University of Wyoming

Assistant Professor
Electrical and Computer Engineering Department

Email: bkdean@oakland.edu
Phone: (248) 370-2822



Teaching

Bioengineering, Computer, Computer Hardware, Embedded Systems, Computer Architecture

Research

Biomedical Instrumentation, Biomedical Signal and Image Processing, Biomimetic Systems, Computer Architecture, Embedded Systems, Machine Learning

Selected Publications

1. B. K. Dean, C. H. G. Wright, and S. F. Barrett, "Preliminary Tests of a possible Outdoor Light Adaptation Solution of a Fly Inspired Visual Sensor: A Biomimetic Solution," *ISA Biomedical Sciences Instrumentation*, vol. 47, pp. 147-152, Apr. 2011.
2. B. K. Dean, C. H. G. Wright, and S. F. Barrett, "Advances in Sensor Adaptation to Changes in Ambient Light: A Bio-inspired solution," *ISA Biomedical Sciences Instrumentation*, vol. 46, pp. 20-25, Apr. 2010.
3. B. K. Dean, C. H. G. Wright, and S. F. Barrett, "The Design of an Analog Module for Sensor Adaptation to Changes in Ambient Light," *ISA Biomedical Sciences Instrumentation*, vol. 45, pp. 185-190, Apr. 2009.



Pieter A. Frick
Ph.D.
London University (England)

Professor
Electrical and Computer Engineering Department

Email: frick@oakland.edu
Phone: (248) 370-2242

Teaching

Electric Circuits, Random Signals and Processes

Research

Real time computer systems, optimization and optimal control, parallel computing in systems and control, power system modeling and control, stochastic processes, and system identification



Andrew Rusek
Ph.D.
Warsaw Technical University (Poland)

Professor
Electrical and Computer Engineering Department

Email: rusek@oakland.edu
Phone: (248) 370-2181

Teaching

Electronic Circuit Devices, Electronic Circuit Design, Advanced Electronics, Analog and Digital Communication Circuits and Systems, High Frequency Electronics, Electromagnetic Compatibility, Instrumentation and Measurements

Research

Electromagnetic Compatibility, High Frequency Electronics. *"The major part of research is related to measurements, modeling and simulations of high speed twisted pair transmission lines applied in automotive industry."* Andrew Rusek, 2013

Selected Publications

1. "AC 2007-246: Easy to Do Transmission Line Demonstrations of Sinusoidal Standing Waves and Transient Pulse Reflections, ASEE 2007 Conference." *Time Domain Reflectometers, J. Wiley Encyclopedia*, 2007 Internet Edition
2. "Oscilloscopes," chapter published in the 5-th edition of *Wiley Inter-science Eshbach's Handbook of Engineering Fundamentals*, January 8, 2009, ISBN 9780470085783
3. "Improving Student Understanding of Instrumentation and Measurements in US Engineering Undergraduate Programs," *2009 ASEE, North Central Section Conference*, Grand Valley State University, Grand Rapids, MI., April 3-4, 2009
4. "Bridging Communication Systems and Circuits with PSPICE," *ASEE North Central Sectional Conference T1A-1*, Pittsburgh, PA, March 26-27, 2010
5. "A Friendly Approach to Transient Processes in Transmission Lines," *ASEE North Central & Illinois-Indiana Section Conference*, 2011



Osamah Rawashdeh
Ph.D.
University of Kentucky

Associate Professor
Electrical and Computer Engineering Department

Email: rawashd2@oakland.edu
Phone: (248) 370-2866
Web: e2r.secs.oakland.edu

Teaching

Digital Design; Embedded Systems; Mechatronics; Fault-Tolerant Computing

Research

Fault-tolerance and reconfigurable computing; aerial and ground robotics; biomedical instrumentation; embedded system design; product development. *"Microprocessors are increasingly embedded into all kinds of products and systems we use every day to make them more intelligent and able. (My) research is focused on the efficient implementation of such computer-controlled devices with special focus on enhancing reliability, performance, and power consumption."* Osamah Rawashdeh, 2013

Selected Publications

1. M. Ferrari, B. Harrison, O. Rawashdeh, R. Hammond, Y. Avery, M. Rawashdeh, W. Sa'deh, M. Maddens, "Clinical feasibility trial of a motion detection system for fall prevention in hospitalized older adult patients," *Geriatric Nursing*, vol. 33, no. 3, pp. 177-83, May 2012
2. O. Rawashdeh and B. Sababha, "An Image-Processing-Based Gimbal System Using Fisheye Video," *Computer Technology and Application*, vol. 2, pp. 85-93, 2011.
3. R. AbuSleiman, O. Rawashdeh, and M. Siadat, "A Statistical Algorithm for Attitude Estimation from Real-time Aerial Video," *AIAA Journal of Aerospace Computing, Information, and Communication*, vol. 7, no. 10, 2010.
4. M. Sharawi, O. Rawashdeh and D. Aloï, "Design and Implementation of Embedded Printed Antenna Arrays in Small UAV Wing Structures," *IEEE Transactions on Antennas & Propagation*, vol. 58, no. 8, pp. 2531 - 2538, 2010.
5. F. Abu-Farha, M. Nazzal, O. Rawashdeh, R. Michael, "Contact Sensors for Accurate Monitoring and Prediction of Sheet Deformation during Hydro/Pneumatic Forming Operations," *Journal of Key Engineering Materials*, vol. 433, pp. 125-134, 2010.

Subraminiam Ganesan
Ph.D.

Indian Institute of Science (Bangalore)

Professor
Electrical and Computer Engineering Department
Associate Director Center for Robotics, Unmanned and Intelligent Systems

Email: ganesan@oakland.edu
Phone: (248) 370-2206
Web: secs.oakland.edu/~ganesan



Teaching

Graduate level courses: Real time systems, FPGA based embedded systems, microprocessor based embedded systems, DSP in embedded systems, Validation and verification of embedded systems, Parallel computer architecture

Research

Divisible Load Scheduling in multi-core and multi-processor systems; Condition Based Maintenance, Real Time DSP/Multiprocessor Systems for Specific Applications, Model Based Systems design. *"Doing research and development on micro-computer based applications like engine control for low cost and high gas mileage, advanced techniques to reduce the maintenance cost of cars and military vehicles. This is application of computer engineering for assistance to the needy, and also safety and comfort of the world."* Subraminiam Ganesan, 2013

Selected Publications

1. A. Prajapati and S. Ganesan, "Applications of Univariate Statistical Techniques and Neural Networks in Condition-based Maintenance," *Quality and Reliability Engineering International*, John Wiley, ISSN: 0748-8017, Vol 29, Issue 3, April 2013, pp 439-461.
2. S. Ganesan, "cloud based manufacturing", *ICAM 2012*, Varanasi, India, December 17-19, 2012.
3. "A microprocessor Based Baby Monitoring System Using Accelerometer and Temperature Sensors," *EDN*, 2011
4. "A Generic Framework for Condition Based Maintenance," *International Journal of Embedded System and Computer Engineering*, 2010
5. "Univariate Analysis for Condition-Based Maintenance: A Case Study," *SAE International Journal of Passenger Cars - Electronic and Electrical Systems*, 2011



Edward Y. Gu
Ph.D.
Purdue University

Professor
Electrical and Computer Engineering Department

Email: guy@oakland.edu
Phone: (248) 370-2219

Teaching

Robotic Systems and Control; Analysis of Nonlinear Control Systems; Electromechanical Energy Conversion; Automatic Control Systems

Research

Kinematics, Task-Planning, Dynamic Modeling and Control of Robotic Systems; Nonlinear Systems Modeling, Analysis, Adaptive Control and Computer Simulations, Human Biomechanical and Biodynamic Modeling and Digital Simulations; Learning and Intelligent Control of Human-Machine Interactive Systems. *"The major research interests are in the areas of robotic kinematics, dynamics and control, nonlinear control systems, and digital human modeling and applications. Robotics research and technology development have been helpful in industrial applications for decades, and are now at the cutting-edge of making another big leap to create a robot that imitates the entire human capability and intelligence. The impact will be tremendous on society and economics in the near future."* Edward Y.L. Gu, 2013

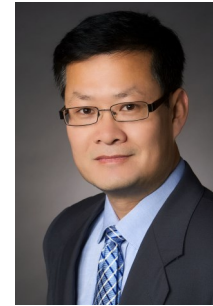
Selected Publications

1. "A Journey from Robot to Digital Human," *Springer*, Berlin Heidelberg, September 2013, ISBN 978-3-642-39046-3.
2. "Backstepping Control Design for Vehicle Active Restraint Systems," *ASME Transactions: Journal of Dynamic Systems, Measurement and Control*, Vol. 135, No. 1, January 2013, paper number 011012, pp. 1-9.
3. "Modeling of Human-Vehicle Dynamic Interactions and Control of Vehicle Active Systems", *International Journal on Vehicle Autonomous Systems*, Vol.10, No. 4, December, 2012, pp. 297-314.
4. "Trust-Based Coalition Formation in Multi-Agent Systems", *Journal of Defense Modeling and Simulation: Applications, Methodology, Technology*, SAGE Publications, 2013.

Hongwei Qu
Ph.D.
University of Florida

Associate Professor
Electrical and Computer Engineering Department

Email: qu2@oakland.edu
Phone: (248) 370-2205



Teaching

Electronic circuits and devices, Fundamentals of MEMS, Integrated devices and circuits, Advanced electronics design

Research

Micro-electro-mechanical systems (MEMS), CMOS-MEMS technology, CMOS-MEMS inertial sensors, Applications of MEMS in biomedicine and security, Nanotechnology and devices, MEMS/NEMS modeling and applications. *"My research is at more bottom level and centered on physical devices. It's my belief that innovations at device level on micro/nano dimensions always have more impacts on other systems and ultimately, the improvement of human life."* Hongwei Qu, 2013

Selected Publications

1. J. Khazaai, H. Qu, "Electro-thermal MEMS Switch with Latching Mechanism: Design and Characterization," *IEEE Sensors Journal*, 12(9), 2012, pp.2830-2838.
2. M. Haris, H. Qu, P. Qu, "A Low-Cost CMOS-MEMS Piezoresistive Accelerometer with Large Proof Mass," *Sensors*, **11**(8), 2011.
3. H. Sun, D. Fang, K. Jia, H. Qu, et al, "A Low-Power Low-Noise Dual-Chopper Amplifier for Capacitive CMOS-MEMS Accelerometers," *IEEE Sensors Journal*, **11**(4) 2011.
4. M. Haris, H. Qu, "A Fully-Differential CMOS-MEMS Z-axis Accelerometer Based on Planar Comb Fingers," *Journal of Micro/Nanolithography, MEMS and MEOMS*, **9**(1), 2010.
5. P. Qu and H. Qu, "A Novel CMOS-MEMS Scanning Micro-mirror Using Vertical Comb Drives," *IEEE International Conference on Optical MEMS and Nanophotonics*, 2012.



Khalid Mirza
Ph.D.
The Ohio State University

Visiting Assistant Professor
Electrical and Computer Engineering Department

Email: mirza@oakland.edu
Phone: (248) 370-4629

Teaching

Industrial Robotics; Robotic Systems and Control; Machine Vision; Intelligent Control Systems; Real-Time Programming Techniques; Electric Circuits; Introduction to Electrical and Computer Engineering.

Research

Vision guided robotics; Advanced robotic platforms; Safe robotics and adaptive programming through the use of sensors; Intelligent robot teaching interfaces and methods. *“(I do) fundamental research to help realize the next generation industrial robots which are a key component to industrial automation and advanced manufacturing.”* Khalid Mirza, 2013

Selected Publications

1. “General formulation for force distribution in power grasp,” *IEEE International Conference on Robotics and Automation*
2. “Dynamic simulation of enveloping power grasps,” *IEEE International Conference on Robotics and Automation*
3. “Force control of planar power grasp in the DIGITS System,” *Fourth International Symposium on Robotics and Manufacturing*
4. “Power grasp force distribution control using artificial neural network,” *Journal of Robotic Systems*
5. “Neural network control of force distribution for power grasp,” *IEEE International Conference on Robotics and Automation*

Darrin M. Hanna
Ph.D.
Oakland University

Associate Professor
Electrical and Computer Engineering Department

Email: dmhanna@oakland.edu
Phone: (248) 370-2170



Teaching

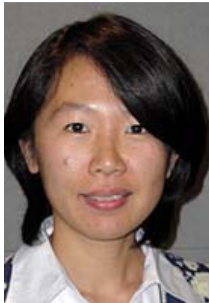
Embedded Systems; Computer Problem Solving; Digital Logic and Microprocessors; Information Networks

Research

Using mixed-mode microprocessorless systems such as FPGAs, ASICs, and MEMS with Artificial Intelligence for embedded systems

Selected Publications

1. “Flexible Embedded System Design using Flowpaths,” *International Conference on Engineering Reconfigurable Systems and Algorithms*, 2011
2. “Generating Hardware from Java Using Self-Propagating Flowpaths,” *International Conference on Engineering Reconfigurable Systems and Algorithms*, 2011
3. “FPGA-based Hybrid Systems in Forth: a Forth Core and Reconfigurable Hardware from Forth,” *International Conference on Embedded Systems and Applications*, 2010
4. “Implementing Error Detection and Error Correction with Explicit Area Constraints,” *International Conference on Engineering of Reconfigurable Systems and Algorithms*, 2010
5. “3D Virtual Videos of Brain Chemistry Using Spatiotemporal Neural Networks,” *Journal of Pattern Recognition*, 2010



Jia Li
Ph.D.
University of Michigan

Associate Professor
Electrical and Computer Engineering Department

Email: li4@oakland.edu
Phone: (248) 370-2661

Teaching

Advanced Digital Signal Processing, Signal Detection and Estimation Theory, Random Signals and Processes, Digital Image Processing, Communication Systems, Principles of Digital Communications, Signals and Systems

Research

Statistical Signal Processing with applications in biomedical imaging and communications. The current and past projects include image segmentation, reconstruction and registration of different imaging modalities, UWB channel modeling and capacity evaluation, and intra-vehicle wireless sensor network. *"(My) research is in the area of statistical signal processing with applications in biomedicine and communications. The extraction, modeling and analysis of signals or parameters from noisy measurements have broad range of practices in science and engineering, and in the industries of defense, finance, health care and telecommunications."* Jia Li, 2013

Selected Publications

1. "An Automated Visi-Coil Fiducial Markers Detection Method on kV Projection Images During Prostate Radiation Therapy," *IEEE Nuclear Science Symposium and Medical Imaging Conference*, 2013
2. "A New Method & Schema for Real-time Prostate Tracking During VMAT Delivery," *The American Association of Physicists in Medicine 54th Annual Meeting*, 2012
3. "Intra-vehicle UWB MIMO Channel Capacity," *IEEE Wireless Communications and Networking Conference*, 2012
4. "Measured Channel Capacity of SIMO-UWB for Intra-Vehicle Communications," *5th European Conference on Antennas and Propagation*, 2011
5. "Reconstruction of 3D Tubular Structures from Cone-beam Projections," *International Symposium on Biomedical Imaging*, 2011

Robert N. K. Loh
Ph.D.
University of Waterloo (Canada)

Professor
Electrical and Computer Engineering Department

Email: loh@oakland.edu
Phone: (248) 370-2222



Teaching

Control systems; Estimation Theory, Kalman Filters, Observers; Signals and Systems

Research

Linear and nonlinear controls, adaptive controls; automotive engineering, suspension systems; robotics, unmanned robotic vehicles, underwater robotic vehicles; estimation theory, linear and nonlinear observers, Kalman filters, systems identification; stochastic processes, Kalman-Bucy filtering; biomedical engineering. *"My research consists of securing research grants/contracts from funding agencies, government organizations and industries, up-dating research and teaching labs, publishing scholarly papers and technical reports, and supervising graduate students, with a commitment to excellence and a solid record of academic and professional achievements."* Robert N. K. Loh, 2013

Selected Publications

1. R.N.K. Loh, W. Thanom, J. Pyko, and A. Lee, "Electronic Throttle Control System: Modeling, Identification and Model-Based Control Designs," *Engineering*, 2013, 5, 587-600.
2. W. Thanom and R.N.K. Loh, "Observer-Based Nonlinear Feedback Controls for Heartbeat ECG Tracking Systems," *Intelligent Control and Automation*, 2012, 3, 251-261.
3. R.N.K. Loh and M.N. Karsiti, "Observer-Based Nonlinear Control of Depth Positioning of a Spherical Underwater Robotic Vehicle," *2012 4th International Conference on Intelligent and Advanced Systems (ICIAS 2012)*.
4. W. Thanom and R.N.K. Loh, "Nonlinear Control of Heartbeat Models," *Journal on Systematics, Cybernetics and Informatics*, Vol. 9, 2011.