Tenure Track Faculty Network
Brief Biographical Sketches
2016-17
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## Tenure Track Faculty Network 2016-17

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<td>Fitzsimmons, Eric</td>
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<td>Heier Stamm, Jessica</td>
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Jonathan P. Aguilar

Department: Biological and Agricultural Engineering / Southwest Research and Extension Center
Email: jaguilar@ksu.edu
Phone: 620-275-9164
Website: http://www.bae.ksu.edu/people/faculty/aguilar/index.html
Office: Southwest Research-Extension Center, 4500 E. Mary St., Garden City, Kansas 67846

Education
Ph.D. 2009 Biological and Agricultural Engineering Kansas State University
M.S. 2005 Agricultural Engineering University of the Philippines Los Baños

Academic/Industrial Experience
- Assistant Professor, Kansas State University, Southwest Research and Extension Center, Garden City, Kansas 2012-present
- Postdoctoral Agricultural Scientist, Northern Great Plains Research Laboratory (NGPRL), USDA-ARS, Mandan, North Dakota, 2011-2012
- Postdoctoral Agricultural Engineer, Northern Plains Agricultural Research Laboratory (NPARL), USDA-ARS, Sidney, MT, 2009-2011
- University Researcher II, Land and Water Resources Division, University of the Philippines Los Baños, 2002-2007

Key Words
Extension specialist, irrigation research, water resource allocation, groundwater development, GIS, remote sensing

Short Description of Educational Interests
Provide educational opportunities for county agents and producers regarding water-related topics and issues

Short Description of Research Interests
Applying GIS tools and techniques, and new technologies to provide solutions and options for producers to manage water-related concerns

Three Recent Publications

Recent Research/Outreach/Extension Projects
- “On-Farm Demonstration of Water Management Technologies and Mobile Drip Irrigation” funded by Kansas Water Office
- “Sustaining Agriculture through Adaptive Management to Preserve the Ogallala Aquifer under a Changing Climate” funded by USDA-NIFA
- “Promoting Sensor-Based Technology to Improve Land and Water Resources Conservation” funded by USDA-NRCS Conservation Innovation Grant

Hardware/Equipment Capabilities
Multi-parameter water quality test kit, overhead sprinkler uniformity test assembly, hydraulic soil sampling, coring and drilling machine, mobile irrigation lab

Software/Simulation Capabilities
ArcGIS, Manifold, JMP, Minitab, MS Access, Crop Water Allocator, KanSched, Crop Yield Predictor
Chris Ahern

Department: Architectural Engineering and Construction Science
Website: http://www.are-cns.ksu.edu/people/faculty/chrisahern/

Email: cahern@ksu.edu
Phone: 785-532-3559

Education
M.S.  2005  Architectural Engineering  Kansas State University
B.S.  2005  Architectural Engineering  Kansas State University

Academic/Industrial Experience
•  Assistant Professor, Architectural Engineering and Construction Science, December 2012-Present
•  Principal/Project Manager, PKMR Engineers, Overland Park, Kansas, June 2005-December 2012

Key Words
Mechanical, electrical, plumbing building systems, construction administration

Short Description of Educational Interests
Teaching undergraduate courses in MEP systems in buildings

Short Description of Research Interests
MEP building systems

Software/Simulation Capabilities
Trace 700, AutoCad
Placidus B. Amama

Department: Chemical Engineering  
Website: http://www.che.ksu.edu/people/faculty/amama/  
Email: pamama@k-state.edu  
Phone: 785-532-4318

Education
Postdoctoral Scholar 2004  Chemical Engineering  Yale University
Ph.D. 2002  Environmental Engineering  Yokohama National University, Japan
B.Sc. 1992  Chemistry  University of Calabar, Nigeria

Academic/Industrial Experience
- Research Scientist, Wright-Patterson Air Force Research Laboratory, December 2007 – August 2013
- NASA-INaC Postdoctoral Fellow/Associate Research Scientist, BNC, Purdue University, August 2004–November 2007

Key Words
Heterogeneous catalysis, nanomaterials, reaction engineering, carbon nanotubes, rational catalyst design, energy storage, environmental remediation

Short Description of Educational Interests
Teaching Advanced Chemical Reaction Engineering (CHE 822) to graduate students, planning to teach Transport Phenomena Lab (CHE 535) to undergraduate students

Short Description of Research Interests
Rational catalyst design for controlled growth of nanocarbon materials; 3D nanocarbon-based catalyst supports for efficient Fischer-Tropsch synthesis; nano-engineering of nanomaterials for energy and environmental applications

Three Recent Publications

Web of Knowledge h-index: 15

Hardware/Equipment Capabilities
Fully automated LabView-controlled CVD system for growth of nanostructures (carbon nanotubes, graphene, and boron nitride nanotubes); ion beam sputter deposition and etching system for thin film deposition and materials processing solutions; freeze dryer for processing nanomaterials; galvanostat for electrochemical characterization
Amir Bahadori

| Department: Mechanical and Nuclear Engineering | Email: bahadori@ksu.edu |
| Website: http://www.mne.k-state.edu/people/faculty/bahadori/ | Phone: 785-532-7040 |

Education

Ph.D. 2012 Biomedical Engineering, University of Florida
M.S. 2010 Nuclear Engineering Sciences, University of Florida
B.S. 2008 Mechanical Engineering (Nuclear Option), Kansas State University
B.S. 2008 Mathematics, Kansas State University

Academic/Industrial Experience

- Assistant Professor, Kansas State University, December 2015 – present
- Radiation Scientist, University of Houston/NASA Johnson Space Center, October 2010 – October 2015

Key Words

Radiation transport, dosimetry, risk analysis, space radiation, charged particles, radiation detection, biological modeling

Short Description of Educational Interests

Demonstrate applicability of knowledge to real-world situations and career-oriented problems; develop and teach courses in health and medical physics

Short Description of Research Interests

Radiation dosimetry for medical, occupational, and accidental exposures; space radiation detection using pixelated array detectors; incorporation of radiation measurements with simulation to determine exposure-associated risk; development and use of multi-scale models to improve radiation risk estimates

Three Recent Publications


Recent Research/Outreach/Extension Projects

- In-situ resource utilization for space radiation mitigation
- Advanced Exploration Systems RadWorks Radiation Environment Monitor (NASA)
- Deterministic and Monte Carlo Transport Code Comparisons (NASA)

Hardware/Equipment Capabilities

High-performance cluster computing

Software/Simulation Capabilities

Radiation transport (MCNP, FLUKA, PHITS, HZETRN); Voxel-based ray tracing; University of Florida/National Cancer Institute hybrid adult computational phantoms
Amy Rachel Betz

Department: Mechanical and Nuclear Engineering
Website: http://www.mne.ksu.edu/people/faculty/betz

Email: arbetz@ksu.edu
Phone: 785-523-2647

Education
M.S. 2008 Mechanical Engineering Columbia University, New York
B.S. 2006 Mechanical Engineering The George Washington University, Washington, D.C.

Academic/Industrial Experience
• Assistant Professor, Mechanical and Nuclear Engineering, Kansas State University, Manhattan, KS, 2011-present

Key Words
Heat transfer, microfluidics, multiphase transport, phase-change processes

Short Description of Educational Interests
I am committed to developing people through classroom instruction, research opportunities and mentoring. Along with my classroom instruction, I provided research opportunities for undergraduate and high school students. I participate with outreach activities with the Multicultural Engineering Program, Women in Engineering and the Kansas Children’s Discovery Center. I am currently pursuing educational research related to Growth Mindset.

Short Description of Research Interests
My research focuses on multiphase microfluidic transport. Both water and energy are recognized worldwide as limited and interconnected resources. Enhancing and controlling multiphase processes such as boiling, condensation, and freezing can increase energy efficiency and lower water consumption in many processes such as power generation. Due to the multi-scale nature of multiphase systems, patterning and structuring surface at the micro and nano level can be used as an effective tool to control, enhance or mitigate multiphase transport.

Three Recent Publications

Hardware/Equipment Capabilities
Minitech Micromilling Machine – Produces features down to 5 µm with 1 µm precision with spindle speeds up to 60,000 rpm. First Ten Angstroms Goniometer – Measures contact angle, surface energy, roll-off angle and visualize drop impact. Leica DMV2500 Microscope – Submicron resolution and 3-D mapping capability
Hitesh Bindra

Department: Mechanical and Nuclear Engineering  
Website: http://www-personal.ksu.edu/~hbindra/  
Email: hbindra@ksu.edu  
Phone: 785-532-3039

Education
Ph.D. 2010  Nuclear Engineering  University of Illinois  
M.S. 2007  Nuclear Engineering  University of Illinois  
B.E. 2002  Chemical Engineering  Panjab University, Chandigarh, India

Academic/Industrial Experience
• Assistant Professor, January 2014 – present  
  Department of Mechanical and Nuclear Engineering, Kansas State University, Manhattan, KS  
• Research Associate, 2010 – 2013  
  CUNY Energy Institute, City University of New York

Key Words
Nuclear reactor safety, nuclear thermal-hydraulics, thermal energy storage, transport theory

Short Description of Educational Interests
Teaching and developing courses on nuclear thermal-hydraulics, reactor safety and nuclear reactor engineering; training new generation of nuclear engineers to research and design advanced passively safe nuclear reactors

Short Description of Research Interests
Design of nuclear reactors, which are passively safe even in externally initiated scenarios; Making nuclear energy economically viable by integrating with energy storage; development of computational-experimental frameworks for high-temperature and energy system applications.

Three Recent Publications

Recent Research/Outreach/Extension Projects
• A computational-experimental study to investigate thermal stratification in SFRs, Nuclear Energy University Programs, Department of Energy, 2016-2019, $799,320 PI: Hitesh Bindra.  
• Development of reactor thermal-hydraulics and safety research facilities at Kansas State University, Nuclear Energy University Programs, Department of Energy, 2016-2019, $240,000 PI: Hitesh Bindra, Co-PI: Terry Beck.  
• Experimental investigation of convection and heat transfer in the reactor core for a VHTR, Nuclear Energy University Programs, Department of Energy, 2015-2018, $180,000, KSU PI: Hitesh Bindra, (Subcontract from CUNY).

Hardware/Equipment Capabilities
High-temperature imaging system, SEM, ultrasonic doppler velocimetry, high-speed optical temperature sensing

Software/Simulation Capabilities
Commercial CFD and structural analysis software: CFX, Fluent, and COMSOL, Multi-physics LBM, support vector machines
Shannon Casebeer

**Department:** Architectural Engineering and Construction Science  
**Email:** scasebeer@k-state.edu  
**Website:** [http://www.are-cns.ksu.edu/people/faculty/casebeer/](http://www.are-cns.ksu.edu/people/faculty/casebeer/)  
**Phone:** (785) 532-3573

**Education**
- **M.S.** 2016  Construction Management  North Dakota State University
- **B.S.** 1992  Construction Science and Management  Kansas State University

**Academic/Industrial Experience**
- Kansas State University, Architectural Engineering and Construction Science, Assistant Professor, Fall 2016 – Present.

**Key Words**
- Construction estimating, construction management, sustainable construction practices, recycled construction materials, LEED

**Short Description of Educational Interests**
- Construction estimating, construction management, sustainable construction practices

**Short Description of Research Interests**
- Sustainable construction practices, recycled construction materials

**Recent Publications**
- ASPE 2015 Estimating Academy – Presenter for 11th-Hour Bid Day Simulation Seminar, Kansas City Contractor Expo, Overland Park, Kansas
James M. Chen

Department: Mechanical and Nuclear Engineering
Website: www-personal.ksu.edu/~jmchen
Email: jmchen@ksu.edu
Phone: 785-532-3428

Education
Ph.D. 2011 Mechanical and Aerospace Engineering
George Washington University
M.S. 2007 Applied Mechanics
National Taiwan University, Taiwan
B.S. 2005 Mechanical Engineering
National Chung-Hsing University, Taiwan

Academic/Industrial Experience
- Assistant Professor, Kansas State University, August 2015 – present
- Assistant Professor, The Pennsylvania State University, Altoona College, August 2012 – May 2015
- Visiting Assistant Professor, Indiana University-Purdue University Fort Wayne, August 2011-May 2012

Key Words
Computational solid/fluid mechanics, rational continuum thermomechanics, turbulence, applied/computational mathematics, theoretical mechanics, multiscale modeling, atomistic simulation, energy harvesting, high-performance computing, fracture mechanics

Short Description of Educational Interests
Educate the public with practical information for improving society with layman language, and equip next-generation engineers with the state-of-the-art knowledge for their innovative careers

Short Description of Research Interests
Develop fundamental theories and utilize simulation-based experiments for different physical problems in solids and fluids, across different time/length scales and their applications

Three Recent Publications
- M. Lopez, James Chen, V. Polachko, A multiscale study of the boundary development for microfluidic system, Molecular Simulation, Accepted for publication.

Recent Research/Outreach/Extension Projects
- Multiscale Analysis of Vortex Formation behind an Oscillating Cylinder, NASA Pennsylvania Space Grant Consortium, PI, 1/1/2014-5/18/2015, $7,004
- Microstructural Evolution during Visco-Elastic-Plastic Deformation: Phase Field Model, Materials Research Institute, PI, 06/01/2014-08/31/2014, $10,000

Hardware/Equipment Capabilities
Access to campus-wide Beocat cluster system

Software/Simulation Capabilities
Significant use of free and/or open-source scientific tools (e.g. OpenFOAM, SU2, ParaView, LAMMPS, VMD, Gmsh) along with new theories our group develops for performing analysis and optimization of systems, involving multi-scale and multi-physics
Melanie Derby

Department: Mechanical and Nuclear Engineering
Website: http://www.mne.ksu.edu/people/faculty/derby

Email: derbym@ksu.edu
Phone: 785-532-2606

Education
Ph.D. 2013 Mechanical Engineering Rensselaer Polytechnic Institute
M.S. 2010 Mechanical Engineering Rensselaer Polytechnic Institute
B.S. 2008 Mechanical Engineering Rensselaer Polytechnic Institute

Academic/Industrial Experience
- Assistant Professor, Mechanical and Nuclear Engineering, Kansas State University, August 2013-present

Key Words
Heat transfer, energy, condensation heat transfer, multi-phase flow, mini- and micro-scale convective heat transfer, thermal management, building energy, humidity

Short Description of Educational Interests
Teach undergraduate and graduate classes in energy, heat transfer, fluid dynamics, and engineering design; create outreach activities to engage K-12 students, and spark an interest in science and engineering

Short Description of Research Interests
Increase fundamental understanding of condensation heat transfer; enhance condensation heat transfer on hydrophobic surfaces for applications such as power plant condensers; understand the role of humidity in occupied buildings; use natural systems in conjunction with conventional HVAC systems to reduce energy consumption; multi-phase oil and water flows

Three Recent Publications

Hardware/Equipment Capabilities
Heat transfer measurements, water baths and chillers, Leica microscope and Fastec camera for flow visualization, flow condensation loop
Eric J. Fitzsimmons

**Department:** Civil Engineering
**Website:** [http://www.ce.ksu.edu/people/faculty/fitzsimmons/](http://www.ce.ksu.edu/people/faculty/fitzsimmons/)
**Email:** fitzsimmons@ksu.edu
**Phone:** 785-532-0889

**Education**

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<tr>
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<th>Field</th>
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<td>Civil Engineering (Transportation)</td>
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<td>B.S.</td>
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**Academic/Industrial Experience**

- Assistant Professor, Kansas State University, August 2015 – present
- Visiting Assistant Professor, Kansas State University, 2014 – 2015
- Postdoctoral Research, University of Kansas, 2011 – 2014

**Key Words**

Rural and urban highway and intersection safety and operations, site-based vehicle data collection and reduction strategies, railroad engineering, work zone safety, law enforcement applications, engineering education

**Short Description of Educational Interests**

Teaching undergraduates and graduates the importance of transportation in their daily lives through courses and research

**Short Description of Research Interests**

Creating safer roads for all drivers through research, design and enforcement in both rural and urban environments; utilize technology and data to predict events and how to respond to these events on the roadway

**Three Recent Publications**


**Recent Research/Outreach/Extension Projects**

- “Updating the Lane Closure Guide for Urban Freeways in the Kansas City Metropolitan Area,” $60,161. Funded by the Kansas Department of Transportation. PI: **Eric Fitzsimmons**, Co-PI: Sunanda Dissanayake
- “Class III / Short Line System Inventory to Determine 129,844 kg (286,000 lbs.) Railcar Operational Status in Kansas,” $50,000. Funded by the Kansas Department of Transportation. PI: **Eric Fitzsimmons**, Co-PI: Stacey Tucker
- “Demonstration of the usRAP program in Kansas,” Funded for $50,000 by the Kansas Department of Transportation. PI: **Eric J. Fitzsimmons**; Co-PI: Sunanda Dissanayake

**Hardware/Equipment Capabilities**

Roadway data collection equipment (LiDAR, pneumatic road tubes, Wavetronix, count board), traffic control systems and ITS deployment tools

**Software/Simulation Capabilities**

ArcGIS, VISSIM, SYNCHRO, TransCAD
Daniel Flippo

Department: Biological and Agricultural Engineering
Website: http://www.bae.ksu.edu/people/faculty/flippo/index.html
Email: dkflippo@ksu.edu
Phone: 785-532-2929

Education
Ph.D. 2009  Mechanical Engineering  University of Oklahoma
M.S.  2005  Mechanical Engineering  Wichita State University
B.S.  1994  Mechanical Engineering  Kansas State University

Academic/Industrial Experience
- Assistant Professor, Biological and Agricultural Engineering, Kansas State University, 2013-present
- Senior Engineer, John Deere Product Engineering Center, Waterloo, Iowa, 2011 to 2013
- Adjunct Instructor, University of Oklahoma, 2009 to 2011
- Design Engineer, Cessna Aircraft Co, Wichita, Kansas, 1997 to 2005

Key Words
Agriculture, automation, mechatronics, precision machines, robotics, wheel-to-soil-interaction

Short Description of Educational Interests
Educating undergraduates and graduates in the design and role of agricultural machines

Short Description of Research Interests
Blending of automation and agriculture, including transfer of power, automation, mechatronics and wheel-to-soil interaction

Three Recent Publications

Hardware/Equipment Capabilities
Strain Gauges and Force Torque Sensors, HAAS CNC Milling

Software/Simulation Capabilities
Matlab, Atmel and Propellor embedded systems, Alibre CAD, ProE Manufacturing, Labview, C, Diptrace, and LATEX.
Ryan R. Hansen

Department: Chemical Engineering
Website: http://www.che.ksu.edu/people/faculty/hansen/

Email: rrhansen@ksu.edu
Phone: 785-532-0625

Education:
Ph.D. 2008 Chemical Engineering University of Colorado
B.Sc. 2001 Chemical Engineering Colorado School of Mines, Golden

Academic/Industrial Experience
• Assistant Professor, Kansas State University, 2015–present
• Research Scientist, Oak Ridge National Laboratory, 2014 –2015
• Postdoctoral Scholar, Oak Ridge National Laboratory, 2012–2013
• Postdoctoral Scholar, Colorado School of Mines, 2009–2012
• Associate Engineer, Parsons Engineering, 2001 –2003

Keywords
Biological interfaces, biofilms, biodetection, microfluidics, nanofabrication, polymeric materials

Short Description of Educational Interests
Transport Phenomena I and II (CHE 530, CHE 531)

Short Description of Research Interests
High-content screening platforms for characterizing bacterial communities, polymeric materials for diagnostic and biosensing applications, biocompatible micro- and nano-patterning techniques

Three Recent Publications

Recent Research/Outreach/Extension Projects
• Microwell Arrays for High-Throughput Investigation of Microbial Interactions, U.S. Dept. of Energy
• Bioactive Polymer Scaffolds for High Avidity Cell Capture and Proliferation, U.S. Dept. of Energy
• Characterization of Shear-Specific Biomarkers for Von Willebrand Disease Using Microfluidic Devices, American Heart Association

Hardware/Equipment Capabilities
Inverted epifluorescent microscope (Nikon Ti-E) with automated stage for live-cell microscopy, stage-top incubator (Tokai Hit) with digital gas mixer for cell culture experiments, multi-mode microplate reader (Biotek) and bacterial culture equipment
Mei He

**Department:** Biological and Agricultural Engineering  
**Website:** [http://www.bae.ksu.edu/people/faculty/he/](http://www.bae.ksu.edu/people/faculty/he/)  
**Office:** Seaton Hall 160

**Education**
- Postdoctorate 2011: Bioengineering  
  University of California-Berkeley
- Ph.D. 2008: Chemistry  
  University of Alberta, Canada
- M.S. 2003: Pharmaceutical Chemistry  
  Chongqing University, China
- B.E. 2000: Chemical Engineering  
  Chongqing University, China

**Academic/Industrial Experience**
- Assistant Professor, Department of Biological and Agricultural Engineering, Kansas State University, 2014 - present
- Senior Scientist, Department of Pathology and Laboratory Medicine, University of Kansas Medical Center, 2012 -2013

**Key Words**
Biomedical devices, biomicrofluidics/lab-on-chip, mobile diagnostic technology, nano/biotechnology and bioengineering

**Short Description of Educational Interests**
Perpetuating knowledge and inspiring learning is the core of my teaching philosophy. I am strongly committed to motivating students to learn the skills of critical thinking and problem solving, with interests in teaching biosensors, biomedical engineering, and nano/biotechnology.

**Short Description of Research Interests**
My research aims to integrate microfluidics/lab-on-chip and nanotechnology approaches for quantitatively defining essential elements in disease, personalized health conditions and food system.

**Three Recent Publications**
  *Featured as inside Cover Story*
  *Royal Chemistry Society Lab on a Chip 2014 Most Accessed Article*  
  *Top-scoring Altmetrics article published in Lab on a Chip (August-October 2014)*  
  *ScienceDialy: Feature Research*

**Recent Research/Outreach/Extension Projects**
- NIH NIGMS P20GM103638 Center for Molecular Analysis of Disease Pathways Pilot Project
- NC-1194 Committee, USDA Nanotechnology program

**Hardware/Equipment Capabilities**
- 3D printing, photolithography, nanofabrication, photo-spectrometer, FL microscopic Imaging, microfluidic controller, bioseparation apparatus, western blotting/ELISA

**Software/Simulation Capabilities**
- COMSOL multiphysics particle tracking and microfluidics, AutoCAD, metamorph image analysis
Jessica Heier Stamm

Department: Industrial and Manufacturing Systems Engineering  
Website: http://www.imse.ksu.edu/people/faculty/heier_stamm/  
Email: jlhs@k-state.edu  
Phone: 785-532-3726

Education
Ph.D. 2010  Industrial and Systems Engineering  Georgia Institute of Technology, Atlanta, GA  
B.S. 2004  Industrial Engineering, Music Minor  Kansas State University, Manhattan, KS

Academic/Industrial Experience
• Assistant Professor, Kansas State University, December 2010 – present

Key Words
Supply chain and logistics engineering, operations research, game theory, humanitarian operations, public health

Short Description of Educational Interests
Teaching undergraduate and graduate courses in operations research, game theory, decision analysis, and logistics; developing teaching materials to introduce students to applications of industrial engineering tools in humanitarian and public health settings

Short Description of Research Interests
Using operations research and game theory to design and analyze systems in which decisions are decentralized, applying quantitative methods to the design and improvement of humanitarian relief and public health systems

Three Recent Publications

Recent Research/Outreach/Extension Projects

Hardware/Equipment Capabilities
Some analyses benefit from access to computing cluster (e.g. K-State’s Beocat)

Software/Simulation Capabilities
IBM ILOG CPLEX Optimization Studio, Esri ArcGIS
Jungkwun ‘JK’ Kim

Department: Department of Electrical and Computer Engineering  Email: JKKim1324@ksu.edu  
Website:  http://www.ece.k-state.edu/people/faculty/index.html  Phone: (785) 532-4569

Education
Ph.D.  2011 Electrical Engineering, State University of New York at Buffalo, USA  
M.S.  2007  Electrical Engineering, State University of New York at Buffalo, USA  
B.S.  2005  Electronics and Communication Engineering, Saint Louis University, Philippines

Academic/Industrial Experience
Current:  2016 – present  Assistant Professor of Electrical and Computer Engineering, Kansas State University  
Previous:  2013 – 2016  Research faculty Electrical and Systems Engineering, University of Pennsylvania  
   2011 – 2013  Post-doc fellow of Electrical and Computer Engineering, Georgia Institute of Technology  
   2010 – 2011  Research associate of Electrical and Computer Engineering, University of Florida

Key Words Related to Your Activities
• Nano/Micro fabrication development, 3-D UV-LED lithography, Microfabricated inductor and antenna

Short Description of Educational Interests
• Fundamentals of nano/microfabrications: a lithography, metallization, etching, and molding.  
• Nano/micro devices: sensors, actuators, transducers, microfluidic channels, RF antennas, MEMS inductors.

Short Description of Research Interests
There have been great demands for the miniaturization of microelectronic devices in various engineering sectors including defense and commercial industry as well as portable personal electronics. It allows various electronic components to be integrated with sensors/actuators to realize multifunctional microsystems. However, it has been very challenging to meet all the requirement of small size, light weight, and multi-functionality while enhancing their performances. I have been interested in finding engineering solutions to these challenges by utilizing nanotechnology and microfabrication. Accordingly, my research has focused the development of integrated power converting devices, energy storage devices and body-implantable RF devices.

Three Recent Publications

Recent Research/Outreach/Extension Projects (limit to three)
• Computer Controlled UV-LED Lithography for 3-D Microfabrication  
• Timed Development and Thermal Reflow (TDTR) for Microlens and Microfluidic channels  
• Microinductor development for Commercial grade

Hardware/Equipment Capabilities within Your Research Activities
• UV Lithography, Thermal Evaporator, Plasma Etch, 3D printers (SLA, Filament), Vacuum Heat Oven, Electroplating, CO2 laser, Microscope (Optical)
Isaya Kisekka

**Department:** Biological and Agricultural Engineering  
**Email:** ikisekka@ksu.edu  
**Website:** [http://www.wkarc.org/programs/irrigation/gardencity/](http://www.wkarc.org/programs/irrigation/gardencity/)  
**Phone:** 620-276-8286

**Education**
- **Ph.D.** 2013 Agricultural and Biological Engineering, University of Florida
- **M.S.** 2007 Agricultural and Biological Engineering, University of Florida
- **B.S.** 2002 Agricultural Engineering, Makerere University, Uganda

**Academic/Industrial Experience**
- Assistant Professor, Kansas State University, 2013-Present
- Research Assistant, University of Florida, 2007 - 2013
- Research Engineer, National Agricultural Research Organization (NARO), Uganda, 2004 - 2007
- Water Resources Engineer, Balton (U) Ltd Kampala, Uganda, 2002 - 2004

**Key Words**
Agricultural water Management, irrigation, hydrology, crop modeling, global food security

**Short Description of Educational Interests**
Student mentoring through research and outreach activities

**Short Description of Research Interests**
Research utilizing a combination of field experiments and mathematical modeling to understand plant response to limited water; develop economically and environmentally sustainable deficit irrigation and water management technologies for row crop production e.g., corn, wheat, grain sorghum and forages.

**Three Recent Publications**

**Recent Research Projects**
- Mobile Drip Irrigation for Water Limited Crop Production (Global Food Systems)
- Forage Sorghum as an Alternative Crop for Water Limited Cropping Systems (USDA, OAP)
- Integrating soil and plant water status sensors with ET-Based irrigation scheduling
- Modeling crop yield response to limited irrigation management and changing climate

**Hardware/Equipment Capabilities**
Neutron probes (Model 503DR), center pivot with VRI and MDI capabilities, lateral-move irrigation system (model 8000, Valmont Corp., Valley, NE), Bowen ratio system for ET measurement, unmanned aerial vehicle, thermal infrared camera, infrared radiometers, soil water sensors, LP-80 leaf area index meter, leaf area meter, NVDI sensor

**Software/Simulation Capabilities**
RZWQM2, DSSAT, WAVE, SimLab, SAS and Sigmaplot for statistics and graphing, and many others
Dong Lin

Education
Ph.D. 2013 Industrial Engineering Purdue University
M.S. 2009 Industrial Engineering Univ. of Nebraska
M.S. 2007 Industrial Engineering Huazhong Univ. of Science & Technology, China
B.S 2004 Industrial Engineering Harbin Institute of Technology (HIT), China

Academic/Industrial Experience
• Assistant Professor, Kansas State University, August 2015 – present

Key Words
Additive manufacturing, metal matrix composites, functional materials

Short Description of Educational Interests
3D printing, manufacturing processes

Short Description of Research Interests
Laser-assisted additive manufacturing of metal composites, laser processing, mechanical behavior of metal components, additive manufacturing of carbon fiber composites and additive manufacturing of ultralight materials.

Three Recent Publications

Recent Research/Outreach/Extension Projects
• 3D printing of functional materials
• 2D nanomaterial based aerogel
• Additive manufacturing of metal composites

Hardware/Equipment Capabilities
Nd:YAG laser, and laser cutting and laser bonding

Software/Simulation Capabilities
Solidworks
Bin Liu

Department: Chemical Engineering
Website: http://www.che.ksu.edu/people/faculty/liu/
Email: binliu@ksu.edu
Phone: 785-532-4331

Education
Ph.D. 2008 Chemical Engineering Colorado School of Mines
B.S. 2003 Chemical Engineering Dalian University of Technology

Academic/Industrial Experience
- Assistant Professor, Kansas State University, 2013 - present
- Postdoc, Carnegie Mellon University, January 2013 – July 2013
- Postdoc, Argonne National Laboratory, 2010 - 2012
- Postdoc, Colorado School of Mines, January 2009 – December 2009

Key Words
Chemical transformations of biomassic compounds, phase stability and O solubility in Fe-Ni-Al alloys, SOFC

Short Description of Educational Interests
Chemical Engineering Analysis I. Emphasis on concept and generalized approach to solving relevant chemical engineering and applied mathematics problems. Incorporate modern mathematics softwares and frontier information into lectures.

Short Description of Research Interests
Density functional theory (DFT) methodology, heterogeneous catalysis, surface chemistry, novel materials and renewable energy generation

Three Recent Publications

Recent Research/Outreach/Extension Projects
- Phase VII: “Sustainable Energy and Education in Kansas (SEEK)” (formerly entitled Nano-Engineered Boron-Carbon-Nitrogen Materials for Energy,” Chris Sorensen (KSU lead PI), Information, and Sensing, $3,000,000 (direct costs), Kansas University Center for Research (National Science Foundation EPSCoR Program, Collaborator
- “Engineering the Electrical and Optical Properties of Atomically-Thick Boron-Nitride-Sheets via Functionalization,” Vikas Berry (KSU lead PI), $251,019 (direct costs), National Science Foundation, co-PI
- K-State Faculty mentoring program (pending)

Hardware/Equipment Capabilities
Beocat supercomputing cluster (KSU)

Software/Simulation Capabilities
VASP, Quantum Espresso, DACAPO, Materials Studio Visualizer, CP2K
Zifei Liu

**Department:** Biological and Agricultural Engineering  
**Website:** https://bae.engg.ksu.edu/~zifeiliu/  
**Email:** Zifeiliu@ksu.edu  
**Phone:** 785-532-3587

**Education**
- Ph.D. 2009 Biological and Agricultural Engineering  
  North Carolina State University
- M.S. 2005 Environmental Engineering  
  University of Cincinnati Atmospheric
- B.S. 1992 Science  
  Nanjing University, China

**Academic/Industrial Experience**
- Assistant Professor, Department of Biological and Agricultural Engineering, Kansas State University, Manhattan, 2012 – present
- Postdoctoral Research Associate, Departments of Animal Science, and Biosystems and Agricultural Engineering, Michigan State University, 2010 – 2012
- Research Assistant, North Carolina State University, 2005 – 2009
- Research Assistant, University of Cincinnati, 2002 – 2005
- Environmental Engineer, Environmental Monitoring Center of Anhui Province, China, 1992 – 2002

**Key Words**
Air quality, measurement, modeling, mitigation, extension, farm, animal operation, smoke, pasture burning

**Short Description of Educational Interests**
Effective dissemination of research-based information to industries, regulators and the public

**Short Description of Research Interests**
Air quality monitoring and modeling, fate and transport of air emissions from agricultural sources, and cost-effective mitigation strategies.

**Three Recent Publications**

**Recent Research/Outreach/Extension Projects**
- Meta-analysis of H₂S, NH₃, VOC, PM₁₀, and PM₂.₅ emissions from swine productions in North America
- Effectiveness of vegetative environmental buffers to reduce swine facility emissions
- Mitigation of Air Emissions from Swine Buildings through the Photocatalytic Technology using UV/TiO₂

**Hardware/Equipment Capabilities**
TEI 450i H₂S analyzer, INNOVA 1412i multi-gas analyzer
Katie Loughmiller

Department: Architectural Engineering and Construction Science  Email: loughmil@ksu.edu
Website: http://www.are-cns.ksu.edu/people/faculty/katieloughmiller/  Phone: 785-532-3576

Education
M.S. 2016  Construction Management  North Dakota State University
B.S. 2001  Construction Science and Management  Kansas State University

Academic/Industrial Experience
- Kansas State University – Assistant Professor (1st Year Tenure Track) in ARE/CNS, August 2013-present
- Ron Fowles Construction, Inc. Manhattan, KS – Small Projects Manager, August 2012-August 2013
- American Constructors, Inc., Austin, TX – Project Manager/Project Engineer, January 2002-August 2012

Key Words
Undergraduate education, construction management, construction science, building construction, undergraduate retention, women in construction, construction scheduling, construction finance, building assemblies, graphic communication

Short Description of Educational Interests
Construction scheduling and cost control, construction finance, masonry construction applications, building assemblies, graphic communications

Short Description of Research Interests
Undergraduate student retention, historical construction/restoration, women in Construction, building information modeling, construction technology

Recent Research/Outreach/Extension Projects
- Undergraduate Research – Construction Technology
- Undergraduate Research – Historical Construction of Kansas State University Campus

Software/Simulation Capabilities
Microsoft Project, Primavera P6 Project Management
Walter McNeil

**Department:** Mechanical and Nuclear Engineering

**Website:** [http://www.mne.k-state.edu/people/faculty/mcneil/](http://www.mne.k-state.edu/people/faculty/mcneil/)

**Email:** wmcneil@k-state.edu

**Phone:** 785-532-3379

**Education**

<table>
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<tr>
<th>Degree</th>
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<th>Field</th>
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<td>Ph.D.</td>
<td>2010</td>
<td>Nuclear Engineering</td>
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<td>B.S.</td>
<td>2005</td>
<td>Mechanical Engineering</td>
<td>Kansas State University</td>
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**Academic/Industrial Experience**

- Assistant Professor, August 2015 – present, Department of Mechanical and Nuclear Engineering, Kansas State University
- Nuclear Engineer/Physicist, 2010-2015, Space and Naval Warfare Systems Center – Pacific (SPAWAR)

**Key Words**

Radiological detection system design and development, multi-disciplinary system design and system integration, system engineering, radiation sensor design, radiation detector test and evaluation, sensor ruggedizing and performance analysis, nuclear system design, nuclear electronics, radiological isotope identifier (RIID), radiological threat detection, localization, and Identification, mobile detection system R&D and T&E

**Short Description of Educational Interests**

I strive to equip young engineers with sound techniques that will enhance their effectiveness in multidisciplinary design efforts including electrical, computational, mechanical, and software components; focusing on engineering communication and external communication with customers such that results will meet and exceed the demands of the community.

**Short Description of Research Interests**

Embedded system integration of radiological sensors, signal processing electronics, computational algorithms, and ergonomic mechanical/software design. Maximizing efficiency in component and system-level design for mobile radiation detection missions.

**Three Recent Publications**

- “R&D 100 Award”: R&D Magazine's top 100 technologically significant inventions of the year, for development of the Lithium Foil Proportional Gas Neutron Detector - 2014
- “R&D 100 Award”: R&D Magazine, Micro-structured Semiconductor Detector - 2009
- Patent No. 8519350: “Gas-filled neutron detectors having improved detection efficiency”

**Recent Research/Outreach/Extension Projects**

- Low-power signal processing for gamma-ray spectrometers and portable isotope identification systems.
- Low-power photon collection device for scintillator gamma-ray spectrometers.
- Underwater isotope detection system testing and development of background compensation of distributed radiological isotopes.

**Hardware/Equipment Capabilities**

Cryogenic semiconductor sensor assemblies, Compton gamma-ray imager, neutron and gamma-ray sensors, large scintillator gamma-ray spectrometers, deep sea vessel design, sensor packaging/integration services

**Software/Simulation Capabilities**

Basic radiation transport modeling; radiation detection system performance modeling; alarm algorithm design and evaluation for detection, localization and isotope identification; software interface design for intuitive operation and efficient display of complex radiological sensor data.
Trisha Moore

Department: Biological and Agricultural Engineering
Email: tlcmoore@ksu.edu
Website: http://www.bae.ksu.edu/people/faculty/moore/index.html
Phone: 785-532-2911

Education (enter most current degree first)

Ph.D. 2011 Biological and Agricultural Engineering North Carolina State University
M.S. 2008 Biological and Agricultural Engineering Kansas State University
B.S. 2006 Biological and Agricultural Engineering Kansas State University

Academic/Industrial Experience

- Assistant Professor, Department of Biological and Agricultural Engineering, Kansas State University, December 2013 – present
- Postdoctoral Research Associate, St. Anthony Falls Laboratory, University of Minnesota, November 2011 – November 2013

Key Words
Ecological engineering, low-impact development, ecological restoration, watershed management, life-cycle analysis

Short Description of Educational Interests
Teaching and developing courses in ecological engineering, watershed management, and environmental hydrology and hydraulics at the graduate and undergraduate levels

Short Description of Research Interests
Design and management of sustainable ecohydrological systems in human-dominated landscapes, ecological sustainability of biological production systems, impact of climate and landuse change on hydrologic systems

Three Recent Publications


Recent Research/Outreach/Extension Projects

- Working with the city of Wichita to develop an integrated watershed water quality program between the city’s regulated system and agricultural producers within the Little Arkansas watershed
- Assessing streambank erosion rates in the Little Arkansas watershed, and the capacity to predict erosion rates via semi-quantitative erosion indices (e.g., Rosgen’s BANCs model)
- Assessing carbon sequestration potential by a constructed wetland treating flue gas desulfurization effluent

Hardware/Equipment Capabilities
ISCO automated water samplers, HACH colorimeter for water quality analyses

Software/Simulation Capabilities
ESRI ArcGIS, EPA-SWMM, EPANET, INVEST
Prathap Parameswaran

Department: Civil Engineering
Email: prathapp@ksu.edu
Website: http://www.ce.ksu.edu/people/faculty/parameswaran/
Phone: 785-532-1748

Education
Ph.D 2010 Environmental Engineering  Arizona State University
M.S.  2005 Environmental Engineering  Illinois Institute of Technology
B.Tech  2003 Chemical Engineering  Coimbatore Institute of Technology, India

Academic/Industrial Experience
- Assistant Professor, Civil Engineering, Kansas State University, Manhattan, KS, August 2015 – present
- Associate Research Scientist, Swette Center for Environmental Biotechnology, The Biodesign Institute at Arizona State University, July 2012 – July 2015

Key Words
Wastewater treatment, anaerobic digestion, microbial fuel cells, biofuels/microalgae, bioenergy

Short Description of Educational Interests
Fundamental and applied courses in environmental engineering with specific focus on wastewater treatment at the undergraduate level. Graduate-level courses on advanced environmental biotechnology, fuel cells: chemical, enzymatic and microbial

Short Description of Research Interests
Anaerobic digestion, pretreatment technologies for bioprocessing of wastes and biomass
Microbial electrochemical cells for valuable products generation (electric power, hydrogen gas, and advanced oxidation products such as hydrogen peroxide)
Downstream resource capture from microalgae through environmental biotechnology, energy-positive wastewater treatment, capture and reuse of energy and resources at the food-energy-water nexus in urban and agricultural runoffs

Three Recent Publications

Recent Research/Outreach/Extension Projects
- NSF CBET 1335884 Modeling wastewater sludge hydrolysis aided by high temporal resolution measurements through microbial electrochemistry PI: Cesar I Torres, ASU Co-PI: P Parameswaran; $318,391; 2013 – 2016
- NSF CBET 1509933 Targeted, saturated fatty acid synthesis by microbial biohydrogenation and its superior extraction from microalgae biomass through selective fermentation PI: Bruce E Rittmann, ASU Co-PI: P Parameswaran; $ 309,443; 2015-2018

Hardware/Equipment Capabilities
High-performance liquid chromatography (HPLC) for organic acids, alcohols, and sugars, gas chromatography, total and dissolved organic carbon analysis; potentiostat-based chronoamperometry and cyclic voltammetry; spectrophotometry for organic and inorganic chemical analyses; DNA quantification and quantitative PCR
Pavithra Prabhakar

Department: Computer Science
Website: http://people.cis.ksu.edu/~pprabhakar
Email: pprabhakar@ksu.edu
Phone: 785-532-6250

Education
Ph.D. 2011 Computer Science
M.S. 2010 Applied Mathematics
M.S. 2006 Computer Science and Automation
B.S. 2004 Computer Science and Engineering

University of Illinois
University of Illinois
Indian Institute of Science, Bangalore
National Institute of Tech., Warangal

Academic/Industrial Experience
• Assistant Professor, Computer Science, Kansas State University, August 2015 – present
• Assistant Research Professor, IMDEA Software Institute, Madrid, Spain, September 2012 – August 2015
• CMI Postdoctoral Scholar, California Institute of Technology, August 2011 - August 2012

Key Words
Hybrid and cyber-physical Systems, formal verification and synthesis, automata theory and logic

Short Description of Educational Interests
CIS 890: Formal Verification of Hybrid Systems to graduate students, CIS 770: Formal Languages Theory to graduate students

Short Description of Research Interests
Formal methods: verification, synthesis, model-checking, abstractions, compositional analysis
Cyber-Physical systems: safety and stability analysis, synthesis, applications to robotics & aeronautics
Logic and automata theory: timed temporal logics and automata, complexity, expressiveness

Three Recent Publications

Software/Simulation Capabilities
Punit Prakash

Department: Electrical and Computer Engineering
Website: http://ece.k-state.edu/people/faculty/prakash.html

Email: prakashp@k-state.edu
Phone: (785) 532-3358

Education:
Ph.D. 2008 Biomedical Engineering University of Wisconsin-Madison
M.S. 2006 Biomedical Engineering University of Wisconsin-Madison
B.S. 2004 Electrical and Computer Engineering Worcester Polytechnic Institute

Academic/Industrial Experience
• Assistant Professor, Department of Electrical and Computer Engineering, August 2012 – Present
• Research Specialist, November 2009 – July 2012; Postdoctoral Scholar, October 2008 – October 2009, Department of Radiation Oncology, University of California, San Francisco

Key Words
Image-guided interventions, microwave ablation and hyperthermia, therapeutic medical devices, bioinstrumentation

Short Description of Educational Interests
Development of graduate biomedical engineering courses – therapeutic medical devices; medical imaging systems, teaching undergraduate medical instrumentation and bioengineering design courses.

Short Description of Research Interests
Microwave, radiofrequency, and ultrasound technology for image-guided thermal ablation and hyperthermia
Physics-based models for patient-specific treatment planning of image-guided thermal ablation; mathematical modeling of biological responses to thermal interventions

Three Recent Publications
• Curto S, Prakash P. Design of a compact antenna with flared groundplane for a wearable breast hyperthermia system. International Journal of Hyperthermia, Accepted for publication, 2015. DOI: 10.3109/02656736.2015.1063170
• Curto S, Taj-Eldin M, Fairchild D, Prakash P. Microwave ablation at 915 MHz vs. 2.45 GHz: a theoretical and experimental investigation. Medical Physics, Accepted for publication, 2015.

Recent Research/Outreach/Extension Projects
• Innovative Research Award, Johnson Cancer Research Center Theoretical and experimental investigation of 5.8 GHz microwave antennas for conformal thermal tumor ablation, PI: P.Prakash; 05/01/2015-4/30/2016

Hardware/Equipment Capabilities
Vector network analyzer (1-6 GHz); spectrum analyzer; computer-controlled SAR/E-field scan tank with 3-axis stage; RF power amplifiers (80 W, 800-2700 MHz); custom apparatus for broadband dielectric and magnetic measurements; 14 T small-animal MRI scanner

Software/Simulation Capabilities
Scientific computing workstation (16 core, 64 GB memory), CST Microwave Studio, COMSOL Multiphysics, Matlab, Labview
Vahid Rahmani

**Department:** Biological and Agricultural Engineering  
**Website:** [http://www.bae.ksu.edu/people/faculty/rahmani/](http://www.bae.ksu.edu/people/faculty/rahmani/)

**Email:** vrahmani@ksu.edu  
**Phone:** (785) 532 2921

**Education**
- **Ph.D.** 2014  Biological and Agricultural Engineering  Kansas State University, Manhattan, KS
- **M.S.** 2009  Civil and Environmental Engineering  Shiraz University, Iran
- **B.S.** 2007  Civil and Environmental Engineering  Amir-Kabir University of Technology, Iran

**Academic/Industrial Experience**
- Assistant Professor, Biological and Agricultural Engineering, Kansas State University, 2016 – present
- Postdoctoral Researcher, Kansas Biological Survey, Lawrence, Kansas, 2014 – 2016

**Key Words Related to Your Activities**
Water supply management/water resources engineering, extreme weather/climate, hydrology, climate change and variability

**Short Description of Educational Interests**
Courses in hydrology and applied climatology; GIS in water resources; incorporating weather and climate into GIS; water supply management and policy

**Short Description of Research Interests**
Stochastic modeling of extreme weather/climate events such as drought and flooding; reservoir modeling in a changing climate; lake sediment yield in upstream and downstream of watershed

**Three Recent Publications**

**Recent Research/Outreach/Extension Projects**
- **PI.** Development of Wetlands in Aging Reservoirs: Opportunities to Enhance Wetland Capacity and Improve Water Quality, *U.S. Environmental Protection Agency (U.S. EPA)*
- Annual Baseflow Variations as Influenced by Climate Variability and Agricultural Land Use Change in the Missouri River Basin

**Hardware/Equipment Capabilities within Your Research Activities**
Lake water sampling and lab experiments

**Software/Simulation Capabilities within Your Research Activities**
Matlab, R, Pyhton, ESRI ArcGIS, surface/subsurface water interaction modeling
Venkatesh-Prasad Ranganath

**Department:** Computer Science  
**Email:** rvprasad@ksu.edu  
**Website:** http://people.cs.ksu.edu/~rvprasad  
**Phone:** (785)-532-6375

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### Education

- **Ph.D.** 2006  
  **Computer Science**  
  **Kansas State University**
- **M.S.** 2002  
  **Computer Science**  
  **Kansas State University**
- **B.E.** 1997  
  **Computer Science and Engg.**  
  **Bangalore University, Bangalore, Karnataka, India**

### Academic/Industrial Experience

- Assistant Professor, Kansas State University, August 2015 – present
- Visiting Assistant Professor, Kansas State University, Feb 2014 – August 2015
- Researcher, Microsoft Research, India, August 2007 – August 2013

### Key Words Related to Your Activities

Software engineering, programming languages, empirical methods, data science

### Short Description of Educational Interests

Educate students to become well-grounded, proficient, and socially responsible software engineers and computer scientists, with good communication and data analysis skills.

### Short Description of Research Interests

Explore, study, and leverage the synergies between programming systems (language, analysis, tools and methodologies), empirical and probabilistic approaches, and utility computing to enable easy and correct construction and maintenance of software systems.

### Three Recent Publications

- Communication Patterns for Interconnecting and Composing Medical Systems – Venkatesh-Prasad Ranganath, Yu Jin Kim, John Hatcliff, and Robby. EMBC’15
- Compatibility Testing Using Patterns-based Trace Comparison – Venkatesh-Prasad Ranganath, Pradip Vallathol, and Pankaj Gupta. ASE’14
- Extrinsic Influence Factors in Software Reliability: A Study of 200,000 Windows Machines – Christian Bird, Venkatesh-Prasad Ranganath, Thomas Zimmermann, Nachiappan Nagappan, and Andreas Zeller. ICSE’14

### Recent Research/Outreach/Extension Projects

- Mobile and desktop apps to assist veterinarians with data collection and reporting
- Communication patterns in medical systems
- Patterns-based approach to trace comparison and its application to software engineering tasks
Jeremy Roberts

Department: Mechanical and Nuclear Engineering
Website: http://www.mne.ksu.edu/people/faculty/roberts
Email: jaroberts@k-state.edu
Phone: 785-532-7182

Education
Ph.D. 2014 Nuclear Science and Engineering MIT
MA B.S/M.S. 2009 Nuclear Engineering University of Wisconsin

Academic/Industrial Experience
• Assistant Professor, Department of Mechanical and Nuclear, Kansas State University, August 2013—present

Key Words
Nuclear reactor physics, neutron transport, high-performance computing

Short Description of Educational Interests
Teaching undergraduate and graduate courses in nuclear science and engineering, with a specific focus on nuclear reactor physics and radiation transport; providing cross-disciplinary opportunities to learn and apply computational methods

Short Description of Research Interests
Applying advanced computational techniques to reactor analysis with the ultimate goal of developing tools for predictive simulation

Three Recent Publications

Recent Research/Outreach/Extension Projects
• "Development of a High-Fidelity Model with Depleted Fuel for the Kansas State University TRIGA Mark II Reactor," Nuclear Regulatory Commission, $224,935. 5/15—4/18. PI: Roberts (with Geuther and McGregor at KSU).

Hardware/Equipment Capabilities
Group compute cluster [≈ 100 cores]; contributed hardware to and have guaranteed use of Beocat [≈ 3000 cores]; Intel Xeon Phi workstation

Software/Simulation Capabilities
Significant use of (1) free and/or open-source tools (e.g., PETSc, SLEPc) as core pieces of our group's research codes (Detran, Serment, and Poropy) and (2) numerous production-level tools (e.g., SCALE, Serpent, MCNP) for analyzing nuclear systems
Ajay Sharda

Department: Biological and Agricultural Engineering
Email: asharda@ksu.edu
Website: http://www.bae.ksu.edu/people/faculty/sharda/index.html
Phone: 785-532-2936

Education
Ph.D. 2011  Biosystems Engineering  Auburn University
M.Tech 2001  Farm Power Machinery, Computer Elec. minor  Punjab Agricultural University, Ludhiana, India
B.Tech 1998  Agricultural Engineering  Punjab Agricultural University, Ludhiana, India

Academic/Industrial Experience
- Assistant Professor, Biological and Agricultural Engineering, Kansas State University, October 2013 – present
- Post-Doctoral Research Associate, Center for Precision and Automated Agricultural Systems, Washington State University, February 2012 – September 2013
- Assistant Professor, Farm Power and Machinery, Punjab Agricultural University, March 2003 – January 2012

Key Words
Precision ag., machine systems for crop production, sensors, control systems, CAN, data management and analysis

Short Description of Educational Interests
Teaching undergraduate and graduate courses in power and machinery, instrumentation and data acquisition
Developing teaching material on precision agricultural technologies, and field data management and analysis

Short Description of Research Interests
- Development and evaluation of precision agriculture technologies for crop production with particular interest in control systems, CAN, sensors, and automation
- Crop production and machine performance data management and analysis for intelligent decision making

Three Recent Publications

Recent Research/Outreach/Extension Projects
- Precision Agriculture and Precision Forestry- Alabama. USDA-CSREES
- Evaluation of Automatic Section Control Technology for Agricultural Sprayers. Alabama Soybean Producers.
- Development and optimization of Solid-Set Canopy Delivery Systems for Resource-Efficient, Ecologically Sustainable Apple and Cherry Production. USDA-SCRI

Hardware/Equipment Capabilities
Instrumentation and data acquisition, control systems, designing virtual simulation, crop sensors, GPS/GNSS, CAN

Software/Simulation Capabilities
LabVIEW, MATLAB, SAS, ArcGIS, Solid Edge, Visual Basic
Aleksey Sheshukov

Department: Biological and Agricultural Engineering
Website: http://www.bae.ksu.edu/watershed/ashesh/
Email: ashesh@ksu.edu
Phone: (785) 532-5418

Education
Ph.D. 1996 Environmental Fluid Mechanics Kazan State University, Russia
M.S. 1991 Theoretical Mechanics & Applied Mathematics Kazan State University, Russia

Academic/Industrial Experience
• Assistant Professor, Biological and Agricultural Engineering, Kansas State University, 2012 – present
• Research Assistant Professor, Biological and Agricultural Engineering, Kansas State University, 2008 – 2012
• Research Associate, Bioproducts and Biosystems Engineering, Univ. of Minnesota, 2004 – 2008
• Visiting Assistant Professor, U.S. Army High-Performance Computing Research Center, Univ. of Minnesota, 1999 – 2003
• Assistant Professor, Kazan State Power Engineering University, Kazan, Russia, 1996-1998

Key Words
Hydrology, environmental quality, erosion, ephemeral gullies, climate generation model, climate change, subsurface flows

Short Description of Educational Interests
Hydrologic modeling of small watersheds; soil erosion; transport in biological systems; GIS in water resources

Short Description of Research Interests
Hydrologic modeling of watersheds using computer-based tools; monitoring and modeling of ephemeral gully erosion; climate change impacts on hydrologic processes and water-quality

Three Recent Publications

Recent Research/Outreach/Extension Projects
• Assessment of geomorphological properties and model development of ephemeral gully erosion in agricultural watersheds
• Watershed Restoration and Protection Strategies (WRAPS) – Water-quality assessment of non-point source pollution in Kansas watersheds
• Impacts of climate change on the hydrology of Kansas watersheds using ensembles of downscaled Global Climate Model predictions

Software/Simulation Capabilities
WINDS (Weather Input for Nonpoint Data Simulation) – A stochastic weather generator and tool for prediction of daily climate variables and intra-storm characteristics using statistics of historical records
David Thompson

**Department:** Electrical and Computer Engineering  
**Email:** davet@k-state.edu  
**Website:** http://www.ece.k-state.edu/people/faculty/davet/index.html  
**Phone:** 785-532-5600

**Education**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Year</th>
<th>Field</th>
<th>Institution</th>
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<td>Ph.D.</td>
<td>2012</td>
<td>Biomedical Engineering</td>
<td>University of Michigan</td>
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<tr>
<td>M.S.E.</td>
<td>2011</td>
<td>Electrical Engineering: Systems</td>
<td>University of Michigan</td>
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<tr>
<td>M.S.</td>
<td>2009</td>
<td>Biomedical Engineering</td>
<td>University of Michigan</td>
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<td>B.S.</td>
<td>2006</td>
<td>Electrical Engineering</td>
<td>Kansas State University</td>
</tr>
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**Academic/Industrial Experience**

- Assistant Professor, Kansas State University, Electrical and Computer Engineering, 2014–present
- Postdoctoral Fellow, August 2012 – present
- Chestek Lab, Department of Biomedical Engineering, University of Michigan

**Key Words**

Low-power electronics, implantable or wearable medical devices, brain-computer interface, electroencephalogram research, embedded systems, assistive technology

**Short Description of Educational Interests**

Undergraduate and graduate embedded systems courses and laboratories, engineering fundamental courses such as circuit theory, introductory-level courses

**Short Description of Research Interests**

Embedded systems design for medical or veterinary use, focused on implantable or wearable systems, assistive technology development, including brain-computer interface, for people with severe movement disorders; performance measurement for brain-computer interface

**Three Recent Publications**


**Recent Research/Outreach/Extension Projects**

Volunteered for WISE (Women In Science and Engineering) program at University of Michigan, a program to encourage middle-school girls to consider STEM careers.

**Hardware/Equipment Capabilities**

Printed circuit board (PCB) prototyping, design, layout, and assembly; standard EE tools such as oscilloscopes; electroencephalogram (EEG)

**Software/Simulation Capabilities**

MATLAB, Simulink, EAGLE, Multisim/Ultiboard, C/C++ and embedded C
Stacey E. Tucker-Kulesza

Department: Civil Engineering
Website: http://www.ce.ksu.edu/people/faculty/kulesza/

Stacey E. Tucker-Kulesza

Email: sekulesza@ksu.edu
Phone: 785-532-5863

Education
Ph.D.  2013  Civil Engineering – Geotechnical  Texas A&M University
M.E.  2009  Civil Engineering – Geotechnical  Texas A&M University
B.S.  2008  Civil Engineering  Texas A&M University

Academic/Industrial Experience
- Assistant Professor, Department of Civil Engineering, Kansas State University, August 2013 – present,

Key Words
Nondestructive testing, soil erosion potential, near-surface geophysics, unknown bridge foundations, levee construction and evaluation, foundation engineering, in-situ and laboratory testing

Short Description of Educational Interests
Teaching undergraduate soil mechanics using in class demonstrations and laboratory experiments to supplement geotechnical theory and fundamentals; teaching and developing graduate courses in geotechnical engineering with emphasis on standard and advanced testing methods to measure in situ conditions for design applications and projects

Short Description of Research Interests
Nondestructive testing and monitoring of deteriorating infrastructure; advanced soil testing and near-surface geophysical measurements to gain insight on the in situ integrity of aging infrastructure and natural materials in order to support the global initiative of sustainability; engineering education

Three Recent Publications

Recent Research/Outreach/Extension Projects

Hardware/Equipment Capabilities
Electrical resistivity imaging, induced polarization imaging, erosion function apparatus (EFA) testing, ground-penetrating radar (GPR), equipment for standard geotechnical testing

Software/Simulation Capabilities
Time domain electrical resistivity and induced polarization imaging, MATLAB, LabVIEW
Lisa Wilken

Department: Biological and Agricultural Engineering
Website: http://www.bae.ksu.edu/people/faculty/wilken/wilken.html
Email: lwilken@ksu.edu
Phone: (785)532-3327

Education:
Ph.D. 2009 Biological and Agricultural Engineering Texas A&M University
B.S. 2003 Biological and Agricultural Engineering Kansas State University

Academic/Industrial Experience:
- Assistant Professor, Kansas State University, 2012-present
- Assistant Research Scientist and Lecturer, Texas A&M University, 2009-2012

Key Words
Bioseparations, protein purification, extraction, downstream processing of biomolecules, recombinant protein, transgenic plants, enzymatic oil extraction

Short Description of Educational Interests
Courses in biological engineering such as Bioseparations Engineering, Properties of Biological Materials, Fundamentals of Biological Engineering, Advances in Biological Engineering, and Introductory Design for Biological and Agricultural Engineers

Short Description of Research Interests
Separation of high-value protein products from transgenic plants and other biological sources (design efficient and economical extraction and separation methods for the purification of recombinant proteins); processing for value-added co-products from biofuel production (develop new processing strategies that will reduce biofuel cost by creating higher value co-products utilizing non-fermentable biomass fractions)

Three Recent Publications

Recent Research/Outreach/Extension Projects
Research:
- Integrated process development for protein and oil recovery from microalgae biomass
- Extraction and purification of a recombinant protein from rice

Outreach:
- E3 Biosystems Engineering Workshop: Sustaining our world as biological engineers: Explorations in Aquaponics

Hardware/Equipment Capabilities
Grinding/homogenization (Silverson high-shear, Waring blender, sonicator), Microtiter plate reader (UV/VIS detection for endpoint, kinetic, and spectral scans), Protein analysis methods (SDS-PAGE, Western blot, activity assays), fractionation and protein purification equipment (membrane filtration, chromatography)

Software/Simulation Capabilities
SuperPro Designer (Intelligen) Process Simulation
Hongyu Wu

Department: Electrical and Computer Engineering
Website: www.ece.k-state.edu
Email: HongyuWu@ksu.edu
Phone: 785-532-4588

Education
Ph.D. 2011 Control Science and Engineering Xi’an Jiaotong University, Shaanxi, China
B.S. 2003 Power and Energy Engineering Xi’an Jiaotong University, Shaanxi, China

Academic/Industrial Experience
- Assistant Professor, ECE Department, Kansas State University, Aug. 2016 – present

Key Words
Control, operation and planning of power systems (include smart grid and microgrid); modeling, optimization and simulation of power systems; renewable energy integration; demand-side management; electric vehicles to grid; electricity market analysis and risk management; energy management systems

Short Description of Educational Interests
My educational interests are 1) to transfer my knowledge and research experiences to students and motivate them to find proper solutions for real-world engineering problems as they consider engineering as a career; 2) to create opportunities for students to apply theories into practice and collaborate with others to fulfill complex project requirements; and 3) to broaden students’ vision to contribute to practical engineering projects and increase their self-confidence to put what they have learned as well-educated engineers into practice.

Short Description of Research Interests
My research interests overlap two inter-related fields, i.e., power systems and systems engineering, focusing on control, operation and planning of power systems (include smart grid and microgrid); modeling, optimization and simulation of power systems; renewable energy integration; demand side management; electric vehicles to grid; electricity market analysis and risk management; energy management systems. My research methodology is to address the emerging technical challenges in electric power systems with systems engineering approaches that integrate technologies from a wide range of fields including, but not limited to, computer and network systems, communication engineering, cyber physical systems, control science and mathematical optimization.

Three Recent Publications

Recent Research/Outreach/Extension Projects
- Distribution System Planning with Approximate Dynamic Programming (ADP)
- Stochastic Modeling at Multiple Timescales in Power Systems Operation
- Home Energy Management System

Hardware/Equipment Capabilities
Energy Management System controller

Software/Simulation Capabilities
Computer Programming: Fortran, C/C#/C#, Visual Studio .NET, SQL, Python, MATLAB, R; Power System Simulation: PSSE, GridLAB-D, FESTIV, PLEXOS, GridView; Control and Simulation: LabVIEW, Simulink; Mathematical Optimization: GAMS (Certificated advanced training), CPLEX, Gurobi, PATH, CONOPT; Designing Tools: UML, AutoCAD, Microsoft Visio
Meng “Peter” Zhang

Education
Ph.D. 2014 Industrial Engineering Kansas State University
B.S 2009 Mechanical Engineering Dalian University of Technology, Dalian, Liaoning, China

Academic/Industrial Experience
• Assistant professor, Kansas State University, August, 2016 – present
• Visiting assistant professor, Kansas State University, January 2015 – August 2016
• Postdoctoral fellow, Kansas State University, May 2014 – January 2015

Key Words
Size reduction, biofuel, cellulosic biomass, rotary ultrasonic machining, additive manufacturing, 3D printing

Short Description of Educational Interests
Introduction to manufacturing processes and systems (IMSE 250); Introduction to renewable energy manufacturing (IMSE 602)

Short Description of Research Interests
Cellulosic biomass preprocessing (pelleting, size reduction, and torrefaction) for biofuel manufacturing
Relationships between cellulosic biomass structural features and enzymatic hydrolysis sugar yield
Additive manufacturing for healthcare; rotary ultrasonic machining of difficult-to-machine materials

Three Recent Publications

Recent Research/Outreach/Extension Projects
• Increasing Sugar Yield in Biofuel Manufacturing through Control of Cellulosic Biomass Particle Size, funded by NSF (CMMI-MME), $299,993, Role: PI. KSU Co-PIs: D. Wang and T. Deines
• Ultrasonic vibration-assisted pelleting of cellulosic biomass for biofuel manufacturing, funded by NSF (CMMI-MME), $405,033, Role: Co-PI. KSU PI: B. Kramer
• Collaborative research: development of a sophomore-level course “Introduction of renewable energy manufacturing” and faculty expertise, funded by NSF (DUE-TUES), $88,412, Role: Co-PI. KSU PI: B. Kramer

Hardware/Equipment Capabilities
Cellulosic biomass: pelleting machine, size-reduction mill, Parr reactor, optical microscope
Additive manufacturing: FDM, SLA, continuous fiber, bio 3D printers
Rotary ultrasonic machining: rotary ultrasonic machine, sinker ultrasonic machine, Kistler dynamometer

Software/Simulation Capabilities
Solidworks and Matlab