

IOWA STATE UNIVERSITY
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Graduate Faculty and Their Research Interests

February 2005

<i>Faculty</i>	<i>Areas of Specialization</i>	<i>Sub-Specialties</i>
Ajjarapu, Venkataramana 1122 Coover Hall Phone: 515-294-7687 Email: vajjarap@iastate.edu	Energy Systems <i>Electric Power and Energy Systems</i>	Voltage Stability and VAR Control VAR Optimization Bifurcation Analysis Power Electronics
Aluru, Srinivas 3218 Coover Hall Phone: 515-294-3539 Email: aluru@iastate.edu	Software Systems	Parallel Computing: Algorithms and Applications Computational Biology Scientific Computing
Amin, Viren R. 283 Applied Science Complex II Phone: 515-294-9736 Email: vramin@iastate.edu	Communications, Control, & Signals	Image and Signal Processing Biomedical Imaging Visualization Pattern Recognition Virtual Reality Nondestructive Evaluation
Bartlett, Eric B. 306 Town Engineering Phone: 515-294-1828 Email: ebart@iastate.edu	Energy Systems <i>Communications and Signal Processing</i>	Industrial and Biomedical Application Of Artificial Intelligence Artificial Neural Networks Fault Diagnosis and Plant Monitoring Data Analysis and Statistics Optimization and Empirical Modeling And Machine Learning
Berleant, Daniel 3215 Coover Hall Phone: 515-294-3959 Email: berleant@iastate.edu	Software Systems	Text Mining and Processing Inference under Uncertainty Software Fault Tolerance
Biswas, Rana A506 Physics 2126 Coover Hall Phone: 515-294-6987 Email: biswasr@iastate.edu	Advanced Materials & Electronics <i>Electronics and Photonics</i>	Photonic Crystals and Photonic Devices Sensors Computational Electromagnetics Semiconductors and Nanoscale Materials Photovoltaic Materials
Bode, Brett M. 329 Wilhelm Hall Phone: 515-294-9192 Email: brett@ameslab.gov	Software Systems	Performance Analysis and Tuning Parallel Computing High-Performance Networking Scalable Software Tools Scientific Computing
Bowler, John R. 2124 Coover Hall 179 Applied Science Complex II Phone: 515-294-2093 Email: jbowler@iastate.edu	Advanced Materials & Electronics <i>Nondestructive Evaluation and Electromagnetics</i>	Nondestructive Evaluation Inverse Problems Wave Propagation Signal Processing Numerical Modeling
Bowler, Nicola 2124 Coover Hall 279 Applied Science Complex II Phone: 515-294-5370 Email: nbowler@iastate.edu	Advanced Materials & Electronics <i>Nondestructive Evaluation and Electromagnetics</i>	Composite Materials Nondestructive Evaluation Analytical Methods
Chang, Morris 391A Durham Center Phone: 515-294-7618 Email: morris@iastate.edu	Computing & Networking Systems <i>Computer Systems Architecture Software Systems</i>	High Performance Object-Oriented Systems Computer Architecture Hardware Description Languages Internet Architecture Wireless Networks

Chen, Degang J. 329 Durham Center Phone: 515-294-6277 Email: djchen@iastate.edu	Advanced Materials & Electronics <i>VLSI, Systems and Control</i>	Analog VLSI design Phase Noise and Jitter Communication Circuits Nonlinear Systems and Control
Chu, Chris Chong-Nuen 331 Durham Center Phone: 515-294-3490 Email: cnchu@iastate.edu	Advanced Materials & Electronics <i>VLSI</i>	Computer-Aided Design of VLSI systems Physical Design Automation Interconnect Optimization Floorplanning and Placement Design and Analysis of Algorithms
Cruz-Neira, Carolina 1620D Howe Hall Phone: 515-294-5685 Email: cruz@iastate.edu	Software Systems	Virtual Reality Human-computer Interfaces Computer Graphics
Dalal, Vikram L. 2126 Coover Hall 235 Applied Science Complex I Phone: 515-294-1077 Email: vdalal@iastate.edu	Advanced Materials & Electronics <i>Microelectronics and Photonics</i>	Semiconductor Material and Device Processing Electro-optic Materials and Devices Device Physics Thin Film Semiconducting Materials And Devices Photovoltaic Energy Conversion Materials and Devices Physics and Chemistry of Plasma Processing of Semiconductor Materials and Devices
Daniels, Thomas 3222 Coover Hall Phone: 515-294-8375 Email: daniels@iastate.edu	Secure & Reliable Computing <i>Software Systems</i>	Network Security: Intrusion Detection Attack Tracking Secure Network Components
Davidson, Jennifer L. 3121 Coover Hall Phone: 515-294-2941 Email: davidson@iastate.edu	Secure & Reliable Computing <i>Communications & Signal Processing</i> <i>Computer Engineering</i>	Image Processing Stochastic Modeling, Optimization Problems Watermarking and Steganography
Davis, James A. 2413 Coover Hall Phone: 515-294-0659 Email: davis@iastate.edu	Secure & Reliable Computing <i>Computer Security</i>	Computer System Security
Dickerson, Julie A. 3123 Coover Hall 2624 Howe Hall Phone: 515-294-7705 Email: julied@iastate.edu	Communications, Control, & Signals <i>Communications & Signal Processing</i> <i>Network Security</i>	Fuzzy Systems Bioinformatics Neural Networks Intelligent Signal Processing Pattern Recognition
Dogandzic, Aleksandar 3119 Coover Hall Phone: 515-294-0500 Email: ald@iastate.edu	Communications, Control, & Signals <i>Communications & Signal Processing</i>	Statistical Signal Processing Detection and Estimation Smart Antennas for Wireless Communications Radar and Sonar Biomedicine Nondestructive Evaluation of Materials
Elia, Nicola 3131 Coover Hall Phone: 515-294-3579 Email: nelia@iastate.edu	Communications, Control, & Signals <i>Systems and Control</i>	Autonomous Vehicles Control Over the Internet Control of Micro Electro-Mechanical Sys. Hybrid Systems Optimization
Geiger, Randall L. 351 Durham Center Phone: 515-294-7745 Email: rjgeiger@iastate.edu	Advanced Materials & Electronics <i>Microelectronics</i>	Analog VLSI Design Instrumentation, Device Modeling Biomedical and Agricultural Instrumentation
Govindarasu, Manimaran 3219 Coover Hall Phone: 515-294-9175 Email: gmani@ee.iastate.edu	Software Systems	Networked Multimedia Systems Real-time Systems Internet QoS

<p>Guan, Yong 3216 Coover Hall Phone: 514-294-8378 Email: guan@ee.iastate.edu</p>	<p>Software Systems <i>Information Systems Security and Networking</i></p>	<p>Computer and Network Forensics Anonymous Communication Protocols Securing Wireless and Mobile Ad Hoc Networks Privacy-enhancing Technologies for the Internet Secure Real-time Communication and Computing</p>
<p>Hornbuckle, Brian 3007 Agronomy Hall Phone: 515-294-9868 Email: bkh@iastate.edu</p>	<p>Advanced Materials & Electronics <i>Electromagnetics and Remote Sensing</i></p>	<p>Microwave Remote Sensing of Soil and Vegetation Water Content Radiative Transfer Modeling Field Instrumentation</p>
<p>Jacobson, Douglas W. 2419 Coover Hall Phone: 515-294-8307 Email: doug@ee.iastate.edu</p>	<p>Secure & Reliable Computing <i>Computer Engineering</i></p>	<p>Computer and Network Security</p>
<p>Jiles, David C. 204 Metals Development Phone: 515-294-9685 Email: magnetics@ameslab.gov</p>	<p>Advanced Materials & Electronics <i>Magnetism and Magnetic Materials Microelectronics & Photonics</i></p>	<p>Magnetic Modeling and Theory Magnetic Measurements Effects of Structure of Magnetic Properties of Materials Development of Improved Magnetic Materials Magnetic Methods for NDE</p>
<p>Kamal, Ahmed E. 319 Durham Center Phone: 515-294-3580 Email: kamal@iastate.edu</p>	<p>Computing & Networking Systems <i>Computer Systems Architecture</i></p>	<p>Computer Communications Optical Networks Performance Modeling</p>
<p>Kim, Sang W. 3112 Coover Hall Phone: 515-294-2726 Email: swkim@iastate.edu</p>	<p>Communications, Control, & Signals <i>Wireless Communications</i></p>	<p>CDMA Error Correction Coding MIMO Space-Time Coding Multi-Use Detection Ad hoc Networks Cross-Layer Design</p>
<p>Kothari, Suraj C. 3132 Coover Hall Phone: 515-294-7212 Email: kothari@iastate.edu</p>	<p>Software Systems</p>	<p>Software Tools for Parallel and Distributed Computing Software Reengineering Scientific Computing</p>
<p>Kumar, Ratnesh 3217 Coover Hall Phone: 515-294-8523 Email: rkumar@iastate.edu</p>	<p>Communications, Control & Signals <i>Controls and Software Systems</i></p>	<p>Event-driven and Reactive Systems: Their Modeling, Verification, Control, Diagnosis, and Applications to Networks And Protocols Model-based Software & Hardware Embedded Systems Manufacturing Transportation</p>
<p>Kushner, Mark J. Dean and Professor 104 Marston Hall Phone: 515-294-9988</p>	<p>Advanced Materials & Electronics <i>Plasma Science and Technology</i></p>	<p>Plasma Material Processing Plasma Surface Interactions Nonlinear Electron and Ion Transport Wave-plasma Interactions Plasma Chemistry Lasers Lighting Sources Plasma Display Panels Pulsed Power Environmental Remediation Microplasmas Plasma Thrusters Aeronautical Flow Control</p>

Lamont, John W. 1124 Coover Hall Phone: 515-294-3600 Email: jwlamont@iastate.edu	Energy Systems <i>Electric Power and Energy Systems</i>	Power System Operation Economic Dispatch New Market Environment
Luecke, Glenn R. 472 Carver Hall Phone: 515-294-8160 Email: grl@iastate.edu	Software Systems <i>Parallel Computing</i>	Performance Evaluation of High Performance Computing Systems Tools for High Performance Computer Systems Parallel Algorithms
Ma, Yao 3107 Coover Hall Phone: 515-294-8382 Email: mayao@iastate.edu	Communications, Control, & Signals <i>Communications and Signal Processing</i>	Wireless Communication Signal Processing for Communication Ultra-wideband Communication Wireless Sensor Networks
McCalley, James D. 2210 Coover Hall Phone: 515-294-4844 Email: jdm@iastate.edu	Energy Systems <i>Electric Power and Energy Systems</i>	Power System Dynamics Risk and Uncertainty Analysis Multi-agent Systems Asset Management of Energy Infrastructures Bulk Energy Transportation Systems Power System Blackouts Cascading Outages
Mina, Mani 341 Durham Center Phone: 515-294-3918 Email: mmina@iastate.edu	Advanced Materials & Electronics <i>Computer System Architecture NDE and Electromagnetic</i>	Optical Networks Electromagnetic Optoelectronic Devices Physical Layer
Qiao, Daji 3214 Coover Hall Phone: 515-294-2390 Email: daji@iastate.edu	Computing & Networking Systems	Wireless Sensor Networks Wireless Local Area Networks Wireless Ad Hoc Networks Cross Layer Design and Optimization
Reiners, Dirk 1620F Howe Hall Phone: 515-294-9993 Email: dreiners@iastate.edu	Software Systems <i>Computer Graphics</i>	Interactive 3D Graphics Real-time Rendering Virtual Reality Software Systems
Rover, Diane T. 3227 Coover Hall Phone: 515-294-7454 Email: drovers@iastate.edu	Software Systems <i>Computer and Software Systems</i>	Parallel and Distributed Computing Performance Environments and Tools Embedded Systems
Russell, Steve F. 2427 Coover Hall Phone: 515-294-1273 Email: sfr@iastate.edu	Secure & Reliable Computing <i>Information Systems Security and Networking Communication Systems</i>	Communication System Theory Wireless Network Security Spread-Spectrum Systems Global Positioning System Digital Radio and RF Design
Salapaka, Murti V. 3128 Coover Hall Phone: 515-294-0398 Email: murt@iastate.edu	Communications, Control, & Signals <i>Dynamic and Control Systems Nanotechnology</i>	Robust Control Optimal Control Dynamics and Control of Micro-cantilevers
Sheble, Gerald B. 1115 Coover Hall Phone: 515-294-3046 Email: sheble@ee.iastate.edu	Energy Systems <i>Electric Power and Energy Systems</i>	Power System Optimization and Operation for Planning Energy Economics Market Based Bidding for Energy Artificial Life Techniques (genetic Algorithms, genetic programming, Artificial neural networks) Classical Optimization and Forecasting Techniques Markets For Supportive Services such as Reliability and Voltage Support

<p>Somani, Arun K. 2211 Coover Hall 391C Durham Center Phone: 515-294-0442 Email: arun@iastate.edu</p>	<p>Computing & Networking Systems <i>Computer Systems Architecture</i></p>	<p>Computer Communication Networks Fault Tolerant Computing Optical WDM Networks</p>
<p>Song, Jiming 2130 Coover Hall Phone: 515-294-8396 Email: jisong@iastate.edu</p>	<p>Advanced Materials & Electronics <i>Electromagnetics</i></p>	<p>Computational Electromagnetics Fast and Efficient Algorithms Modeling and Simulation of VLSI Interconnects and RF Components Non-destructive Evaluation and Inverse Scattering</p>
<p>Tirthapura, Srikanta 333 Durham Center Phone: 515-294-3546 Email: snt@iastate.edu</p>	<p>Software Systems <i>Distributed Computing</i></p>	<p>Distributed Data Structures and Algorithms Wireless Networks Publish-subscribe Systems Algorithms for Streaming Data Sets</p>
<p>Tuttle, Gary L. 2132 Coover Hall 247 Applied Science Complex I Phone: 515-294-1814 Email: gtuttle@iastate.edu</p>	<p>Advanced Materials & Electronics <i>Microelectronics and Photonics</i></p>	<p>High-Speed Electronic Devices Optoelectronics</p>
<p>Tyagi, Akhilesh 391B Durham Center Phone: 515-294-4396 Email: tyagi@iastate.edu</p>	<p>Computing & Networking Systems <i>Computer Systems Architecture</i></p>	<p>Computer Architecture VLSI CAD</p>
<p>Wang, Zhengdao 3134 Coover Hall Phone: 515-294-8362 Email: zhengdao@iastate.edu</p>	<p>Communications, Control, & Signals <i>Communications and Signal Processing</i></p>	<p>Wireless Communications Signal Processing for Communications Information Theory and Error-control Coding</p>
<p>Weber, Robert J. 301 Durham Center Phone: 515-294-8723 Email: weber@iastate.edu</p>	<p>Advanced Materials & Electronics <i>Nondestructive Evaluation and Electromagnetics</i></p>	<p>Microwave Ckts/Sys, RF Power Generation, High Speed Frequency IC's, Photonic and Acoustic Devices Microwave Imaging, Device Processing, Biomedical Engineering</p>
<p>Woods, Clive 2128 Coover Hall 258 Applied Science Complex I Phone: 515-294-3310 Email: cwoods@iastate.edu</p>	<p>Advanced Materials & Electronics <i>Novel Microelectronic Devices Optical Applications and Imaging</i></p>	<p>Avalanching Devices and Models of Avalanching Phototransistors and Bipolar Transistors Using III-V Semiconductors Band-gap Engineered Devices Including Multi-quantum-well Photodetectors Acoustic Charge Transfer (ACT) Devices And Their Applications Surface-Acoustic Wave (SAW) Devices for Signal Processing Superconducting Devices</p>
<p>Zhang, Zhao 368 Durham Center Phone: 515-294-7940 Email: zzhang@iastate.edu</p>	<p>Computing & Networking Systems <i>Computer Systems Architecture</i></p>	<p>Computer Architecture High-performance Computing Parallel and Distributed Systems</p>