NSF CAREER Participants

Lorena A. Barba is Associate Professor of Mechanical and Aerospace Engineering at the George Washington University, in Washington DC. She has MSc and PhD degrees in Aeronautics from the California Institute of Technology and BSc and PEng degrees in Mechanical Engineering from Universidad Técnica Federico Santa María in Chile. Previous to joining GW, she was Assistant Professor of Mechanical Engineering at Boston University (2008–2013) and Lecturer/Senior Lecturer of Applied Mathematics at University of Bristol, UK (2004–2008). Her research interests include computational fluid dynamics, especially immersed boundary methods and particle methods for fluid simulation; fundamental and applied aspects of fluid dynamics, especially flows dominated by vorticity dynamics; fast algorithms, especially the fast multipole method and its applications; and scientific computing on GPU architecture. Prof. Barba is an Amelia Earhart Fellow of the Zonta Foundation (1999), a recipient of the EPSRC First Grant program (UK, 2007), an NVIDIA Academic Partner award recipient (2011), and a recipient of the NSF Faculty Early CAREER award (2012). She was appointed CUDA Fellow by NVIDIA Corporation (2012) and is an internationally recognized leader in computational science and engineering. http://lorenabarba.com

Collaboration Areas:

- Building community around fast algorithms of the FMM family and developing benchmarks that may help the community evaluate algorithmic innovations and new implementations.
- Solvers and preconditioners for elliptic PDS where FMM may play a role.
- Applications of structure-based energy methods in biomolecular physics, where bioelectrostatics solvers use FMM as a numerical engine.

Nico Cellinese is an Associate Curator at the Florida Museum of Natural History, University of Florida and a Join Associate Professor in the Department of Biology. She is primarily interested in the systematics, evolution and biogeography of flowering plants. Additionally, part of her research revolves around tool development to facilitate biodiversity data synthesis and analysis. http://cellinese.blogspot.com

Collaboration Areas:

- Analytical pipelines
- workflow implementation

Diego Donzis is an assistant professor in the Department of Aerospace Engineering at Texas A&M University. He is interested in large scale computing, fluid mechanics, turbulence and turbulent mixing in incompressible and compressible flows. He obtained his PhD at Georgia Tech, and worked in the University of Maryland and the International Center for Theoretical Physics (Italy) before joining the faculty at Texas A&M. http://aero.tamu.edu/people/faculty/?id=529

Benchun Duan is a faculty member in the Department of Geology and Geophysics at Texas A&M University. He is interested in earthquake physics and computational geophysics. He investigates factors and processes that control large earthquake rupture processes, near-field ground motion and deformation. Finite element method and parallel, high-performance computing are technical aspects in his research. His NSF Career project investigates controls on megathrust earthquakes along the Japan Trench subduction zone. He obtained his PhD at UC, Riverside in 2006.
http://geoweb.tamu.edu/profile/BDuan

Collaboration Areas:
- Hybrid MPI/OpenMP parallelization of EQdyna, an explicit finite element method (FEM) code, for dynamic rupture and seismic wave propagation simulations.
- FEM mesh generation of complex geological models, including non-planar fault geometry, topography, and complex subsurface velocity structure.
- Visualization of 3D modeling results.
- Visualization of earthquake generation processes in the 3D Earth for course modules

Adrian Feiguin joined Northeastern University as Assistant Professor in 2012, after spending 3 years as Assistant Professor at the University of Wyoming. His field of expertise is computational condensed matter, focusing on theoretical and computational aspects of low dimensional strongly interacting quantum systems. His main interest is understanding exotic phases of matter of quantum origin. This physics is realized under extreme conditions, such as very low temperatures, high pressure, or high magnetic fields, and low spatial dimensions, and it is mostly governed by the collective behavior of the electrons inside a solid. Strong interactions between these particles can have some

dramatic effects, giving rise to some complex and intriguing phenomena of quantum origin, and new phases of matter. Some of this physics could potentially be exploited for technological applications. Examples worth mentioning are the cases of colossal magnetoresistance in manganites (compounds of manganese) for magnetic recording, and high-temperature superconductors, for electric power transmission and magnets.
http://www.northeastern.edu/afeiguin/

Collaboration Areas:
- Quantum information
- Quantum chemistry

Antonino Ferrante received his Ph.D. in Mechanical & Aerospace Engineering in 2004 at the University of California, Irvine. From 2004 to 2009, he was postdoctoral scholar at UC, Irvine and at GALCIT, Caltech. Since 2009, he has been Assistant Professor in the William E. Boeing Dept. of Aeronautics & Astronautics at the University of Washington, Seattle. He is recipient of the NSF CAREER (2011), U.S. National Academy of Sciences ICTAM Travel Award (2012), and Royalty Research Fund Award (2012) from the University of Washington. His research interests are in fluid mechanics, multiphase turbulent flows, high-speed turbulent flows, and chemically-reacting flows. His research tools are direct numerical simulation, large-eddy simulation, and high-performance computing. For his research, he has been developing codes to run on supercomputers since 1998.
http://www.aa.washington.edu/faculty/ferrante/

Collaboration Areas:
- Petascale elliptic solvers or fast Poisson solvers/parallel FFTs
- Optimized massive MPI communications
- Exascale computing: hybrid multicore/GPUs, e.g. by using MPI/OpenACC
- Parallel I/O and visualizations of petascale data sets
- Code optimization on Blue Waters

Baskar Ganapathysubramanian is an Assistant Professor of Mechanical Engineering and Electrical and Computer Engineering at Iowa State University. His research interests are in multi-scale multi-physics modeling, design of materials and processes using computational techniques, and stochastic analysis. The recent focus of his group is on advanced energy technologies including solar cells, and green buildings. Ganapathysubramanian completed

his PhD and MS from Cornell University and holds a BS degree from the Indian Institute of Technology-Madras.   http://www3.me.iastate.edu/bglab/

Collaboration Areas:
- Parallel adaptive mesh generation
- Data-mining

Kai Germaschewski is an Assistant Professor at the University of New Hampshire's Department of Physics and Space Science Center. His work focuses on in large-scale computer simulations of plasmas, with applications to the Earth's space environment and laboratory plasmas. He works with both fluid (extended MHD and kinetic (using particle-in-cell) plasma models. He is interested in modern aspects of computing, like adaptive mesh refinement and implicit time integration, and heterogeneous architectures (GPUs, Intel MIC). http://www.eos.unh.edu/Faculty/kgermaschewski

Thomas Hacker is an Associate Professor of Computer and Information Technology at Purdue University and Visiting Professor in the Department of Electrical Engineering and Computer Science at the University of Stavanger in Norway. Dr. Hacker's research interests center around high-performance computing and networking on the operating system and middleware layers. Recently his research has focused on cloud computing, cyberinfrastructure, scientific workflows, and data-oriented infrastructure. Dr. Hacker is also co-leader for Information Technology for the Network for Earthquake Engineering Simulation (NEES), which brings together researchers from fourteen universities across the country to share innovations in earthquake research and engineering. http://www2.tech.purdue.edu/cpt/SelfStudy/CPTFacultyVitas/FacultyStaff/DisplayStaffMember.asp?member=tjhacker

Collaboration Areas:
- High Performance Computing
- Reliability
- Large-scale Systems

Dr. Ann Jeffers is an Assistant Professor in the Department of Civil and Environmental Engineering at the University of Michigan. Her research lies at the intersections between the fire sciences and structural engineering disciplines, and specifically seeks to establish novel computational methods that bridge the domains of fire science, heat transfer, and structural mechanics. She currently serves on the ASCE Fire Protection Committee and the SFPE Standards Making Committee on the Predicting the Thermal Performance of Fire Resistive Assemblies. Website: http://www-personal.umich.edu/~jffrs

Collaboration Areas:
- Multiphysics simulation
- High performance computing
- Probabilistic methods
- Education research

Shantenu Jha is an Assistant Professor at Rutgers University, and a Visiting Scientist at the School of Informatics (University of Edinburgh) and at University College London. Before moving to Rutgers, he was the lead for Cyberinfrastructure Research and Development at the CCT at Louisiana State University. His research interests lie at the triple point of Applied Computing, Cyberinfrastructure R&D and Computational Science. Shantenu is the lead investigator of the SAGA project (http://www.saga-project.org), which is a community standard and is used to support science and engineering applications on most major production distributed cyberinfrastructure -- such as US NSF's XSEDE and the European Grid Infrastructure.

http://radical.rutgers.edu

Collaboration Areas:
- Domains of science and engineering that entail distributed and high-performance computing

Kapil Khandelwal is an Assistant Professor in the Department of Civil & Environmental & Earth Sciences at the University of Notre Dame. He received BS in Civil Engineering from IIT-Roorkee (India), MS in Structural Engineering From IIT-Delhi (India) and Ph.D. in Civil Engineering from the University of Michigan, Ann Arbor. His research interested includes: computational solid mechanics (FEM), gradient elasticity/plasticity, computational fracture

mechanics, topology optimization, and progressive collapse of structural systems.
http://www3.nd.edu/~kkhandel/
Collaboration Areas:
- Multiscale mechanics
- Large scale optimization
- GPU/parallel algorithms and optimization
- Uncertainty quantification

Xiaolin (Andy) Li is an associate professor in Department of Electrical and Computer Engineering at University of Florida. His research interests include Parallel and Distributed Systems, Cyber-Physical Systems, and Network Security & Privacy. He is directing the Scalable Software Systems Laboratory (S3Lab). He is in the executive committee of IEEE Technical Committee of Scalable Computing (TCSC) and the coordinator of BigData & MapReduce and Sensor Networks. He has been a TPC chair for several international conferences and workshops and an associate editor for several journals. He received a PhD in Computer Engineering from Rutgers University. He is a recipient of the National Science Foundation CAREER Award 2010 and a member of IEEE and ACM.
http://www.andyli.ece.ufl.edu/

Laurence Loewe is an Assistant Professor at the University of Wisconsin-Madison. He investigates questions in the new field of evolutionary systems biology, which merges systems biology and population genetics. To enable this, his group is developing two major tools. The first, Evolvix, is a new programming language that makes it easy for biologists to build simulation models linked to real data. The second, Evolution@home, is a globally distributed computing system that is being redesigned for analyzing the flood of simulation data generated by Evolvix models. His group works-in silico-on diverse topics like circadian clocks, antibiotic resistance evolution, the population genetics of harmful mutations and species extinction. He is interested in bridging the gap between simple analytically understandable mathematical models and biological reality by building rigorous simulation models to answer various evolutionary questions.

- 2011 Assistant Professor, University of Wisconsin-Madison
- 2007 Postdoc, Center for Systems Biology Edinburgh, University of Edinburgh
- 2006 Lecturer in Evolutionary Genetics, Institute of Evolutionary Biology, University of Edinburgh

- 2003 Postdoc, Institute of Evolutionary Biology, University of Edinburgh, UK
- 2002 Dr. rer. nat., Technical University Munich, Germany

http://evolution.ws/people/loewe   http://evolvix.org

Kamesh Madduri is an assistant professor in the Computer Science and Engineering department at The Pennsylvania State University. He received his PhD in Computer Science from Georgia Institute of Technology's College of Computing in 2008, and was previously a Luis W. Alvarez postdoctoral fellow at Lawrence Berkeley National Laboratory. His research interests include high-performance computing, parallel graph algorithms, and massive scientific data analysis. He is a member of IEEE, ACM, and SIAM.
http://www.cse.psu.edu/~madduri/

Collaboration Areas:
- Big data analysis and mining applications
- Scalable data management
- Visualization

Alison Marsden is an associate professor and Jacobs Faculty Fellow in the Mechanical and Aerospace Engineering department at the University of California San Diego. She graduated with a bachelor's degree in mechanical engineering from Princeton University in 1998, a PhD in mechanical engineering from Stanford in 2005, and did postdoctoral work at Stanford University in bioengineering and pediatric cardiology from 2005-07. She has been the recipient of an American Heart Association postdoctoral fellowship, an AHA beginning grant in aid award, a Burroughs Wellcome Fund Career Award at the Scientific Interface, an NSF CAREER award, and is a member of an international Leducq Foundation Network of Excellence. Her work focuses on the development of numerical methods for simulation of cardiovascular blood flow problems, medical device design, application of optimization to fluid mechanics, and use of engineering tools to impact patient care in cardiovascular surgery and congenital heart disease.
http://maeresearch.ucsd.edu/marsden/AMarsden/Home.html

Collaboration Areas:
- Image segmentation
- Machine learning algorithms
- Uncertainty quantification

Dr. Pompili is an Associate Professor at Rutgers University-New Brunswick, where he is the director of the Cyber-Physical Systems Laboratory (CPS Lab), the site co-director of the NSF Center for Cloud and Autonomic Computing (CAC), and the associate director of application collaborations of the Rutgers Discovery Informatics Institute (RDI2). In 2011, Dr. Pompili was awarded the NSF CAREER to design efficient communication solutions for underwater multimedia applications and the Rutgers/ECE Outstanding Young Researcher award. In 2012, he received the ONR Young Investigator Program (YIP) award to develop an uncertainty-aware autonomic mobile computing grid framework as well as the DARPA Young Faculty Award (YFA) to enable complex real-time information processing based on compute-intensive models for operational neuroscience; that year he was also awarded the Rutgers/ECE Excellence in Research award. His research spans underwater acoustic communication and coordination of vehicles, ad hoc and sensor networks, thermal management of datacenters as well as mobile and green computing. More info at: http://www.ece.rutgers.edu/~pompili/

Collaboration Areas:
- Mobile grid computing
- Underwater communications
- Coordination of vehicles
- Cloud-assisted robotics
- Wearable computing

Dr. Ioan Raicu is an assistant professor in the Department of Computer Science (CS) at Illinois Institute of Technology (IIT), as well as a guest research faculty in the Math and Computer Science Division (MCS) at Argonne National Laboratory (ANL). He is also the founder (2011) and director of the Data-Intensive Distributed Systems Laboratory (DataSys) at IIT. He has received the prestigious NSF CAREER award (2011 - 2015) for his innovative work on distributed file systems for exascale computing. He was a NSF/CRA Computation Innovation Fellow at Northwestern University in 2009 - 2010, and obtained his Ph.D. in Computer Science from University of Chicago under the guidance of Dr. Ian Foster in March 2009. He is a 3-year award winner of the GSRP Fellowship from NASA Ames Research Center. His research work and interests are in the general area of distributed systems. His work focuses on a relatively new paradigm of Many-Task Computing (MTC), which aims to bridge the gap between two predominant paradigms from distributed systems, High-Throughput Computing (HTC) and High-Performance Computing (HPC). His work has focused on defining and exploring both the theory and practical aspects of realizing MTC across a wide range of large-scale distributed systems. He is particularly interested in resource management in large scale distributed systems with a focus on many-task computing, data intensive computing, cloud computing, grid computing, and many-core computing. Over the past decade, he

has co-authored 86 peer reviewed articles, book chapters, books, theses, and dissertations, which received over 3250 citations, with a H-index of 22. His work has been funded by the NASA Ames Research Center, DOE Office of Advanced Scientific Computing Research, the NSF/CRA CIFellows program, and the NSF CAREER program. He has also founded and chaired several workshops, such as ACM Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS), the IEEE Int. Workshop on Data-Intensive Computing in the Clouds (DataCloud), and the ACM Workshop on Scientific Cloud Computing (ScienceCloud). He is on the editorial board of the IEEE Transaction on Cloud Computing (TCC), the Springer Journal of Cloud Computing Advances, Systems and Applications (JoCCASA), as well as a guest editor for the IEEE Transactions on Parallel and Distributed Systems (TPDS), the Scientific Programming Journal (SPJ), and the Journal of Grid Computing (JoGC). He has been leadership roles in several high profile conferences, such as HPDC, CCGrid, Grid, eScience, and ICAC. He is a member of the IEEE and ACM. More information can be found at http://www.cs.iit.edu/~iraicu/, http://datasys.cs.iit.edu/, and http://www.linkedin.com/in/ioanraicu. **W**ebsite: http://www.cs.iit.edu/~iraicu/

Collaboration Areas:
- Data-Intensive Computing Applications (requiring either POSIX or NoSQL interfaces)
- Communities interested in Data Provenance
- Large-scale Workflow-based Applications

Pradeep Ravikumar received his B.Tech. in Computer Science and Engineering from the Indian Institute of Technology, Bombay, and his PhD in Machine Learning from the School of Computer Science at Carnegie Mellon University. He was then a postdoctoral scholar at the Department of Statistics at the University of California, Berkeley. He is now an Assistant Professor in the Department of Computer Science, at the University of Texas at Austin. He is also affiliated with the Division of Statistics and Scientific Computation, and the Institute for Computational Engineering and Sciences at UT Austin. His thesis has received honorable mentions in the ACM SIGKDD Dissertation award and the CMU School of Computer Science Distinguished Dissertation award. He is also a recipient of the NSF CAREER Award. http://www.cs.utexas.edu/~pradeepr/

Collaboration Areas:
- Applications involving large-scale graphical models
- Computational Music/Speech
- Time-varying Data Applications

Suzanne Shontz is an Assistant Professor in the Department of Mathematics and Statistics at Mississippi State University. She is also affiliated with the Department of Computer Science and Engineering, the Center for Computational Sciences, and the Graduate Program in Computational Engineering at Mississippi State. Suzanne's research is in parallel scientific computing and focuses on the development of meshing and numerical optimization algorithms and their applications to medicine, image processing, and electronic circuits, to name just a few. Suzanne is the recipient of a 2011 NSF CAREER Award and a 2011 NSF PECASE Award from President Obama for her research in computational- and data-enabled science and engineering. Along with Thomas Hacker of Purdue University, she is a Co-Chair of the 2012 and 2013 NSF CyberBridges Workshops. http://sshontz.math.msstate.edu

Collaboration Areas:
- Mathematical modeling
- Model order reduction
- Scientific visualization
- Patient data sets

Before her appointment to Clemson in 2006, Dr. M. Smith was a research associate at the Oak Ridge National Laboratory (ORNL) for 12 years. In 2004, Dr. Smith began collaborations with the newly formed Future Technologies Group at ORNL and conducted research on emerging computing architectures including reconfigurable computers, multi-core, and optical processors. She continues to collaborate with some of the top research scientists at ORNL and across the country in areas of heterogeneous high-performance computing and System Performance Modeling and Analysis.

Dr. Smith's current research activities focus on the applied use of emerging heterogeneous computing architectures. Her research group is interested in the performance computer architectures for various application domains including scientific applications (modeling and simulation), high-performance or real-time embedded applications, and medical and image processing. Her group explores optimization techniques and performance analysis for emerging heterogeneous platforms, including many processors, Graphical Processing Units (GPUs) and Field-Programmable Gate Array-based (FPGA-based) reconfigurable computers. Also of interest are the tools and methodologies that are needed to efficiently and effectively program and utilize these architectures.

http://www.clemson.edu/ces/departments/ece/faculty_staff/faculty/msmith.html

Collaboration Areas:
- Big data applications
- Heterogeneous HPC system users
- Performance modeling and analysis

Manoj Srinivasan is an assistant professor in the Department of Mechanical and Aerospace Engineering at the Ohio State University. His recent research has focused on the understanding of human locomotion and biomechanics from the perspective of optimal control and dynamical systems theory, but he is broadly interested in a variety of biological and mechanical systems. Srinivasan received an undergraduate degree in engineering from the Indian Institute of Technology, Madras, received a doctoral degree in Theoretical and Applied Mechanics at Cornell University, and was a post-doctoral researcher and lecturer at Princeton University. He is an NSF CAREER award recipient.
http://movement.osu.edu
A small fraction of our work on my CAREER grant will be devoted to the collection, consolidation, documentation, and dissemination of a certain class of locomotion data.
Collaboration Areas:
- Data dissemination
- Format standardization
- Management

Andrés Tejada-Martínez is associate professor in Civil and Environmental Engineering at University of South Florida. Tejada-Martínez has received an NSF CAREER Award and various others NSF collaborative research awards for his work in large-eddy simulations of turbulent mixing in shallow shelf coastal regions and in the upper ocean mixed layer.   www.eng.usf.edu/~aetejada

Collaboration Areas:
- Finite difference, finite elements and spectral methods for fluid dynamics
- Stratified flows
- Parallel computing

Richard (Rich) Vuduc is an Associate Professor at the Georgia Institute of Technology ("Georgia Tech") in the School of Computational Science and Engineering. His research lab, the HPC Garage (hpcgarage.org), is interested in all-things-high-performance-computing, with an emphasis on parallel algorithms, performance analysis, and performance tuning. He is a recipient of the NSF CAREER Award, member of the DARPA Computer Science Study Panel, and co-recipient of the Gordon Bell Prize (2010). His lab's work has

received a number of best paper nominations and awards including most recently the 2012 Best Paper Award from the SIAM Conference on Data Mining. In 2013, he received a Lockheed Martin Excellence in Teaching Award.

Collaboration Areas:
- Scalable applications and libraries
- Programming models
- Computer architecture

Dr. Jun Wang is an Associate Professor in Department of Electrical Engineering and Computer Science at the University of Central Florida, Orlando, FL, USA. He has conducted extensive research in the areas of Computer Systems and High Performance Computing. His specific research interests include data-intensive high performance computing, massive storage and file system, I/O Architecture, and low-power computing.
http://www.eecs.ucf.edu/~jwang

Collaboration Areas:
- Data-intensive HPC applications
- Software defined network
- GPU computing
- Memory architecture

Liqiang (Eric) Wang is a Castagne Associate Professor in the Department of Computer Science at the University of Wyoming. He has been an assistant professor (2006-2012) and an associate professor (2012-present) in the same department. He received Ph.D. in Computer Science from Stony Brook University in 2006. His research interest is the design and analysis of parallel systems for big-data computing, which includes two aspects: design and analysis. For design, he is currently working on optimizing performance, scalability, resilience, and load balancing of data-intensive computing, especially on Cloud, GPU, and multicore platforms. For the aspect of analysis, he focuses on using program analysis to detect programming errors and performance defects in large-scale parallel computing systems. He received an NSF CAREER Award in 2011.

Collaboration Areas:
- Scalability of large-scale linear equation solver
- Automatic load balancing of scientific computations
- Automatic cloud provisioning for HPC
- Storage and I/O optimization for big-data computing

Shaowen Wang is an Associate Professor of Geography and Geographic Information Science (Primary), Computer Science, and Urban and Regional Planning at the University of Illinois at Urbana-Champaign (UIUC), where he was named Helen Corley Petit Scholar for 2011-2012. He is also Associate Director for CyberGIS and a Senior Research Scientist of the National Center for Supercomputing Applications (NCSA), and Founding Director of the CyberInfrastructure and Geospatial Information Laboratory. He holds affiliate appointments within UIUC's Computational Science and Engineering Graduate Program and Illinois Informatics Institute. He received his BS in Computer Engineering from Tianjin University in 1995, MS in Geography from Peking University in 1998, and MS of Computer Science and PhD in Geography from the University of Iowa in 2002 and 2004 respectively. His research and teaching interests center on three interrelated themes: 1) computational theories and methods in geographic information science, 2) cyberinfrastructure and data-intensive computational science, and 3) multi-scale geospatial problem solving and spatiotemporal synthesis. He has published a number of peer-reviewed papers including articles in more than 15 journals. He has served as an Action Editor of GeoInformatica, and guest editor or editorial board member for six other journals, book series and proceedings. He served on the University Consortium for Geographic Information Science Board of Directors from 2009 to 2012, and was appointed two terms as a Councilor of the Open Science Grid Consortium. He was a visiting scholar at Lund University sponsored by the National Science Foundation (NSF) in 2006 and NCSA Fellow in 2007, and received the NSF CAREER Award in 2009.
Website: http://www.cigi.illinois.edu/shaowen/
Collaboration Areas:
- Advanced cyberinfrastructure
- Data-intensive geospatial sciences and technologies
- Scalable computing and information systems
- Sustainability science

Dr. Lei Wu is an Assistant Professor of ECE Department at Clarkson University. He has experience working with NYISO, GE, and Siemens Energy Automation on various power system studies. He has extensive publications on power systems research and is the recipient of the IEEE Transactions Prize Paper Award from the IEEE Power and Energy Society in 2009. He serves on Research Committee of the Clarkson's Honors program and is a member of the Center for Sustainable Energy Systems. He is an Editor of IEEE Transactions on Sustainable Energy and Guest Editor of IEEE Transactions on Smart Grid. His educational and research activities are supported by grants from NSF, DOE, GE, and IBM. http://people.clarkson.edu/~lwu/

Collaboration Areas:
- High performance computing
- Data analytics
- Mathematical optimization

Dr. Xiong (Bill) Yu is an associate professor at the Department of Civil Engineering, Case Western Reserve University. He also holds courtesy appointments in the Department of Electrical Engineering and Computer Science, the Department of Materials Science and Engineering, CWRU. Dr. Yu received civil engineering training via Ph.D. degree from Purdue University, B.S. and M.S. degrees from Tsinghua University, China. His interdisciplinary training includes M.S. degree from EECS from Purdue University and B.S. degree in computer science from Tsinghua University. His research interest is in the broad area of geoengineering related to infrastructure sustainability, environment and energy needs. His work embraces innovative sensors and materials to improve sustainability and intelligence of the civil infrastructure systems. He is the PI of over 25 research projects sponsored by the National Science Foundation , National Research Council, Ohio DOT, Federal Highway Administration, NCHRP-IDEA and other agencies such and private industry. Dr. Yu is a member of ASCE, ISSMGE, ASTM, TRB, SPIE and ASNT. He serves on SHRP and NCHRP project panels and as chair of G-I Engineering Geology and Site Characterization committee. He is a member of editorial board of four ASCE and ASTM journals. Dr. Yu is a recipient of the NSF CAREER award in 2009. He has published over 120 papers (including 54 journal papers) and co-edited three GSPs. He holds a few patents and provisional patents, and invention disclosures. He has advised the research of 11 Ph.D. students and graduated 5, among whom three are employed with tenure track faculty positions in the U.S. He is selected to participate in the U.S.-Germany Frontiers of Engineering symposium in 2013 as well as the inaugural Global Frontiers of Engineering symposium in 2013.
http://filer.case.edu/xxy21/Index.html

Jessica Zhang is an Associate Professor in Mechanical Engineering at Carnegie Mellon University with a courtesy appointment in Biomedical Engineering. Her research interests include computational geometry, mesh generation, computer graphics, visualization, finite element method, isogeometric analysis and their application in computational biomedicine and engineering. She is the recipient of a 2012 NSF CAREER Award. http://www.andrew.cmu.edu/user/jessicaz/

Collaboration Areas:
- Computational biology
- Finite element applications

Alberto Cerpa was one of the three founding faculties of the Electrical Engineering and Computer Science program in the School of Engineering at UC Merced when he joined in 2005. He received a Ph.D. degree in Computer Science from UCLA (2005), working under the supervision of Deborah Estrin. He also received a M.Sc. in Computer Science from USC (2000), and a M.Sc. in Electrical Engineering from USC (1998). Alberto received his undergraduate degree (Engineer) in Electrical Engineering from Buenos Aires Institute of Technology, in Buenos Aires, Argentina (1995). His interests lie broadly in the computer networking and distributed systems areas, with recent focus in systems research in wireless sensor networks. Alberto is a recipient of the NSF CAREER Award (2013). Several of his papers are some of the top cited papers in top journals, including ACM TMC (2nd out of 1535), ACM SIGCOMM CCR (32 out of 2472), and JPDC (59 out of 2867). He is a member of the ACM and IEEE. http://www.andes.ucmerced.edu/~acerpa/

Collaboration Areas:
- Optimization algorithms, specifically those that can be implemented in very resource constraint environments (extremely limited computation and storage)
- Control algorithms for building HVAC control, e.g. Model Predictive Control (MPC)
- Machine Learning, in particular novel techniques for building predictions models of phenomena.