

# Feniosky Peña-Mora

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Associate Provost Feniosky Peña-Mora is an Edward William and Jane Marr Gutgsell Endowed Professor in the Department of Civil and Environmental Engineering, Center Affiliate at the National Center for Supercomputing Applications and a Faculty Affiliate at the Beckman Institute at the University of Illinois. Professor Peña-Mora earned a Master of Science (M.S.) degree in Civil Engineering and a Doctor of Science (Sc.D) in Civil Engineering Systems from the Massachusetts Institute of Technology (MIT) in 1991 and 1994, respectively. Before coming to the University of Illinois in 2003, Professor Peña-Mora was an Associate Professor of information technology and project management in MIT's Civil and Environmental Engineering Department. Professor Peña-Mora has also held positions as a visiting professor at Loughborough University in Great Britain and at the Ecole Polytechnique Fédérale de Lausanne in Switzerland.

## **Research Interests:**

Professor Peña-Mora's research interests include information technology support for collaboration in preparedness, response, and recovery during disasters involving critical physical infrastructures, such as the 9-11 terrorist attack and Hurricane Katrina. He is also involved in change management, conflict resolution, and processes integration during the design and development of large-scale civil engineering systems. His ground breaking research in the field of construction engineering and management has resulted in significant advances in our understanding of collaboration, change and conflicts in large-scale infrastructure projects. In collaboration, Professor Peña-Mora's development of the Interaction Space Theory for collaboration has led to improved performance among global construction management teams. In change management, he has identified the key components that influence the effectiveness of fast-tracking strategies in large-scale global construction projects and the dynamics that affect these strategies. His research efforts in conflict resolution have identified the main drivers that define the context of conflict resolution during the development of large-scale civil infrastructure projects. His findings on collaboration, change management, and conflict resolution have been tested and adopted in several important large-scale infrastructure projects, including the Central Artery/Third Harbor Tunnel project in Boston, Route 3 North project in Massachusetts, Standards and Industrial Research Institute of Malaysia (SIRIM) Project in Malaysia, and the Tren Urbano project in Puerto Rico.

Professor Peña-Mora is the author or co-author of more than one-hundred scholarly publications in refereed journals, conference proceedings, book chapters, and textbooks on computer-supported design, computer-supported engineering design and construction, as well as project control and management of large-scale engineering systems. His publication, "Design Rationale for Computer Supported Conflict Mitigation," received the 1995 award for best paper published in the American Society Civil Engineers' (ASCE) Journal of Computing in Civil Engineering. He is also the author of Introduction to construction dispute resolution (2002), an influential textbook in the field of Construction Conflict Resolution. The results of Professor Peña-Mora's research work have also yielded five patents and two technology disclosures.

## **Teaching Interests:**

A guiding principle for Professor Peña-Mora's teaching interests is to provide a balance between theory and practice within a global perspective of construction engineering management. Following this philosophy, he has influenced a generation of students, serving as supervisor or

## Feniosky Peña-Mora

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committee member on more than one-hundred master's and doctoral theses. At Illinois, he has developed the Global Leaders in Construction Management (GLCM) program, which attracts the best and brightest of Illinois students. The GLCM is a 5-year combined Bachelor and Master Degree program. In addition to a curriculum guided toward more courses with a "practice-oriented" pedagogy, students experience three practical components over the academic year: an international experience with foreign construction companies, a summer internship, and a practice-oriented independent study during the academic year. In order to provide students with better preparation, the curriculum is designed to supplement the core course with interdisciplinary classes in law, business, architecture, and other technical construction management courses. Moreover, there is a focus on the international experience, which exposes students to effective means and methods of construction, encouraging flexibility and innovation. In the last four years during the international trip, students have been engaged with the Chief Executive Officers and/or Vice-Presidents of major international corporations that handle a construction volume ranging from \$5 to \$30 Billion dollars a year in China, United Arab Emirates, France, United Kingdom, and Japan.

### **Professional Awards and Honors:**

Professor Peña-Mora is the holder of some of the most prestigious awards in the profession; the 1999 National Science Foundation CAREER Award and the 2000 White House Presidential Early Career Award for Scientists and Engineers (PECASE) Award. More recently, he has won the 2007 ASCE Walter L. Huber Civil Engineering Research Prize and the 2008 ASCE Computing in Civil Engineering Award. He has served as an Associate Editor for the ASCE Journal of Computing in Civil Engineering and editorial board member of the IEEE Internet Computing Magazine. He is currently a Specialty Editor for the ASCE Journal of Construction Engineering and Management and editorial board member of Automation in Construction, the Journal of IT in Construction and the Revista Ingeniería de Construcción. He has been invited to give keynote and plenary speeches at numerous conferences and symposiums, including the 2001 National Academy of Engineering Frontiers of Engineering Symposia, the 2003 American Society of Civil Engineers Symposium on Information Technology in Civil Engineering, and the 2004 National Academies Convocation on Facilitating Interdisciplinary Research. Currently, he is serving in the National Academies' Committee on Advancing the Productivity of the U.S. Construction Industry.

### **Leadership and Administration:**

As Associate Provost, Professor Peña-Mora is actively involved in Illinois Campus efforts on Interdisciplinary, Diversity and Entrepreneurial Initiatives. He serves as the campus lead for the Consortium on Fostering Interdisciplinary Inquiry, a consortium comprised of a select group of US research institutions that have exhibited leadership and innovation in supporting interdisciplinary activities in higher education. As the campus lead, Professor Peña-Mora spearheads the campus' contributions to the consortium self-study as well as chairing the Campus Executive Committee, composed of senior administrators in the areas of research, education and training, space and capital planning, budget and finance, development and fundraising, academic administration and faculty governance, and diversity.

As co-chair of the Chancellor's Diversity Initiatives Committee, Professor Peña-Mora coordinated over 25 faculty, administrators, staff, and students from diverse groups and

## Feniosky Peña-Mora

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backgrounds in creating Project 2012: Reenvisioning Diversity and Inclusion at Illinois Report, a five-year strategic plan to make Illinois a more inclusive academy; to enable our campus to become a staging ground for transformative experiences in undergraduate education within an inclusive community; and to identify benchmarks by which Illinois can hold itself accountable in the area of diversity.

In addition, Professor Peña-Mora co-chairs the Provost Ad-Hoc Committee in Institutional Entrepreneurship @ Illinois. He led the charge to identify and recommend structural and policy changes that would facilitate a culture of entrepreneurship and intrapreneurship at Illinois that would empower individuals at all levels to capitalize on their creative energies in support of academic excellence, innovation and creativity by encouraging calculated risk-taking, offering programmatic support, and providing appropriate incentives and rewards.

As Senior Associate Dean of the Graduate College from January 2007 to May 2007, Professor Peña-Mora represented the Graduate College on the Academic Council of Deans and led the development of the unit strategic goals and metrics as well as Graduate College Annual Budget Request and its relationship to unit goals. During his tenure as Senior Associate Dean, Professor Peña-Mora developed and implemented and the Graduate College Fundraising Goals.

While serving on the Promotion and Tenure Reform Ad-hoc Committee, Professor Peña-Mora was charged with providing recommendations for the Illinois Promotion and Tenure process with respect to its consideration for interdisciplinary scholarship, translational research, as well as engagement and outreach activities. Professor Peña-Mora led the effort to draft revisions to Communication 23, expanding the focus from Appointment and Review of Faculty Members who Have Budgeted Joint Appointments to one that also includes Faculty Who Are Engaged in Interdisciplinary Scholarship. He represented interdisciplinary faculty and the Provost office on the Academic Council of Deans Indirect Cost-Recovery Sub-Committee, a committee charged with identifying a more transparent model for indirect cost distribution which balances the costs associated with conducting research, as well as recruiting and retaining faculty while minimize the tensions between academic units and interdisciplinary institutes thereby providing faculty incentive for research productivity.

### **Industry Service:**

Since 1995, Professor Peña-Mora has raised near \$7 million dollars in research funding from both private and public organizations as well as over \$1.5 million dollars in angel investments for a high tech start-up developing advanced collaborative environments for globally dispersed large-scale engineering projects. He is a professional engineer registered in the Dominican Republic and has been a key figure in a variety of high-profile international projects and companies. He has consulted for both the construction industry and governments in various countries in addition to the U.S. -- Argentina, Colombia, the Dominican Republic, Puerto Rico, and Japan. He has held the position of Chief Information Technology Consultant on the Boston Central Artery/Third Harbor Tunnel Project, where he focused on information technology support for change management and process integration during the design and construction phases of this massive \$14.8 billion, two-decade long engineering endeavor.