

CURRICULUM VITAE
KAMYAR HAGHIGHI

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EDUCATION

PhD	Michigan State University, Dual Major - Engineering Mechanics/Agricultural Engineering	1979
MS	Michigan State University, Agricultural Engineering	1975
BS	Pahlavi University, Agricultural Engineering, Shiraz, Iran	1972

PROFESSIONAL EXPERIENCE

1. Academic Appointments

- Professor, School of Engineering Education, Purdue University, West Lafayette, IN July 2009-Present (Sabbatical Leave January-May 2010)
- Head, School of Engineering Education, Purdue University, West Lafayette, IN (2004-09)

Responsibilities included establishing a vision and implementing a strategic plan for the department and the new discipline of engineering education, representing the department within the university and to government, professional societies, and industry, recruiting new faculty and staff, and administration of departmental budget and special programs.

The newly created school of engineering education (ENE) is leading the country in establishing engineering education as a vital, vigorous, and scholarly new discipline. The school created a new graduate program, the first of its kind in the world, in 2005 and currently has 41 PhD students enrolled in the program. The program now offers nine new graduate courses. ENE is driving and shaping the national dialogue on engineering education and has played a major leadership role in NSF-Sponsored Engineering Education Research Colloquies and ASEE's "Year of Dialogue" on advancing scholarship and research in engineering education. ENE research grants grew by more than 1155% in 2008-09 compared to 2003-04, to an all time high of \$5 million. During 2005-2009, ENE hired 16 faculty (7 men and 9 women, two of whom are African Americans).

ENE is home to the First-Year Engineering Program (FYEP), with a total student population of 2600, of which 1600 are new first-year students (fall 2009). FYEP was able to enhance its program content with a new curriculum that was successfully approved in 2005 and has been in effect since fall 2006. The goal was to introduce more engineering, design, and authentic learning experiences in FYEP by redesigning ENGR 126 allowed by our move into Armstrong. In addition, ENE is also home to the Interdisciplinary Engineering Program (IDE) with 57 students, and the NSF-Sponsored Multidisciplinary Engineering Program (MDE) with 11 students. MDE sought ABET accreditation in fall 2008 and has become the ABET accredited version of the former IDE program, leading to a B.S. Engineering degree. The non-accredited IDE program has become Interdisciplinary Engineering Studies leading to a B.S. degree.

ENE has established the Institute for P-12 Engineering Research and Learning (INSPIRE) through a major grant from Bechtel Foundation. INSPIRE's main goal is to create and apply knowledge to promote engineering thinking, problem solving, and design throughout the P-12 pathway. INSPIRE has also established a research seed grant program - Young Engineers Studies (YES) for Purdue faculty, as well as engineering summer academies for P-12 teachers.

- Head, Department of Freshman Engineering, Purdue University, West Lafayette, IN (2003-2004)
- Professor, Department of Agricultural and Biological Engineering Purdue University, West Lafayette, IN (1995–Present)
- Visiting Associate Professor, Department of Agricultural Engineering, University of Maryland, College Park, MD, (June 1994-December 1994), Sabbatical Leave
- Associate Professor, Department of Agricultural Engineering , Purdue University, West Lafayette, IN (1991–1995)
- Assistant Professor, Department of Agricultural Engineering, Purdue University, West Lafayette, IN (1986–1991)
- Assistant Professor, Department of Mechanical Engineering , Manhattan College, New York, NY (1984–1986)
- Assistant Professor, Department of Agricultural Engineering, Shiraz University, Shiraz, Iran (1979–1982)
- Instructor, Engineering Mechanics, Michigan State University, East Lansing, MI (1978-1979)
- Graduate Teaching Assistant, Engineering Mechanics , Michigan State University, East Lansing, MI (1977–1978)

2. Industrial Experiences

- Director of Engineering, Garjin Company, Tehran, Iran (1982-1983)
Garjin Company provided technical, financial, and managerial services to member manufacturers of agricultural machinery and equipment in Iran. In 1982-83 the company had annual machinery sales of \$7 million through its various manufacturers, and a headquarters staff of 25. Responsibilities included:
 - Supervising 12 technical staff
 - Technical administrator for contracts awarded to engineering consulting firms
 - Providing leadership for improvements in product quality and production capacity
 - Supervising research, development, design, and manufacture of new machinery
- Engineering Trainee, Research/Development Unit, John Deere Company, Tehran, Iran, (1972-1973)

AWARDS, HONORS, RECOGNITION

- The Chester F. Carlson Award, American Society of Engineering Education (ASEE), June 2009. This award is presented annually to an individual innovator in engineering education who, by motivation and ability to extend beyond the accepted tradition, has made a significant contribution to the profession.
- American Society of Agricultural and Biological Engineers (ASABE) Distinguished Service Award, June 2009.
- Kamyar Haghghi Endowment Recognition established for contributions to Purdue University and the engineering community as founding head of Purdue's School of Engineering Education, and research contributions to the state-of-the art application of finite element numerical solutions to engineering problems. April 2009
- "Seed for Success", for receiving sponsorship of large multidisciplinary awards (\geq \$1.0M in one year), Purdue University, 2007, 2008, 2009.
- Superior Paper Award, American Society of Agricultural and Biological Engineering, 2004. "Stochastic Finite Element Analysis of Transient Unsaturated Flow in Porous Media."
- CIC Academic Leadership Program Fellow, 1999-00.
- Outstanding Undergraduate Teacher Award, Purdue University, Department of Agricultural and Biological Engineering, 1992, 1998, and 2002.

- Fellow, SAE, The Engineering Society for Advancing Mobility, 1997.
- Class 5 ESCOP/ACOP Leadership Development Program Fellow, 1995-96.
- SAE Ralph E. Teetor Educational Award, The Engineering Society for Advancing Mobility, 1992. This award was given for contributions to teaching and research, professional society participation and professional development activities.
- Outstanding Paper Award, American Society of Agricultural Engineers, 1991. "Melon Material Properties and Finite Element Analysis of Melon Compression with Application to Robot Gripping."
- Outstanding Paper Award, American Society of Agricultural Engineers, 1990. "Magnet Console Design of an NMR-Based Sensor to Detect Ripeness of Fruit Using the Finite Element Method."
- Honorable Mention, ASABE Outstanding Paper Award, 1988. Senior author of "Finite Element Formulation of Tee and Bend Components in Hydraulic Pipe Network Analysis."
- IBM Computer Literacy Program Award, 1985. Established by IBM to promote use of computers in the classroom.
- Outstanding Student Scholarship (tuition, fees, and living expenses), 1973-1979. Awarded by Iran's Ministry of Science and Higher Education to the top 2% of graduating seniors in the country to pursue graduate studies in the U.S.
- Ranked first, Agricultural Engineering Class of 1972 (among 45 graduating seniors), Pahlavi University, Shiraz, Iran.

SOCIETY MEMBERSHIP

- American Association for the Advancement of Science (AAAS), member since 2006
- American Society for Engineering Education (ASEE), member since 1997
- American Academy of Mechanics (AAM), member since 1984
- The Engineering Society for Advancing Mobility (SAE), member since 1984
- American Society of Mechanical Engineers (ASME), member since 1984
- American Society of Agricultural and Biological Engineers (ASABE) member since 1986
- Alpha Epsilon (Honor Society of Agricultural Engineering, 1973-)
- Sigma Xi (Honor Society of Scientific Research, 1988-)
- Gamma Sigma Delta (International Honor Society of Agriculture, 1998-)

LEADERSHIP AND ADMINISTRATIVE EXPERIENCE

1. Leadership Development

- Member of the Program Committee, the International Dedicated Conference on Lean/Agile Manufacturing in the Automotive Industries, Aachen, Germany, October 31-November 4, 1994.
- Class 5 ESCOP/ACOP Leadership Development Program Fellow, 1995-96.
The Academic Programs Committee on Organization and Policy (ACOP) and the Experiment Station Committee on Organization and Policy (ESCOP) jointly sponsor this course for agricultural research and higher education. It is intended for faculty who have potential and interest in enhancing their leadership skills and abilities. The program has three phases: (1) a professionally led workshop to develop leadership skills, held for a week; (2) an in-residence experience working with agricultural administration for about 9 months; and, (3) a three day workshop in Washington, D.C. to interact with leaders in government, extension, agricultural research, and higher education administration. Selection process involved nomination by the Department Head; review, selection and nomination by Purdue Agricultural Administration; and final selection by the national committee. For Class 5 only two Purdue faculty were selected.
- Administrative Intern, Purdue School of Agriculture, 1995-96.
Responsibilities included assessment of the internationalization activities of the School of Agriculture related to teaching, research and outreach, and coordinating the review of the School's Agricultural Research Program proposals.
- Chairperson, Futuring Committee, Department of Agricultural and Biological Engineering, 1995-96.
Responsibilities included development of the strategic plan for the department.

- Responsible for establishing a new “Finite Element and Numerical Analysis” technical group (IET-217) within the ASAE.
- Member of the Technical Program Committee, ASME 1996 and 1997 Computers in Engineering Conference, Irvine, CA, and Sacramento, CA.
Responsibilities included solicitation of papers, coordination of papers’ review process, organizing sessions, and selecting the best paper award in the area of “Finite Elements and Computational Technologies.”
- Chairperson of the Academic Programs Committee (APC), Department of Agricultural and Biological Engineering, 1996-2001.
Scope of APC activities included undergraduate curricula (Agricultural Engineering, Food Process Engineering, and Agricultural Systems Management), recruiting, advising, mentoring, retention, Co-op/internships, scholarships, placement, quality of teaching programs, teaching assistantships, and teaching facilities.
- Member of the International Advisory Committee, the 10th International Conference on Numerical Methods in Thermal Problems, Swansea, Wales, U.K., July 3-7, 1997.
- Chairperson of the Advisory Committee, Department of Agricultural and Biological Engineering, 1997-98.
- Chairperson of the ABET Accreditation Steering Committee, Department of Agricultural and Biological Engineering, 1998-2001.
Scope of activities included planning, assessment process development, and implementation in preparation for departmental ABET accreditation review in 2001 and in accordance with EC 2000.
- CIC Academic Leadership Program Fellow - 1999-00.
The Committee on Institutional Cooperation (CIC) is the academic consortium of the Big Ten Universities and the University of Chicago. This professional development program is designed “to develop the leadership and management skills of faculty on CIC campuses who have demonstrated exceptional ability and administrative promise and who are in the early phases of their administrative careers.” The program is specifically oriented to the challenges of academic administration at major research universities and is designed to help faculty members prepare to meet these challenges. The Academic Leadership Program involves the Fellows in a series of three two-day seminars plus readings and participation in related activities on their home campuses between seminars. For the 1999-00 Program, four Purdue faculty/administrators were selected.
- Developed and presented a three-hour module on “Culture of the Middle East” for Purdue University Multicultural Diversity Forums, 2001- 2005.
- Chairperson of the Strategic Hires Steering Committee, Department of Agricultural and Biological Engineering. February – August 2003.
- Engineering Education Leadership Institute (EELI), Center for the Advancement of Scholarship on Engineering Education, San Jose, CA, July 10-15, 2005. This involved a select group of leading engineering colleges that were invited to participate with the following goals in mind: a) to have an impact on the future of our engineering programs and those of each of the EELI participating campuses; and b) on engineering education more broadly. The EELI pilot curriculum was centered on the areas of a) leading the change management, b) leading for creativity, and c) leading for diversity.
- Organized and led the Engineering Education Research Colloquies to Develop a New Framework and Capacity for Engineering Education Research through a Series of four Colloquies that involved more than 70 STEM education faculty from across the country. 2005-2006.

Leadership skills have been enhanced by participating in the following workshops:

- “Diversity and High Performance Work Teams.” Purdue University, October 26, 1995
- “Celebrating Diversity.” Purdue University, November 9, 1995
- “Innovative Assessment Opportunities.” Purdue University, November 14, 1995

- “Effective Working Groups.” Purdue University, February 12, 1996
- “Educating the Leaders of Tomorrow: Organizational Behavior Teaching Conference.” Purdue University, March 23, 1996
- “Implementing Self-Directed Work Teams.” Career Track, Inc., Lafayette, IN, July 11, 1996
- “Facilitator Training.” Purdue University, July 23-26, 1996
- “How to Be a Better Communicator.” Career Track, Inc., Lafayette, IN, August 16, 1996
- “Preventing Harassment.” Purdue University, December 10, 1996
- “Personal Power - Commanding Our Inner Resources.” Purdue University, January 16, 1997
- “Communication Skills That Work in Today’s Workplace.” Purdue University, February 6, 1997
- “Leadership and Effective Teams.” Purdue University, February 18, 1997
- “Teaching At A Distance.” Purdue University, May 27-29, 1997
- “Gender-Focused Diversity Forum,” Purdue Schools of Engineering, Indianapolis, IN, March 7-9, 2000
- “Race-Focused Diversity Forum,” Purdue Schools of Engineering, Indianapolis, IN, March 6-8, 2001
- “Multicultural Diversity Workshop,” Purdue Schools of Engineering, Indianapolis, IN, October 6-8, 2001
- “Multicultural Diversity Workshop,” Purdue Schools of Engineering, West Lafayette, IN, March 3-5, 2002
- “Setting the Stage for Culturally Inclusive Classes”, Penn State College, April 26-28, 2005
- “Best Practices Workshop on Recruitment and Retention of Faculty and Staff”, Purdue University, West Lafayette, IN, January 18, 2005
- “Engineering Search Committee Workshop”, Purdue University, West Lafayette, IN, January 26, 2005

2. Administrative Services to University, Schools and Departments

University

- University International Educational Programs Committee (member 1992-95)
- Division of Sponsored Programs (DSP) Industrial Research Activities Committee (member 1994-2004)
- University Search Committee for Dean of Libraries (member 2003-04)
- Graduate School Minority Advisory Committee (member 2003-05)
- P-12 Engagement Taskforce (member 2005-06)
- Purdue University Strategic Planning “Tiger Team” on STEM Careers (Co-Chair, 2007-08)
- University Provost Search Committee (member 2007-08)
- Diversity Leadership Group (Mosaic Team), (member 2005- ; Chair 2007-08)
- Dean of Education Search Committee (member 2007-08)
- Discovery Learning Center Advisory Board (member 2006-09)
- sTEM Education Initiative Faculty Search Committee (member 2006-09)
- CIC Academic Leadership Program (ALP) Selection Committee (member 2007-09)

College of Engineering

- Schools of Engineering Awards Committee (member, 1995-96)
- Schools of Engineering Education Committee (member, 1987-90 and 1993-96)
- Schools of Engineering Library Committee (member, 1988)
- Differential Technology Fee Ad Hoc Committee (member, 2003-04)
- Ad Hoc Committee on Engineering Tenure and Promotions Procedures and Practices (member, 2003- 2005)
- Freshman Engineering Curriculum Committee (Chair, 2003-04)
- Engineering Education Initiative Ad Hoc Committee (member, 2003-04)

- Purdue College of Engineering–United Arab Emirates Steering Committee (member, 2003-05)
- P-12 Engineering and Outreach Engagement Task Force(Co-Chair 2005-06)
- Armstrong Hall Facilities Planning Team (member 2005- 2008)
- Division of Interdisciplinary Engineering Studies Advisory Council (member, 2002-09)
- Engineering Diversity Action Committee (member, 2002-09)
- Engineering Area Promotion Committee (EAPC) (member 2003-09)
- Engineering Leadership Team (member, 2003-09)
- First-Year Engineering Curriculum Committee (Chair, 2004-09)

School of Engineering Education

- ENE Primary Committee (Chair, 2004-09)
- ENE Engineering 126 Redesign Committee (member 2007-09)
- ENE Strategic Planning Committee (member 2007-09)
- ENE Graduate Committee (member 2007-09)
- ENE Awards Committee (member 2007-09)
- Engineering Education Leadership Team (Chair, 2008-09)

College of Agriculture

- College of Agriculture Library Committee (member, 1988)
- College of Agriculture Grievance Committee (member, 1989)
- College of Agriculture Advisory Committee for International Activities (member, 1991-96)
- College of Agriculture Minority Student Recruitment and Retention Committee (member, 1992-95)
- College of Agriculture Search Committee for the Associate Dean & Director of Academic Programs (2000-01)
- College of Agriculture Search Committee for Assistant Dean and Associate Director of Agricultural Research Programs (2001)
- College of Agriculture Distance Learning Roadmapping Committee Chair (2001-02)
- College of Agriculture Roadmapping and Strategic Planning Committee (2000-03)
- College of Agriculture Advisory Committee for Study Abroad (2001-09)

Department of Agricultural and Biological Engineering

- Department Graduate Committee (member, 1986-94, 2001-03)
- Department Ad Hoc Committee on Student Recruitment (member, 1989-90)
- Department Curricula Committee for Engineering (member, 1989-96)
- Department Multi-Media Subcommittee (member, 1990-92)
- Department Co-Op Faculty Coordinator (1991-92)
- Department Futuring Committee (Chairperson, 1995-97)
- Department Academic Programs Committee (Chairperson, 1996-01)
- Department ABET Coordinator (1998-01)
- Department Strategic Planning Committee (member, 2001-03)

3. Administrative Services to Professional Societies

- ASME Finite Element and Computational Technologies Committee (member since 1988)
- SAE CAD/CAM Committee (member since 1988)
- ASAE Finite Elements and Numerical Analysis Committee IET-217 (member since 1990)
- ASAE Physical Properties of Agricultural Products Committee FPE-701 (member, 1987-1990 and 1992-)
- ASAE Heat and Mass Transfer Committee FPE-710 (member since 1987)
- ASAE Agricultural Equipment Automation Committee PM 58 (member since 1989)
- ASAE Computer Committee EES-54 (member since 1988)
- ASAE Paper Awards Committee, IET-05 (member, 1992-1996)
- ASEE *Journal of Engineering Education* Advisory Board (2004-08)

4. Offices Held in Professional Societies

- Chairperson, ASME Finite Element and Computational Technologies Committee (1995-98)
- Vice Chairperson, ASME Finite Element and Computational Technologies Committee (1993-95)
- Secretary, ASME Finite Element Technology Committee (1990-93)
- Chairperson, ASAE Finite Element and Numerical Analysis Committee (1992-93)
- Vice Chairperson, ASAE Finite Element and Numerical Analysis Committee (1991-92)
- Chairperson, ASAE IET-05 Paper Awards Committee (1995-96)

TEACHING AND EDUCATIONAL EXPERIENCES AND ACTIVITIES

1. Courses Taught at Purdue

- ABE 330, Design of Machine Components, 14 years
Introduction to design; stress analysis; deformation and stiffness considerations; static and fatigue strength design; design of components of the food processing, off-highway vehicles and mechanical systems.
- ABE 450, Finite Element Method in Design and Optimization, 14 years
Fundamentals of the finite element method as it is used in modeling, design, and optimization of different mechanical systems; one- and two-dimensional elements and field problems; heat transfer and fluid flow problems; beam, truss, and frame elements; computer-aided design and optimization of machine components and structural elements.
- ABE 601, Applied Finite Element Analysis (graduate level), 16 years
Finite element solution to problems in biological, agricultural, and food engineering. One- and two-dimensional and axisymmetric field problems, including heat transfer by conduction and convection, fluid flow, coupled heat and mass transfer, and thermo-mechanical problems. Treatment of derivative boundary conditions, point sources, and sinks. Structural and solid mechanics, elasticity, time-dependent problems, numerical stability, and higher order elements. Nonlinear problems, including stress analysis of viscoelastic materials and phase changes during thermal processing. Error estimation and adaptive finite elements, accuracy and reliability of finite element solutions.
- ABE 320, Solid Modeling, Analysis and Dynamic Simulation, 3 years
- ABE 591H, Computational Heat Transfer, 1 year
- ABE 591P, Parametric and Solid Modeling, 1 year
- ABE 590, Special Problems in Agricultural and Biological Engineering, 9 years

Semester	Credit	Special Problems Topic
S 88	3	Finite Element Method in Design and Optimization
SS 89	3	Intelligent Finite Element Mesh Generation
SS 89	3	Artificial Intelligence in Computer-Aided Design
SS 90	1	Solid Modeling of a Corn Detasseler Bracket
F 90	3	Finite Element Optimization Modules
F 91	3	Advanced Topics in Finite Element Analysis I
S 92	3	Advanced Topics in Finite Element Analysis II
S 92	3	Adaptive Methods in Coupled Mechanical Problems
S 92	3	Adaptive Methods in Transient Problems
F 92	2	Solid Modeling in Finite Element Analysis
F 92	3	Energy Methods in Knowledge-Based Finite Element Analysis
S 94	3	Finite Element Modeling of Environmental Transport Problems

S 98	3	Computational Heat and Mass Transfer
S99	1	Design Optimization of Mechanical Systems
SS 00	3	Assessment of Engineering Education
S02	3	Finite Element Modeling of MEMS

- ENE 103J, Engineering Education in a Flat World, Fall 2005

2. Courses Taught Prior to Purdue

- Mechanical Properties of Biomaterials, 2 years
- Structural Mechanics, 3 years
- Design of Machine Elements, 4 years
- Mechanisms, 2 years
- Mechanics of Materials, 5 years
- Dynamics, 4 years
- Mechanical Engineering Laboratory, 2 years
- Solid Mechanics Laboratory, 2 years
- Mechanical Engineering Design, 2 years
- Finite Element Method (graduate level), 2 years

3. Teaching Enhancement Activities

Participated in the following special-focus teaching workshops/seminars:

- "NEEDS: The National Engineering Education Delivery System." Purdue University, October 10, 1995
- "Enhancing Student Success Through a Model 'Introduction to Engineering' Course." Purdue University, December 5, 1995
- "Continuous Improvement in Undergraduate Instruction." Purdue University, January 9, 1996
- "Continuous Quality Improvement in the Classroom." Purdue University, February 26, 1996
- "Creating an Active Learning Environment." Purdue University, March 12, 1996
- "Enhancing and Evaluating College Teaching: A Key Role of Administrators, Faculty, and Faculty Developers." Purdue University, March 22, 1996
- "Role-Playing as a Teaching Alternative: Do I Dare?" Purdue University, April 10, 1996
- "Teaching At A Distance." Purdue University, May 27-29, 1997
- "Undergraduate Research," ASAE, Minneapolis, MN, August 11, 1997
- "Outcomes-Based Engineering Education," ASAE, Minneapolis, MN, August 10, 1997
- "Teaching Evaluation Using Multiple Sources," Purdue University, February 9, 2000
- "Conducting an ABET Accreditation Visit." ASAE, Sacramento, CA, July 31, 2001
- "Review of Current Engineering Accreditation Requirement (ABET)." ASAE, Sacramento, CA, July 31, 2001
- "Classroom Assessment: Finding Out How Well Students are Learning" and "Doing Assessment as if Learning Matters Most", The Teaching Academy and the Center for Instructional Excellence, Purdue University, November 7, 2006

4. Academic Counseling

Agricultural & Biological Engineering (ABE):

As chairman of the Academic Programs Committee (APC) for the department of Agricultural and Biological Engineering during 1996-2001, I regularly met with high school students and their parents, current ABE students, transfer students, and incoming CODOs to provide counseling regarding their academic planning, curricular issues, as well as course-specific questions. I am also sought-out to provide counseling to seniors as they make career employment decisions.

I frequently met with students, serving as their mentor and discussing curricular issues, scholarships, study abroad, and co-op/internship opportunities. Having a firsthand knowledge of student's academic standing, I met with those facing academic challenges to provide counsel and support. This enhanced the ABE department's retention record. During 1996-2001 I served as academic advisor to over 120 students.

School of Engineering Education (ENE):

Because our school provides students with a firm foundation and initial understanding of engineering, I meet regularly with first-year students to provide counseling, assist in choices when identifying a professional school, career advise, discussions regarding grades and courses, or just simply listening when they need to talk.

I also receive numerous emails and phone calls from concerned parents regarding the struggles of their first-year son and/or daughter. As I talk with parents, I try to help them understand the pressures that their son and/or daughter is coping with, such as the rigorous engineering curriculum, transitional issues, new environments, new friends, homesickness, just to name a few. Assuring parents that we always have their son and/or daughter's best interest in mind, is comforting to them.

5. Recruiting Students

Agricultural & Biological Engineering (ABE):

During the period of 1986-2003, I actively participated in a variety of on- and off-campus events to recruit and promote college education to high school juniors and seniors. I also spoke to students and parents about educational opportunities in Engineering and in Agricultural and Biological Engineering. Some of these events included the ABE Departmental Open House, Parent's Day, Talented and Gifted High School Students Program, Purdue AG Forum, Project Future, P-CARET, Golden Honors Day, From Purdue To You, Professors in the Classroom Program, Farm Progress Show, and Women in Engineering Career Day.

School of Engineering Education (ENE):

ENE also serves as a resource for prospective students. Hundreds of high school students and families visit our school yearly. I visit with students and/or families to help them determine if Purdue engineering is a right fit for them. With Purdue's reputation for educating outstanding engineers, it is important to explain why Purdue has top-ranked engineering programs, professors, accredited and non-accredited academic programs, placement opportunities upon graduation, and attending graduate school.

Other school events include Day-on-Campus, Parent's Day, Minority Engineering Programs, Women in Engineering Career Day, International Students Welcome, Engineering Education Information Sessions, First-Year Engineering Open House, Honor's Welcome Reception and Banquet, Purdue Scholars Day, etc.

6. Short Courses Offered

- "An Introduction to the ANSYS Finite Element Program," sponsored by Purdue's Engineering Computing Network (ECN) and hosted by the Agricultural Engineering Department, April 12 and 19, 1990. In these workshops, an introduction to ANSYS was followed by demonstrations and hands-on exercises of the program.
- "ANSYS BASICS I" and "ANSYS BASICS II," ECN, September 29 and November 6, 1993.
- "Finite Element Analysis," A two hour introductory lecture and demonstrations to Freshman Engineering students in ABE 120, September 11, 1997.
- Diefes, H.A. and K. Haghighi, "ABET Compliant Course Profiles and Assessment Model," A Short Course Presented at the Best Assessment Processes III Symposium, Terra Haute, IN, April 2, 2000.
- Diefes-Dux, H.A. and K. Haghighi, "Closing the ABET Loop 101," A Short Course Presented at the Best Assessment Processes IV Symposium, Terra Haute, IN, April 7, 2001.

7. Educational Software Developed

Since 1986, eleven educational software programs for design and analysis of various machine components and parts have been developed. In addition to being used as educational modules in ABE 330, these programs are a companion to the book "Mechanical Engineering Design" by Shigley and Mischke.

8. Distance Learning Experiences

Starting in spring 2000, ABE 601: Applied Finite Element Analysis has been taught via live video and streaming video in conjunction with the off-campus Engineering Professional Education Program.

This enables off-campus graduate students that are working at companies like General Motors, Cummins, Polaris, etc. to continue their education. This also included students from Mexico, Canada, and United Arab Emirates. Enrollment for the spring 2000 and 2001 semesters averaged seventeen off-campus students; spring 2003 enrollment reached over 75 off-campus students, spring 2005 enrollment totaled 80 off-campus students, and spring 2007 totaled 25 off-campus students.

All class work had to be revised and put on PowerPoint to be effectively viewed on television. This amounted to over 800 slides being developed. A website was also developed to provide better service and support to the off-campus students for viewing course materials, assignments, announcements, etc.

9. Undergraduate Research

I have served as the supervisor for undergraduate research projects for the following students.

Student	Semester/Year	Research Topic
Kendra Eads	Spring 2000	Assessment of Engineering Education
Mathew Martin	Spring 2002	Finite Element Modeling of MEMS
Matthew Eckerle	Fall 2002	Modeling Nanoelectromechanical Systems
Adam Sederlund	Spring 2003	Analysis & Design of Micro Pumps
Anthony Ruiz	Summer 2006	ENSEEIH University, Toulouse, France
Clemence Michon	Summer 2006	ENSEEIH University, Toulouse, France
Tim Moffitt	Fall 2007	Interaction of PAMAM dendrimers and DMPC Liposomes: Cut-Off Concentration of G2 PAMAM Puncture
Kathryn Hoff	Spring 2007	Dendrimer Transport Modeling: Feasibility of a Method for Suppression of Endocytosis in Caco-2 Membranes
Tom Moffitt	Summer 2008	Understanding Transepithelial Transport of PAMAM Dendrimers as Vectors for Oral Drug Delivery
Leyla Yamin	Summer 2008	Diffusion of species during cell-to-cell communication in multicellular systems

10. Publications Related to Teaching

- Haghighi, K. 1987. Classroom CAD: Training Tomorrow's Engineers in Agriculture. *Agricultural Engineering* 68(4):18-21.
- Jones, D.D., K. Haghighi and L.F. Huggins. 1990. Computer Education at Purdue University. Paper No. 90-3001, American Society of Agricultural Engineers, St. Joseph, MI.
- Diefes, H. A. and Haghighi, K. 2000. "Development and Implementation of an ABET-Compliant Course Profile and Assessment Model," Proceedings of the Best Assessment Processes III: A Working Symposium, Terra Haute, IN, April 2-3, 2000.

4. Diefes-Dux, H. A. and Haghghi, K. 2001. "Implementing Change: A Model for Closing the Continuous Improvement Loop the First Time and Every Time," presented at the ASEE National Conference, Albuquerque, NM, June 24-27, 2001.
5. Diefes-Dux, H. A. and Haghghi, K. 2001. "Web-Based Technology for Long-Term Program Assessment," presented at the ASEE National Conference, Albuquerque, NM, June 24-27, 2001.
6. Diefes-Dux, H. A. and Haghghi, K. 2001. "Closing the EC 2000 Loop and Implementing Change," ASAE Paper No. 018052, presented at the ASAE Annual Meeting, Sacramento, CA, July 30 - August 1, 2001.
7. Haghghi, K. and Diefes-Dux, H. A. 2001. "A Model for Outcome-Based Program Assessment and Lessons Learned," ASAE Paper No. 018048, presented at the ASAE Annual Meeting, Sacramento, CA, July 30 - August 1, 2001.
8. Diefes-Dux, H. A. and Haghghi, K. 2001. "A Model for Long-Term Evaluation and Assessment Using Constituency Participation," presented at the SEFI Annual Conference, Copenhagen, Denmark, September 12-14, 2001.
9. Katehi, L., Banks, K., Diefes-Dux, H., Follman, D., Gaunt, J., Haghghi, K., Imbrie, P. K., Jamieson, L., Montgomery, R., Oakes, W., and Wankat, P. (2004). "A New Framework for Academic Reform in Engineering Education," presented at the ASEE National Conference, Salt Lake City, UT, June 20-23, 2004.
10. Katehi, L., Banks, K., Diefes-Dux, H., Follman, D., Gaunt, J., Haghghi, K., Imbrie, P. K., Montgomery, R., Oakes, W., and Wankat, P. (2004). "Development of Graduate Programs in Engineering Education," presented at the ASEE National Conference, Salt Lake City, UT, June 20-23, 2004.
11. Katehi, L., Banks, K., Diefes-Dux, H., Follman, D., Gaunt, J., Haghghi, K., Imbrie, P. K., Montgomery, R., Oakes, W., and Wankat, P. (2004). "Preeminence in First-Year Programs," presented at the ASEE National Conference, Salt Lake City, UT, June 20-23, 2004.
12. Diefes-Dux, H. A., Imbrie, P. K., Haghghi, K., Lee, G., Wereley, S., and Wankat, P. (2004). "Nanotechnology Exposure in a First-Year Engineering Program," iCEER 2004 International Conference on Engineering Education and Research, Olomouc and Bouzou Castle, Czech Republic.

RESEARCH ACTIVITIES

1. Published Work

A. Guest Editorials and Special Reports

1. Haghghi, K. Quiet No Longer: Birth of a New Discipline. *Journal of Engineering Education*, October 2005, Vol. 94, No. 4, pp. 351.
2. Haghghi, K., et al. The National Engineering Education Research Colloquies, *Journal of Engineering Education*, October 2006, Vol. 95, No. 4, pp. 257.
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4. Haghghi, K., Smith, K., Olds, B., Fortenberry, N., and Bond, S. The Time is Now: Are We Ready for Our Role? *Journal of Engineering Education*, April 2008, Vol. 97, No. 2. pp. 119-121.

B. Refereed Journal Publications

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C. Refereed Conference Proceedings

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93. Wankat, P., Haghghi, K. 2009. Multidisciplinary Engineering – Flexibility and ABET Accreditation. Submitted January 2009 for ASEE Annual Meeting, Austin, TX

E. Technical Reports

1. Haghghi, K. 1972. Study of the mechanical properties of wood under very dry conditions. Agricultural Engineering Department, Pahlavi University, Shiraz, Iran. 56 pp.
2. Haghghi, K. 1975. Diaphragm design of pole buildings. Michigan State University, E. Lansing, MI. 125 pp.
3. Haghghi, K. 1985. FATIGUE: Fatigue design and analysis of machine components. Manhattan College, New York, NY. 6 pp.
4. Haghghi, K. 1985. CURVE: Design and analysis of curved mechanical elements. Manhattan, College, New York, NY. 5 pp.

F. Book Chapters

1. Oliveira, L.S. and K. Haghghi. 1997. Chapter contribution entitled “Finite Element Modeling of Grain Drying”, in “Mathematical Modeling and Numerical Techniques in Drying Technology”, I.W. Turner and A. Mujumdar, Editors. Marcel Dekker Publishing, NY, Section III, pages 309-338.

2. Major Software Developed

- Copyright Registration No. TXG 392-678. “AUTOMESH: An Automatic Finite Element Mesh Generator”, with E. Kang, 1990.

A software package that generates two-dimensional finite element meshes for analysis of various engineering problems. Its output is used by any finite element package for further analysis of the problem. It eliminates special user training regarding mesh generation and analysis.

- Copyright Registration No. TXG 447-341. “GRAINFEM: A Finite Element Analysis System for Simulation of Viscoelastic Grain Material Behavior During Drying”, with J. Irudayaraj, 1991.

A graphically-oriented finite element analysis software package for simulation of behavior during drying. It provides detailed and dynamic information about temperature and moisture changes inside the kernel during the drying process. It predicts drying-induced viscoelastic stresses and identifies regions of potential kernel failure and cracking.

- Copyright Registration No. TX 3-653-350. “IMAGEMESH”, with C.J. Precetti, G.W. Krutz and R.L. Stroshine, 1993.

A software package that uses advanced image processing techniques to define the object boundaries for finite element mesh generation and modeling. The image processing technique involves color segmentation, labeling, boundary extraction and boundary processing. IMAGEMESH is specially suited for complex-shaped objects such as food and biomaterials. The software automates boundary information extraction and definition from color images of the object.

- Copyright Registration No. TX 3-677-204. “INTELMESH: A Fully Automatic and Intelligent Finite Element Mesh Generator”, with E. Kang, 1993.

INTELMESH generates well-shaped triangular finite element meshes for two-dimensional and three-dimensional axisymmetric engineering problems subjected to mechanical loading. It intelligently identifies the critical region in the object and chooses the proper mesh size for them based on the object geometry as well as the boundary and loading conditions. The output data of INTELMESH can be connected to any finite element analysis package for further analysis of the problem. It does not require any background on the part of user regarding finite element mesh generation and analysis. INTELMESH is fully automatic and requires minimum input from the user.

- Copyright Registration No. TXU 647-066. “XPRING: An Integrated Expert System for Design and Selection of Mechanical Springs”, with D.S. Motz, 1994.

An integrated knowledge-based software package for analysis, design and selection of compression torsion and extension springs. It incorporates computer-aided design, computer graphics, finite element analysis, expert systems, optimization techniques, and failure and fatigue analysis to provide an advanced design environment.

- Copyright Registration No. TXU-639-686. “FUZZYMESH: A Fully Automatic and Fuzzy-Logic Based Finite Element Mesh Generator”, with W. Kwok, 1994.

FUZZYMESH is a fully automatic, intelligent and fuzzy-logic based finite element mesh generator for simple as well as complex domains and parts subjected to mechanical loading. Heuristic knowledge, past experience, common sense and existing solutions are incorporated into the program. FUZZYMESH is based on the concept of the linguistic variable and approximate reasoning. It makes expert decisions about the mesh density and its distribution in the initial model, by considering geometric information as well as the boundary and loading conditions. It generates a near optimal a-priori model.

- Copyright Registration No. TX4-268-424. “KADS2: A Knowledge-Aided Design System Shell”, with William M. McVea, 1996.
KADS2 uses a knowledge-based system, numerical analysis codes and design databases to assist a designer create conceptual designs. The system functions by minimizing the amount of design information to produce an initial concept design. This design can then be semi-automatically manipulated within the system to fine-tune it for production. It also can be used as a basis for a design review type of discussion with potential customers. It is intended that this system be used with task specific design modules. As an example, one current, fully functional design module has been created to develop mechanical power transmissions. This design module simply “plugs” into KADS2 to become the KADS2/Trans. design system.
- Copyright Registration No. TX4-268-425. “KADS2/Trans: A Mechanical Transmission Design Package for KADS2 ”, with William M. McVea, 1996.
KADS2 / Trans. uses the KADS2 shell and a production rule-based specific to the conceptual design of mechanical transmissions. The combination reduces the iterative, time consuming portion of creative design to a near minimum. This particular design module has been optimized for geared power transmissions. It combines the latest accepted design techniques with heuristic information from multiple design experts in the field. The results generated by this module are appropriate for any application that requires multiple speed power transmission.
- Copyright Registration No. C-98030.00.US. “HEATADAP/Diff”, with Adriana S. Franca, 2001.
HEATADAP/Diff uses an adaptive finite element methodology to solve transient problems involving heat transfer by conduction. The program is fully automatic and only the first coarse mesh is built by the user. It can also be employed to solve other diffusion - type problems.
- Copyright Registration No. C-98029.00.US. “HEATADAP/Conv”, with Adriana S. Franca, 2001.
HEATADAP/Conv uses an adaptive finite element methodology to solve problems involving heat transfer by convection. It is capable of handling linear, nonlinear, steady-state and transient problems.

3. Invited Seminars, Lectures and Presentations

- Uniroyal Tire and Rubber Co., World Headquarters. “Finite Element Analysis of a Ring Structure.” Woodbury, CT, January 20, 1985.
- Society of Engineering Science and American Society of Mechanical Engineers. “Finite Element Formulation of the Drying-Induced Stresses in a Viscoelastic Sphere.” 25th Annual Technical Meeting, Berkeley, CA, June 20-22, 1988.
- NC-151 (North Central Committee on Marketing and Delivery of Quality Cereals and Oilseeds) Annual Meeting. “Finite Element Simulation of Grain Behavior During Drying,” Indianapolis, IN, February 7, 1991.
- Purdue University. “Sensor Applications in Agriculture,” Center for Agricultural Business, John Deere University Program, W. Lafayette, IN, August 7, 1991.
- The Engineering Society for Advancing Mobility (SAE). “Knowledge-Based Finite Element Mesh Generation.” International Off-Highway and Powerplant Congress, Milwaukee, WI, Sept. 9-12, 1991.
- Purdue University. “Finite Element Modeling of Grain Drying,” National Grain and Feed Association Research Committee Visit, October 9, 1991.
- Federal University of Vicosa-Brazil. “Advances in Grain Drying Simulation,” June 17, 1992.
- American Society of Mechanical Engineers (ASME). “Intelligent Finite Element Analysis – Myth or Reality.” International Computers in Engineering Conference, S. Francisco, CA, August 2-6, 1992.
- The Engineering Society for Advancing Mobility (SAE). “Error Estimation and Adaptive Finite Element Analysis.” International Off-Highway and Powerplant Congress, Milwaukee, WI, Sept. 14-17, 1992.
- Institute for Mathematics and its Applications (IMA). “Knowledge-Based and Adaptive Finite Element Analysis.” University of Minnesota, Minneapolis, MN, July 20, 1993.

- American Society of Mechanical Engineers (ASME). “Adaptive Finite Element Analysis of Simultaneous Heat and Mass Transfer Problems.” 13th International Computers in Engineering Conference, San Diego, CA, August 8-11, 1993.
- American Society of Mechanical Engineers (ASME). “Adaptive Techniques for Finite Element Analysis of Transient Thermal Problems.” 13th International Computers in Engineering Conference, San Diego, CA, August 8-11, 1993.
- The Engineering Society for Advancing Mobility (SAE) “IMAGE MESH: Color Image Analysis for Automatic Finite Element Mesh Generation.” International Off-Highway and Powerplant Congress, Milwaukee, WI, Sept. 13-15, 1993.
- American Society of Agricultural Engineers (ASAE). “A Fuzzy Knowledge-Based Approach for Finite Element Mesh Generation.” International Winter Meeting, Chicago, IL, December 14-17, 1993.
- American Society of Agricultural Engineers (ASAE). “New Advances in Reliability of Finite Element Analysis.” International Winter Meeting, Chicago, IL, December 14-17, 1993.
- University of Saskatchewan. “Advanced Topics in Adaptive Finite Element Analysis.” School of Engineering Seminar Series, Saskatoon, SK, Canada, March 3, 1994.
- National Science Foundation. “Knowledge-Based Finite Element Analysis.” Grantee’s Meeting, Boulder, Colorado, May 17, 1994.
- The Engineering Society for Advancing Mobility (SAE). “Intelligent Finite Element Mesh Generation with Blackboard and Fuzzy Logic Systems.” International Off-Highway and Powerplant Congress, Milwaukee, WI, Sept. 12-14, 1994.
- The Engineering Society for Advancing Mobility (SAE). “A Knowledge-Aided Mechanical Design System – KADS: The Next Generation.” International Off-Highway and Powerplant Congress, Milwaukee, WI, Sept. 12-14, 1994.
- American Society of Mechanical Engineers (ASME). “New Advances in Adaptive Finite Element Mesh Generation and Analysis.” 14th International Computers in Engineering Conference, Minneapolis, MN, September 11-14, 1994.
- USDA Agricultural Research Service. “New Advances in Finite Element Modeling of Drying Food and Agricultural Products.” Instrumentation and Sensing Laboratory, Beltsville, MD, Oct. 6, 1994.
- University of Maryland. “Recent Developments in Applications of Finite Element Method to Transport Problems.” Department of Agricultural Engineering, College Park, MD, Nov. 4, 1994.
- American Society of Agricultural Engineers (ASAE). “Accuracy and Reliability of Finite Element Solutions.” International Winter Meeting, Atlanta GA, December 14, 1994.
- American Society of Mechanical Engineers (ASME). “Adaptivity and Error Estimation in Nonlinear Transport Problems.” International Computers in Engineering and Design Technical Conferences, Boston, MA, September 18, 1995.
- Purdue University, School of Agriculture Science Forecast Program. “Safer Slams and Better Jams: The Science of Basketball Floors,” January 24, 1997.
- American Society of Agricultural Engineers (ASAE). “Current Advances and Future Trends in FEA,” Toronto, Ontario Canada, July 21, 1999.
- American Society of Agricultural Engineers (ASAE). “A Model for Outcome-Based Program Assessment and Lessons Learned.” Sacramento, CA, July 29, 2001.
- American Society of Agricultural Engineers (ASAE). “Emerging Challenges in the Modeling of Nanoscale Processes.” Las Vegas, NV, July 29, 2003.
- 2004 Teacher & Counselor Workshop, “New Frontiers in Engineering Education”, Purdue University, West Lafayette, IN, December 1, 2004.
- “Engineering Education: Birth of a New Discipline”, The Ohio State University, Columbus, OH, May 16, 17, 2006
- “Engineering Education: Birth of a New Discipline”, Penn State University, State College, PA, November 30-December 1, 2006.
- “Engineering Education as a New Academic Discipline”, Invited Keynote Lecture at the International Conference on Engineering Education and Training (ICEET-2), Kuwait City, Kuwait, April 6-12, 2007.
- “Genesis and Development of the Purdue Department of Engineering Education”, Main Plenary Speaker, Center for Advancement of Scholarship on Engineering Education (CASEE)-NAE, Milwaukee, WI, October 8-9, 2007.

- “Metrics of Instructional Scholarship”, National Academy of Engineering Symposium, Washington, D.C. November 13, 2007.
- “Informing and Influencing Change via Engineering Education Research”, Engineering Education Futures Conference, The Carrick Institute for Learning and Teaching in Higher Education, Australia, March 28, 2008.
- Plus several invited presentations at international conferences in U.K., Czechoslovakia, Germany, U.S., Canada, Sweden, Russia, Brazil, S. Korea, Italy, Australia, Spain, Puerto Rico, China, Japan, Greece, Lebanon, Kuwait, Belgium and France. (See “International Experience”)

4. Graduate Research Involvement

A. Major Professor

Date	Student Name	Degree	Dept.	Thesis Topic
1987-89	Minzhu Liu	M.S.	AGEN	Failure Analysis of Soybeans During Processing
1987-89	Mark G. Smith	M.S.	AGEN	Computer-Aided Design and Testing of an Engine Mounting System Using the Finite Element Method and an On-Board Vehicle Data Acquisition System
1987-90	Joseph Irudayaraj	Ph.D.	AGEN	Finite Element Simulation of Viscoelastic Biomaterial Behavior During Drying
1988-90	Darin S. Motz	M.S.	AGEN	An Integrated Approach to Knowledge-Aided Design and Optimization of Mechanical Springs
1988-92	Eun Kang	Ph.D.	AGEN	A Knowledge-Based Approach to Finite Element Mesh Generation
1992-94	Paul W. Elliott	M.S.	AGEN	Vibration Analysis of a Real-Time Soil Sensor
1991-95	Wa Kwok	Ph.D.	AGEN	Fuzzy Logic Knowledge-Based System for Adaptive Finite Element Mesh Generation and Analysis
1991-95	Adriana Franca	Ph.D.	AGEN	Adaptive Finite Element Analysis of Transient Thermal Problems
1991-95	Leandro Oliveira	Ph.D.	AGEN	A Conjugate/Adaptive Finite Element Approach to Drying of a Multi-Kernel System
1992-95	William M. McVea	Ph.D.	AGEN	KADS2: A Knowledge Aided Design System for Mechanical Transmissions
1995-96	Hubert J. Montas	Ph.D.	ABE	Preferential Flow and Transport Modeling in Agricultural Soils. (Co-major advisor)
1994-97	Paul W. Elliott	Ph.D.	ABE	Dynamic Evaluation and Simulation of Safety, Performance and Uniformity of Hardwood Sports Surfaces
1995-98	Jonathan D. Landes	M.S.	ABE	Engine Dynamics and Analysis
1997-98	Nathan S. Parsons	M.S.	ABE	Parametric Analysis of the Performance of a Steel-Tracked Feller Buncher Through Dynamic Simulation. (Co-major advisor)
1995-00	Christiana Aguirre (Gurgel)	Ph.D.	ABE	Stochastic Finite Element Analysis of Transport Problems in Porous Media
1999-01	Kendra J. Eads	M.S.	ABE	Configuration and Weight Optimization of Exhaust Systems
2002-04	Robert Schlipf	M.S.	ABE	Modeling and Simulation of a Piezoelectric Micro-pump

B. Major Professor for Continuing Engineering Education Students

Date	Student Name	Degree	Dept.	Area of Specialization
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Date	Student Name	Degree	Dept.	Area of Specialization
2003-05	Stephanie Ruff	M.S.	CEE	Integrated Vehicle Engineering
2003-06	Mauricio Frias	M.S.	CEE	Integrated Vehicle Engineering
2004-2006	Virgilio Quintana	M.S.	CEE	Automotive Design

C. Advisory Committee Member

Date	Student Name	Degree	Dept.	Thesis Topic/ Area of Specialization
1986-87	Kurt M. Waananen	M.S.	AGEN	Viscoelastic Properties of Yellow Dent Corn Kernels
1987-89	Jose H. Martins	Ph.D.	AGEN	Thin Layer Drying Rate of Corn Hybrids Related to Performance of a High-Speed, High Temperature Batch Dryer
1987-89	Seong In Cho	Ph.D.	AGEN	Low Cost NMR Sensor Development for Detecting Ripeness of Fruit
1987-89	Mauro A. Martinez	Ph.D.	AGEN	Development of a Transient Flow Model in Clermont Silt Loam Using Finite Element Method
1987-89	Martha A. Cardenas	Ph.D.	AGEN	Machine Vision for Melon Harvesting
1987-94	Myoung Ho Kim	Ph.D.	AGEN	Analysis of Stress and Failure for Food Products During a Simultaneous Heat and Mass Transfer Process
1989-91	Michael S. Hitchcock	M.S.	AGEN	Corn Detasseling Mechanism
1989-91	Priyo Suprobo	Ph.D.	CE	Finite Element Mesh Refinement Strategies
1990-91	Dennis A. Chen	Ph.D.	FS	Combined Microwave-Steam Heating for Aseptic Processing of Foods Containing Large Particulates
1991-93	Philip Cho	Ph.D.	ME	Vibration Modeling of Mechanical Systems using the Finite Element Method
1991-93	Wei Liu	M.S.	AGEN	Development of a Real-Time Soil Texture Sensor
1992-96	Daniel M. Queiroz	Ph.D.	AGEN	Steering Performance Simulation of a Rubber-Track Tractor
1992-96	James Sawyer	Ph.D.	ME	A Fuzzy Systems Approach to Structural Damage Detection and Identification
1993-95	Kevin W. Kelley	M.S.	AGEN	Flow Characteristics of Gravity-Flow Grain Wagons Contributing to Engulfment in Flowing Grain and Possible Intervention Strategies
1994-96	Sukhwant Khanuja	Ph.D.	ME	Dynamic Response and Stability in Flexible Cam-Follower Mechanisms.
1994-96	Eric M. Phillips	M.S.	ME	Friction and Wear Characterization of PFPE Greases
1994-96	Teresa A. Whitman	Ph.D.	AGEN	Modeling and Measurement of the Vibrational Response of the Ovine Head as it Relates to Intracranial Pressure
1994-97	Mark Duvall	Ph.D.	ME	Design and Development of Thermoplastic Composite Manufacturing Processes Based on Electrostatic Powder Spray Impregnation
1996-98	Harshad Borgaonkar	Ph.D.	ME	Processing and Rheology in Thermoplastic Composites
1996-99	Michael Montross	Ph.D.	ABE	Finite Element Modeling of Stored Grain Ecosystems

Date	Student Name	Degree	Dept.	Thesis Topic/ Area of Specialization
1997-99	Michael L. Benner	M.S.	ABE	Numerical and Field Analysis of Parameters Affecting the Performance of Air Sparging Remediation Systems
1999-02	Heming Dai	Ph.D.	ME	Industrial Design and Applications of Thermoplastic Composites
1997-04	Rex Mennem	Ph.D.	ME	Gear Noise Study of a Front End Loader Axel Assembly
1999-04	Chell Nyquist	M.S.	ABE	Finite Element Evaluations of Geometric Modifications to Hip Implant Components for the Purpose of Reducing the Likelihood of Failure
2000-05	Youngmi Kim	Ph.D.	ME	Mechanical Design
2001-06	Edwin Barron	M.S.	ME	Design Engineering
2004-07	Nathan Bolander	Ph.D.	ME	Piston Ring Lubrication and Friction Reduction Through Surface Modification

D. Post Doctoral Fellows:

Date	Name	Research Topic
1992-94	Eun Kang	Knowledge-Based Approach to Adaptive Finite Element Analysis
1996-97	Hubert Montas	Numerical Modeling of Solute Transport in Porous Media. (Co-supervisor)
2000-01	Christiana Aguirre	Stochastic Finite Element Method
2003-04	Nico Scheerlinck	Computational Micro-Nano Technology
2004-05	Heng-An Wu	Computational Nano-mechanics
2004-08	Nahor Haddish	Modeling and Simulation of Targeted Oral Drug Delivery Systems

5. Grants and Awards

A. Research Grants

1. "Mechanical Behavior and Damage Control of Soybeans During Processing and Handling," Purdue Research Foundation, David Ross Fellowship Award, \$15,000. June 1987-89.
2. "Modeling and Analysis of Soybeans Mechanical Behavior During Processing," Purdue Agricultural Experiment Station, \$16,500. September 1987-89.
3. "Finite Element Analysis of a Truck Bracket," Tippecanoe Manufacturing Co., Lafayette, IN. \$3,000. May 1987 - August 1987.
4. "Engine Mount System Analysis," Tippecanoe Manufacturing Co., Lafayette, IN. \$10,000 (P.I.) with G.W. Krutz, AGEN. September 1987 - December 1988.
5. "Finite Element Model and Code for Failure Analysis and Damage Control of Viscoelastic Biomaterials During Processing," Purdue Agricultural Experiment Station, Incentive Grant Program, \$10,000. March 1987-88.
6. "Knowledge-Based Finite Element Analysis for Design of Agricultural Machine Components," Purdue Agricultural Experiment Station. \$20,000. 1990-92.
7. "Advanced Braking System for Off-Highway Vehicles," Carlisle Co., Inc. \$41,157. (Co-P.I. with H.G. Gibson, AGEN. August 1990-91. (Responsible for 75% of the budget).
8. "Biosensors for Environmentally Safe Agricultural Production Systems," Purdue Agricultural Experiment Station (Crossroads 1990 Competitive Program). \$69,000. (Co-P.I.) with L.D. Gaultney, AGEN; cooperators D.B. Mengel, AGRY and E. Sandgren, ME. August 1990-92. (Responsible for \$61,000 of project funds).
9. "Preparing Engineers for Careers in Design and Development of Agricultural Sensors," USDA National Needs Fellowship Program. \$162,000. K. Haghighi (P.I.) and H.G. Gibson. 1991-1994.

10. "Reliable and Efficient Finite Element Models for Design of Agricultural Machine Components," Purdue School of Agriculture, Undergraduate Research Grant Program Award. \$1,000. Oct. 1991.
11. "An Efficient and Automatic Three-Dimensional Finite Element Modeling for Mechanical Design," Purdue Research Foundation. \$19,800. 1991-1993.
12. "A Knowledge-Based Approach to Adaptive Finite Element Analysis," National Science Foundation, \$100,000. August 1992-94.
13. "Adaptive Finite Element Method for Heat Transfer Problems in Food and Biological Materials." Purdue Research Foundation. \$20,400. 1994-96.
14. "Development of Hardwood Flooring Systems Test Standards," Robbins, Inc. \$18,800. K. Haghighi (Co-P.I.) with G.W. Krutz. March 1994 - March 1995.
15. "Dynamic Evaluation of Wood Floor Systems," Robbins, Inc. \$24,000. K. Haghighi (P.I.) and G.W. Krutz. March 1994 - March 1995. The company also provided data acquisition equipment valued at \$30,000, which was used to build the testing system.
16. "Dynamic Analysis, Measurement and Testing of Hardwood Sports Surfaces," Robbins, Inc. \$26,437. K. Haghighi (Co-P.I.) with G.W. Krutz. March 1995 - March 1996.
17. "Finite Element Modeling of Wood Floor Systems," Robbins, Inc. \$22,773. K. Haghighi (P.I.) and G.W. Krutz. March 1995 - March 1996.
18. "Finite Element Modeling of Transport in Porous Media," Nova Scotia Agricultural College, Canada. \$2,500. 1996.
19. "Uniformity and Energy Characteristics of Hardwood Flooring Systems," Robbins, Inc. \$31,183. K. Haghighi (P.I.) and G.W. Krutz. March 1996 - March 1997.
20. "A New Testing Method for Sport Surfaces," Robbins, Inc. \$28,546. K. Haghighi (Co P.I.) with G.W. Krutz. March 1996 - March 1997.
21. "Finite Element Analysis of Soil Erosion Models," USDA National Soils Erosion Laboratory. \$51,500. 1996-97.
22. "Soil Erosion Processes and Prediction Technology Development," USDA. \$244,728.23. K. Haghighi (Co P.I.) with C. Huang, B. A. Engel, and R. H. Mohtar. 1997-99.
23. "Dynamic Simulation and Modeling of a Tree Harvester," Caterpillar, Inc. \$77,270. K. Haghighi (Co P. I.) with H. G. Gibson. 1997-99.
24. "Computational Networks in Agricultural, Biological and Environmental Engineering Systems," Intel Corporation. \$349,163.00. K. Haghighi (Co P.I.) with R. Mohtar, B. Engel, and H. G. Gibson. 1997-98.
25. "Model Development To Predict Loading and Boundary Conditions For Exhaust Systems," Arvin Industries Inc., \$190,155. H. Gibson, K. Haghighi, and A. Sumali. 1998-2000.
26. "Finite Element Optimization of Exhaust System," Arvin Industries Inc., \$9,000. K. Haghighi. 1999.
27. "Configuration and Weight Optimization of Exhaust Systems," Arvin Industries, Inc., \$56,300. K. Haghighi. 1999-2001.
28. "Computer Aided Design of Dough Processing Equipment," Midwest Advanced Food Manufacturing Alliance (MAFMA). \$40,000. O. Campanella, K. Haghighi, and M. Okos. 1999-2001.
29. "Verification of an Exhaust System Finite Element Model," ArvinMeritor Exhaust, \$8,000. K. Haghighi. 2001.
30. "Stochastic Finite Elements for Biological Systems," Nova Scotia Agricultural College, NS, Canada. \$15,000. 2001-2002.
31. "New Research Directions in Modeling and Simulations of Micro and Nano Devices", Agriculture Research Programs, \$11,900. March 2002.
32. "Purdue Center for Animal Waste Management Technologies." Environmental Protection Agency. \$712,500. R. Turco, D. Jones, A. Heber, K. Haghighi. 2000-2003.
33. "Identification of Contaminant Sources in a Watershed: Implications for Implementing TMDLs. Environmental Protection Agency. \$140,775. R. Mohtar, J. Frankenberger, K. Haghighi. 2000-2003.
34. "New Learning and Discovery Experiences in Nanoscale Engineering Undergraduate Education." Nanotechnology Undergraduate Education, NSF. \$100,000. K. Haghighi, H. Diefes-Dux, P. K. Imbrie, G. Lee, and S. Wereley. 2003-2004.

35. "Nanotechnology Interdisciplinary Educational Experiences for Undergraduates in Food and Agricultural Sciences." USDA. \$100,000. H. Diefes-Dux, K. Haghighi, B. Applegate, A. Goecker, D. Bennett, R. Frisbie, M. Ladisch, G. Lee, C. Johnston. 2004-2005.
36. "Reforming Engineering Education: A Multidisciplinary Engineering Undergraduate Program." NSF-DLR. \$1,000,000. K. Haghighi, P. K. Imbrie, B. Oakes, P. Wankat, K. Bowman. 2004-2007.
37. "Reforming Engineering Education: Multidisciplinary Engineering." NSF Supplemental Funding. \$100,000. K. Haghighi and P.K. Imbrie. 2004-2006.
38. "Engineering a Better Future", S. D. Bechtel Jr. Foundation, \$5,000,000. K. Haghighi and Leah Jamieson, 2006-2011.
39. "Ideas to Innovation Learning Laboratory Complex", S. D. Bechtel Jr. Foundation, \$2,000,000. K. Haghighi, P. K. Imbrie, Teri Reed-Rhoads. 2007-2009.

B. Other Grants and Awards

1. "Finite Element Method, Geometric Solid Modeling, and Design Optimization," Purdue, School of Engineering, Undergraduate Curriculum Enrichment Grant Program. \$1,500. December 1, 1987.
2. "Enhancing FEM and CAD Capabilities with Sun Workstations," Purdue School of Agriculture, Non-Recurring Funds for Teaching Equipment. \$6,500. April 21, 1988.
3. "Finite Element Modeling and Analysis of Heat and Mass Transfer in Food and Agricultural Products," Purdue Research Foundation, International Travel Grant Program. \$600. December 5, 1988.
4. "Role of Computer Graphics in Computer-Aided Design," National Computer Graphics Association Educational Foundation, Academic Scholarship. \$750. January 17, 1989. Twenty such awards were granted nationwide in 1989.
5. "Integration and Networking of Mechanical-Computer Aided Engineering Tools," Autodesk Company, Inc., Auto Solid Software. \$5,000. July 1989.
6. "Expert Systems for Design of Machine Components," Purdue Schools of Engineering, Undergraduate Curriculum Enrichment Grant Program. \$1,300. November 15, 1989.
7. "Numerical Models for Analysis of Viscoelastic Biomaterials During Drying," Purdue Research Foundation, International Travel Grant Program. \$650. April 1990.
8. "Multimedia for Automatic Data Acquisition and Analysis," Purdue Agricultural Engineering Department. \$8,000. G.E. Miles, R.L. Strohshine and K. Haghighi. January 1991 - August 1991.
9. "Nonlinear Finite Element Analysis of Drying-Induced Stresses in Viscoelastic Biomaterials," Purdue Research Foundation, International Travel Grant Program. \$1,040. September 1991.
10. "Development of a Collaborative Research and Exchange Program with S. Korea," Purdue Mucia International Travel Grant – \$1,100. 1992.
11. "Intelligent and Adaptive Finite Element Analysis for Design Automation," Purdue Research Foundation, International Travel Grant Program. \$1,080. May 1993.
12. "Parametric and Solid Modeling for Undergraduate Engineering Education," Purdue Undergraduate Laboratory Equipment Grant. \$3,700. February 1994.
13. "Developing Leadership Skills," Purdue University School of Agriculture, ESCOP/ACOP Program. \$15,000. October 1995.
14. "Finite Element Analysis of Flow and Chemical Transport in Porous Media," Purdue Research Foundation, International Travel Grant. \$880. September 1996.
15. "Stochastic Analysis of Agrichemical Movement to Ground Water," Purdue Research Foundation, International Travel Grant. \$1,500. December 1999.
16. "Stochastic Finite Element Analysis of Contaminant Transport Through Soils," Purdue Research Foundation, International Travel Grant, \$2,700. March 2002.
17. "An Interdisciplinary Approach to Collaborative Learning and Discovery Experiences with Cuba," Purdue University, International Department Grants Program. \$32,000. K. Haghighi, A. Tillis, B. O'Neil, H. Targ, B. Hamaker, and M. Stitsworth. February 2003.

18. "An Interdisciplinary Maymester Learning Experience in Cuba", Purdue Study Abroad Proposal, International Department Grants Program, \$9,000. K. Haghighi, A. Tillis, H. Targ, B. O'Neil, and B. Hamaker. February 2003.
19. "International Engineering Learning and Discovery Experiences in France and Greece", Purdue University, International Department Grants Program, \$15,000. November 2004 and December 2007.

6. Continuing Education and Professional Development

Participated in the following special-focus workshops:

- "Introduction to ANSYS." Computer Aided Engineering Associates, Woodbury, CT, March 1987.
- "Finite Element Design Optimization." Swanson Analysis Systems, Inc., Houston, PA, March 1988.
- "Application of Expert Systems in Mechanical Design" and "Feature-Based Mechanical Design." American Society of Mechanical Engineers, Chicago, IL, March 1988.
- "Future of Computer Graphics in Engineering Design," National Computer Graphics Association (NCGA), Philadelphia, PA, April 19, 1989.
- "Error Estimation and Design Optimization in ANSYS," Engineering Methods Inc., W. Lafayette, IN, July 18, 1990.
- "Solid Modeling and Integrated Design," Structural Dynamics Research Corporation, Indianapolis, IN, June 25, 1992.
- "New Capabilities in ANSYS Revision 5.0," Engineering Methods, Inc., W. Lafayette, IN, Sept. 22, 1992.
- "Modeling, Mesh Generation and Adaptive Numerical Methods for Partial Differential Equations," Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, MN, July 17-23, 1993.
- "Parametric Design Optimization," Engineering Methods, Inc., Indianapolis, IN, September 16, 1993.
- "Introduction to Multibody Modeling," ASAE, Minneapolis, MN, August 11, 1997.
- "Introduction to ABAQUS Finite Element Program," AC Engineering, Inc., West Lafayette, IN, September 22-25, 1998.
- "10th International Meshing Roundtable", Newport Beach, California, October 7-10, 2001.
- "Nanotechnology at Purdue", Interdisciplinary Materials Consortium (MatCon) Workshop, Purdue University, West Lafayette, IN, February 22, 2002.
- "Opportunities at the Interface of Biology and Materials Science", Interdisciplinary Materials Consortium (MatCon) Workshop, Purdue University, West Lafayette, IN, March 28, 2002.
- "BioMEMS", "Fifth International Conference on Modeling and Simulation of Microsystems", San Juan, Puerto Rico, April 20-25, 2002.
- "ASME Continuing Education Institute: 2nd Annual MEMS Technology Seminar", Boston, Massachusetts, June 17-19, 2002.

7. Journal Reviewer

- Journal of Engineering Education, (2-3 papers annually since 2004).
- Transactions of the ASABE, Power and Machinery Division, Food and Process Engineering Division, Soil and Water Division, and Emerging Technologies Division (2-3 papers annually since 1987).
- SAE Transactions, Computer-Aided Design and Computer-Aided Manufacturing (2-3 papers annually since 1988).
- Transactions of the ASME, Journal of Mechanical Design (1-2 papers annually since 1988).
- International Journal of Drying Technology (2-3 papers annually since 1992).
- International Journal for Numerical Methods in Engineering (2-3 papers annually since 1990).
- International Journal of Heat and Mass Transfer (3-4 papers annually since 1994).
- Journal of Numerical Heat Transfer (1-2 papers annually since 1993).
- Journal of Agricultural Engineering Research (2-3 papers annually since 1998).

8. Associate Editor

- Transactions of the ASAE, Emerging Technologies Division, in the area of finite element analysis, 1990-95.

9. Proposal Reviewer

- NSF EEC Division, DLR and EEP programs for Department Level Reform and Engineering Education Programs.
- USDA NRI, SBIR and Challenge Competitive Grants Program in the areas of Agricultural, Biological and Food Engineering.
- NSF Engineering Directorate in the areas of Computations, Simulation and Modeling, and Finite Element Analysis.
- Purdue University Global Initiative Faculty Grants Program (5 proposals have been reviewed annually since 1991).
- Purdue University Re-investment Program, Office of the Executive Vice President for Academic Affairs, 1995, 1998, 2001.
- Purdue University School of Agriculture Evaluation Committee for the PRF Summer Faculty Grant Program, 1997.
- NSF Division of Undergraduate Education Reviewer and Panel Member (12 proposals reviewed in 2001, 15 proposals reviewed in 2005).

10. Professional Society Leadership

- Provided leadership for establishing a new "Finite Element and Numerical Analysis" technical group within the American Society of Agricultural Engineers (ASAE). Initiated the concept and developed the final document for submission to ASAE administration. The formation of this new "Finite Element and Numerical Analysis" technical group was approved by the ASAE Technical Council in June 1990.
- Invited Panelist for a session on "Intelligent Engineering Software Tools for the 90's," The SAE International Off-Highway Congress, Milwaukee, WI, September 10-12, 1991.
- Program Committee member and Chairperson of the Finite Element and Computational Technologies program for the 1996 and 1997 ASME Computers in Engineering Conference, Irvine, CA, and Sacramento, CA.
- *ASEE 2006 Plenary*: Following the 2004 ASEE annual meeting, a small working group led by Dr. Kamyar Haghighi, Purdue University, and comprised of Drs. Normam Fortenberry, National Academy of Engineering, Jack Lohmann, Georgia Institute of Technology (representing *JEE*), and Karl Smith, University of Minnesota (on leave to Purdue) began discussions with the elected ASEE leadership on a plan to organize a Socratic session for the main plenary at the 2006 ASEE Annual Conference to be held in Chicago. The session would focus on the future of scholarship in engineering education. On April 20, 2005, the ASEE Executive Committee approved the formation of the 2006 Plenary Organizing Committee comprised of the working group along with Drs. Ronald Barr, University of Texas at Austin, and President-Elect, ASEE, and Frank Croft, Ohio State University, as co-chairs. Other members include: Drs. Isadore Davis, Raytheon Missile Systems; Joseph DiGregorio, Georgia Institute of Technology (retired), who will moderate the session; Stephen Director, University of Michigan; Patricia Fox, Indiana-Purdue University, Indianapolis; Sherra Kerns, Olin College, and President, ASEE; and David Wormley, Pennsylvania State University. This Socratic Main Plenary Session was successfully conducted during the 2006 Annual Meeting in Chicago, IL.

11. Organizing and Chairing Technical Sessions

- "Mesh Generation/Computational Geometry," The ASME Computers in Engineering Conference, Santa Clara, CA, August 18-21, 1991.
- "Finite Element and Numerical Analysis," The ASAE International Winter Meeting, Chicago, IL, December 16-20, 1991.
- "Advanced Topics in Finite Element Analysis," The ASME Computers in Engineering Conference, San Francisco, CA, August 2-6, 1992.

- “Engineering Curriculum Changes,” The Engineering Society for Advancing Mobility (SAE), Off-Highway and Powerplant Congress, Milwaukee, WI, September 14-17, 1992.
- “Finite Element and Numerical Analysis,” The ASAE International Winter Meeting, Nashville, TN, December 15-18, 1992.
- “Advanced Finite Element Techniques,” The ASME Computers in Engineering Conference, San Diego, CA, August 8-11, 1993.
- “New Advances in Finite Element Analysis,” The ASME Computers in Engineering Conference, Minneapolis, MN, September 11-14, 1994.
- “Changes in Engineering Undergraduate Education,” The Engineering Society for Advancing Mobility (SAE), Off Highway and Powerplant Congress, Milwaukee, WI, September 12-14, 1994.
- “New Advances in Error Estimation and Adaptivity for Finite Element Analysis,” The ASME Computers in Engineering Conference, Boston, MA, September 17-21, 1995.
- “Topics in Computational Mechanics,” The ASME Computer in Engineering Conference, Irvine, CA, August 22, 1996.
- “Recent Sensor Developments for Agricultural Equipment,” The Engineering Society for Advancing Mobility (SAE), Off-Highway and Powerplant Congress, Indianapolis, IN, August 26, 1996.
- “Advances in Computational Mechanics,” The ASME Computers in Engineering Conference, Sacramento, CA, September 14-17, 1997.
- “Finite Element Modeling,” The ASME Computers in Engineering Conference, Sacramento, CA, September 14-17, 1997.
- “New Developments in Computational Dynamics,” The ASME Computers in Engineering Conference, Sacramento, CA, September 14-17, 1997.
- “Computational Methods in Water Resources,” The 1999 ASAE/CSAE Annual International Meeting, Toronto, Ontario Canada, July 18-21, 1999.
- “Contributions to Finite Elements - 25 Year Celebration,” The 1999 ASAE/CSAE Annual International Meeting, Toronto, Ontario Canada, July 18-21, 1999.
- “New Advances in Finite Element Analysis and Modeling,” The 1999 International Conference on Agricultural Engineering (99-ICAE), Beijing, P. R. China, December 14-17, 1999.
- “Sensors and Site Specific Decision Support Systems,” The 1999 International Conference on Agricultural Engineering (99-ICAE), Beijing, P. R. China, December 14-17, 1999.
- “Land and Water Use - Integrated Land Use Planning,” XIV Memorial CIGR (International Commission of Agricultural Engineering) World Congress 2000, Tsukuba, Japan, November 28 - December 1, 2000.
- “Water Harvesting”, The International Conference on Water Resources Management in Arid Regions, Kuwait City, Kuwait, March 23-27, 2002.

INTERNATIONAL EXPERIENCE

1. Technical Report

- Haghghi, K. 1983. Study, analysis and planning for standardizing agricultural machinery and equipment manufactured in developing countries. Garjin Co., Tehran, Iran. 235 pp.
 This report contained a comprehensive study and analysis of the status of agricultural machinery and farm equipment in the developing countries of the Middle East with emphasis on Iran. It considered the geo-political, socio-economic, financial, managerial and technical aspects of standardizing agricultural machinery and equipment, and made recommendations for implementation of such a plan.

2. International Lectures/Workshops

- Federal University of Minas Gerais, “Topics in Finite Element Analysis,” Belo Horizonte, Brazil, June 10-15, 1992.
- Federal University of Vicosa, “Advances in Grain Drying Simulation,” Vicosa, Brazil, June 17, 1992.
- Purdue University, “International Agriculture at Purdue: Today and Tomorrow,” April 30, 1996, with D. Sammons and C. Lembi.

- American University of Beirut, “Numerical-Stochastic Analysis of Transient Unsaturated Flow”, March 21, 2002.
- American University of Beirut, “Development of an Outcome-Based Program Assessment Plan and Lessons Learned”, March 21, 2002.
- Katholieke Universiteit Leuven, Leuven, Belgium and CIRAD – Recherche agronomique pour le developement, Montpellier, France, “Opportunities in Nanotechnology”, September 28 – October 6, 2002.
- International Association of Science and Technology for Development (IASTED), International Conference on Applied Simulation and Modeling, Cancun, Mexico, May 17-22, 2005.

3. Presentations at International Conferences

- 6th International Conference on Numerical Methods in Thermal Problems, Wales, U.K., July 3-7, 1989.
- 7th International Drying Symposium, Prague, Czechoslovakia, August 26-30, 1990.
- International Conference on Agricultural Engineering, Berlin, Germany, October 24-26, 1990.
- 7th International Conference on Numerical Methods in Thermal Problems, Stanford, CA, U.S.A., July 8-12, 1991.
- 4th International Conference on Nonlinear Engineering Computations, Wales, U.K., September 16-20, 1991
- 11th International Symposium on Engineering Applications of Mechanics, Regina, Canada, May 11-13, 1992.
- International Conference on Agricultural Engineering, Uppsala, Sweden, June 1-4, 1992.
- International CAD/CAM, Robotics and Factories of Future Conference, St. Petersburg, Russia, May 17-20, 1993.
- International Conference for Agricultural Machinery and Process Engineering, Seoul, S. Korea, October 19-22, 1993.
- University of Saskatchewan, School of Engineering Seminar Series, “Advanced Topics in Adaptive Finite Element Analysis”. Saskatoon, SK, Canada, March 3, 1994.
- 9th International Drying Symposium, Gold Coast, Australia, May 1-4, 1994.
- XII CIGR World Congress and Ag Eng '94 Conference on Agricultural Engineering, Milan, Italy, August 29-September 1, 1994.
- XV Ibero-Latin American Congress on Computational Methods in Engineering, Belo Horizonte, Brazil, November 30-December 2, 1994.
- 9th International Conference on Numerical Methods in Thermal Problems, Atlanta, GA, July 17-21, 1995.
- XIII CIGR World Congress and AgEng '96 Conference on Agricultural Engineering, Madrid, Spain, September 23-26, 1996.
- Fifth Pan American Congress of Applied Mechanics, San Juan, Puerto, Rico, January 2-4, 1997.
- The International Conference on Agricultural Engineering, Beijing, China, December 14-17, 1999.
- XIV Memorial CIGR (International Commission of Agricultural Engineering) World Congress, Tsukuba, Japan, November 28 - December 1, 2000.
- 10th International Conference on Computational Methods and Experimental Measurements, Alicante, Spain, June 4-6, 2001.
- The International Conference on Water Resources Management in Arid Regions, Kuwait City, Kuwait, March 23-27, 2002.
- iCEER 2004 International Conference on Engineering Education and Research, Olomouc and Bouzou Castle, Czech Republic.
- Fourth ASEE/AaeE Global Colloquium on Engineering Education, Star City, Sydney, Australia, September 26-29, 2005.
- International Conference on Engineering Education and Training (ICEET-2) “Engineering Education As a New Academic Discipline, Kuwait City, Kuwait, April 9-11, 2007.
- CIGR Section VI - Third International Symposium Food & Agricultural Products: Processing and Innovations, Naples, Italy. Sept 24-26, 2007.

4. International Professional Society Leadership

- Program Committee member, “The International Dedicated Conference on Lean/Agile Manufacturing in the Automotive Industries,” Aachen, Germany, 31 October - 4 November 1994. This was a very prestigious gathering, heavily attended by major European and Japanese manufacturers.
- Member of the International Advisory Committee, the 10th International Conference on Numerical Methods in Thermal Problems, Swansea, Wales, U.K., July 3-7, 1997.

5. International Collaborations

- Initiated the contacts and met with several officials from the Seoul National University to discuss the establishment of an exchange program, Seoul, S. Korea, 1993.
- Research collaboration with a colleague at the Department of Agricultural Engineering, Nova Scotia Agricultural College, Truro, NS, Canada on “Modeling of Chemical Transport in Porous Media”, 1995-present.
- Research collaboration with a colleague at the Department of Mechanical Engineering, Federal University of Minas Gerais, Belo Horizonte, Brazil on “Finite Element Simulation of Thermal Processes for Food and Biological Materials,” 1993-present.
- Organized Purdue team of colleagues to travel to France. We met and visited with colleagues at various universities in Strasbourg and Toulouse in order to develop study abroad programs and begin collaborative research. December 13-21, 2005.
- Co-organized Purdue team of colleagues to travel to Greece. We met and visited with colleagues at various universities in Athens, Volos, and Thessaloniki in order to develop study abroad programs and begin collaborative research. December 7-15, 2007.

6. Hosting International Scholars and Visitors

- Vasiliy Kalaida, University of Agricultural Sciences, Ukraine, 6/92-12/92
- Mauri Fortes, Federal University of Minas Gerais, Brazil, 11/91-12/91 and 6/95-7/95
- Bart Nicolai, Katholic University, Leuven, Belgium, 7/18-7/20, 1996
- Nicolai Dmitriev, Ryazan Agricultural Academy, Ryazan, Russia, 8/28-9/25, 1996
- Hak Kyun Koh, Dean of Agriculture, Seoul National University, Seoul, S. Korea, January 17, 1997
- Mauri Fortes, Federal University of Minas Gerais, Brazil, 8/1/97-8/10/97
- Leandro Oliveira, Federal University of Minas Gerais, Brazil, 8/18/97-8/22/97
- Adriana Franca, Federal University of Minas Gerais, Brazil, 8/18/97-8/22/97
- Senwen Zhang, China Agricultural University, Beijing, China, 7/12/00-7/17/00
- Tingwu Lei, China Agricultural University, Beijing, China, 8/3/01-8/5/01
- Mauri Fortes, UNA, Belo Horizonte, Brazil, 9/5/02-9/7/02
- Mauri Fortes, UNA, Belo Horizonte, Brazil, 4/19/03-4/26/03
- David Radcliffe, University of Queensland, Australia, November 14-17, 2005
- Nico Scheerlinck, Belgium, 8/12/03-12/31/03
- Ruth Graham, Imperial College London, July 11,12,13, 2006
- Khairiyah Mohd Yusof, Universiti Teknologi, Malaysia, November 13-14, 2007