

**BEENA SUKUMARAN**  
**CURRICULUM VITA**

Beena Sukumaran, Ph.D.,  
College of Engineering  
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**PROFESSIONAL DATA**

**EDUCATION**

B.S. Civil Engineering, College of Engineering, Trivandrum, India, 1989  
M.S. Civil Engineering, Auburn University, 1992  
Ph.D. Civil Engineering, Purdue University, 1996

**ACADEMIC EXPERIENCE**

2001-present	Associate Professor, College of Engineering, Rowan University
2002-2003	Coordinator, Honors Program, Rowan University
1998-2001	Assistant Professor, College of Engineering, Rowan University
1996	Visiting Professor, College of Engineering, Prairie View A&M University
1992-1995	Instructor and Research Associate, Purdue University
1990-1992	Instructor and Research Associate, Auburn University

**INDUSTRIAL EXPERIENCE**

1999	Consultant, FugroMcClelland and Shell Oil Company
1997	Research Fellow, Norwegian Geotechnical Institute
1996	Research Engineer, Amoco Corporation
1994-1995	Consultant, Northern Indiana Public Service Company

**PROFESSIONAL AFFILIATIONS**

American Society of Civil Engineers  
Society of Women Engineers  
American Society of Engineering Education

GeoInstitute  
 US Universities Council on Geotechnical Education and Research  
 Engineers International Roundtable

### **HONORS AND AWARDS**

Board Member, Alice Paul Institute  
 Chair, Education Committee, US Universities Council on Geotechnical Education and Research  
 Honorary member of the Golden Key International Honour society  
 Best faculty in Civil Engineering Award, Prairie View A&M University, 1996  
 Marquis Who's Who of American Women  
 Norwegian Research Council Fellow, 1997  
 Phi Kappa Phi Honor Society  
 Phi Beta Delta Honor Society  
 Academic Excellence Award, Auburn University

### **RESEARCH AND EDUCATIONAL INTERESTS**

Earthquake engineering with particular emphasis on liquefaction  
 Expert systems design and fuzzy set analysis  
 Geotechnical analysis (slope stability, earth pressure, consolidation settlement, seepage)  
 Environmental geo-technology  
 Finite element method  
 Offshore Foundations  
 Reuse of waste material for engineering construction  
 Encouraging Women into Science and Engineering  
 Recruitment and retention of minority students  
 Innovative laboratory experiments for undergraduate instruction

### **PEER REVIEWED PUBLICATIONS**

#### **JOURNAL PUBLICATIONS**

1. Mehta, Y., and Sukumaran, B., Integrating Service Learning in Engineering Clinics, *International Journal for Service learning in Engineering*, Vol. 2, No. 1, pp. 32-43, Spring 2007.
2. Sukumaran, B., Ashmawy, A.K., and Mehta, Y. (2006), "A device for measuring shape and angularity of fine grained materials," *International Journal of pavements*, 5(1-2-3), 130-142.
3. Everett, J., M. Cinaglia, D. Cleary, K. Jahan, J. Orlins, B. Sukumaran, Y. Mehta (2006) "Garden City: A Distributed Sharing Community", *World Transactions on Engineering and Technology Education*, 5(3):497-500.
4. Everett, J., L. Head, B. Sukumaran, J. Orlins and K. Jahan (2006) "Field Experiences in Engineering Courses", *World Transactions on Engineering and Technology Education*, 4(2):269-272.

5. Sukumaran, B., Jahan, K., Dorland, D., Everett, J., Kadlowec, J., Gephardt, Z., and Chin, S. (2006), "Engineering Clinics: An integration of research into the undergraduate engineering curriculum, *CUR quarterly*, Vol. 26, No. 3, pp. 115-121.
6. Sukumaran B. (2005), "Multipronged approach needed to recruit female students," *Engineers Australia*, Vol. 77, No. 9, pp.30-31.
7. Culligan, P., Mullen, G., Sukumaran, B., Sutterer, K., and Welker, A. (2005), "Geotechnical Engineering Education – Present and the Future," *Geostrata*, November/December 2005.
8. Jahan, K., John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, Robi Polikar (2004) Digital Imaging Experiences for Undergraduate Engineering Students, *World Transactions on Engineering and Technology Education*, Vol. 3, No.2, 227-230.
9. Sukumaran, B., and Ashmawy, A.K. (2003), "Influence of inherent particle characteristics on hopper flow rate," *Powder Technology*, Vol 138, pp 46-50.
10. Sukumaran, B., and Ashmawy, A. (2001), "Quantitative Characterization of Discrete Particles," *Geotechnique*, Vol. 51, No. 7, pp. 619-627.
11. Sukumaran, B., McCarron, W.O., Jeanjean, P., and Abouseeda, H. (1999), "Efficient Finite Element Techniques for Limit Analysis of Suction Caissons under Lateral Loads," *Computers and Geotechnics*, Vol. 24, No. 2, pp. 89-108.
12. Newell, J.A., Marchese, A.J., Ramachandran, R.P., Sukumaran, B., and Harvey, R. (1999), "Multidisciplinary Design and Communication: A Pedagogical Vision," *International Journal of Engineering Education* **15** (5), 376-382, (1999).
13. Ashmawy, A.K., and Sukumaran, B. (1996), Discussion on "Probabilistic Analysis of Randomly Distributed Fiber-Reinforced Soil," (Ranjan, Gopal, Vasan, R.M., and Charan, H.D., *ASCE Journal of the Geotechnical Engineering Division*, Vol. 122, No.6, pp. 419-426), *ASCE Journal of Geotechnical Engineering*.
14. Sukumaran, B., Leonards, G.A., and Fox, P.J. (1995), Discussion on "Liquefaction and Postliquefaction Behavior of Sand," (Vaid, Y.P., and Thomas, J., *ASCE Journal of the Geotechnical Engineering Division*, Vol. 121, No.2, pp. 163-173), *ASCE Journal of the Geotechnical Engineering Division*, Vol. 122, No. 6.
15. Elton, D.J., Juang, H.C., and Sukumaran, B. (1995), "Liquefaction Susceptibility Mapping Using Fuzzy Sets," *Soils and Foundations*, Vol. 35, No. 2, pp. 49-60.

### **SUBMITTED JOURNAL PUBLICATIONS**

1. Sukumaran, B., Ashmawy, A., and Mehta, Y. (2006), "A device for measuring shape and angularity," *International Journal of Pavement Engineering*. Accepted for publication.

2. Everett, J., Cinaglia, M., Cleary, D., Jahan. K., Orlins, J., Sukumaran B., Mehta, Y. (2005) "Garden City: A distributed sharing community," *European Journal of Engineering Education*.
3. Jonathan Corriveau, Shreekanth Mandayam, and Beena Sukumaran, "A statistical model for the characterization of three-dimensional shapes in particle aggregate mixtures," *IEEE Transactions on Image Processing*, in review.
4. Patrick Giordano Jr., Daniel Randall-Barrot, Jonathan Corriveau, Shreekanth Mandayam, and Beena Sukumaran, "Imaging systems and algorithms for the numerical characterization of 3D shapes of particle aggregates," *IEEE Transactions on Instrumentation and Measurement*, in review.
5. Beena Sukumaran and Harriet Hartman, How to Improve Enrollment of Women in Engineering: Lessons Learnt from Kerala, India, *Journal of South Asian Women Studies*.
6. Daniel Barrot, Jonathan Corriveau, Patrick Giordano, Shreekanth Mandayam, Beena Sukumaran, "Synthesis of three-dimensional models of sand particles from projective representations." *Journal of Computing in Civil Engineering*.
7. Beena Sukumaran, Yusuf Mehta, Thomas Bryant, Robert D'Intino, Anthony Marchese, Jess Everett, Zenaida Gephardt, "Generating entrepreneurship opportunities for the Developing World through the engineering curriculum," *World Transactions on Engineering Education*.

#### **PEER REVIEWED TECHNICAL CONFERENCE PUBLICATIONS**

1. Dona Johnson, Beena Sukumaran, Yusuf Mehta, and Mike Willis (2007), "Three dimensional finite element analysis of flexible pavements to assess the effects of wander and wheel configuration," *FAA Technology Transfer Conference, Atlantic City*.
2. Einav, I., Dyskin, A., Sukumaran, B. (2006), "Intermediate scales in granular matter," *IS Yamaguchi, September, 2006*.
3. Barrot D., Corriveau J., Giordano P., Mandayam S., and Sukumaran B. (2006), "Three-dimensional shape characterization and tomographic reconstruction for granular materials," *IS Yamaguchi, September, 2006*.
4. Sukumaran, B., Einav, I., Dyskin, A. (2006), "Qualitative Assessment of the Influence of Coordination Number on Crushing Strength using DEM," *World Congress on Particle Technology, Orlando, FL, April 23-27*.
5. Barrot D., Corriveau J., Giordano P., Mandayam S., and Sukumaran B. (2006), "Three-dimensional shape descriptors and tomographic reconstruction for granular materials," *World Congress on Particle Technology, Orlando, FL, April 23-27*.

6. Willis M., Johnson D., and Sukumaran B. (2006), "Three -dimensional finite element analyses of flexible airport pavements for the next generation of aircrafts," ASCE Airfields and Highway Pavements, Atlanta, April 2006.
7. Giordano P., Barrot D., Corriveau J., Mandayam S., and Sukumaran B. (2006), "Imaging Systems and Algorithms for the Numerical Characterization of 3D Shapes of Particle Aggregates," 2006 IEEE International Workshop on Imaging Systems and Techniques, Minori, Italy, April 9, 2006.
8. Barrot D., Giordano P., Mandayam S., and Sukumaran B. (2006), "Synthesis of Sand Particles from 3D Shape Descriptors using Tomographic Reconstruction Techniques," Geocongress, Atlanta, February 2006.
9. Giordano P., Barrot D., Mease P., Garrison K., Mandayam S. and Sukumaran B. (2006), "An Optical Tomography System for Characterizing 3D Shapes of Particle Aggregates," 2006 IEEE Sensors Applications Symposium, Houston, Texas, February 7-9, 2006.
10. Sukumaran, B., Willis, M., and Chamala, N. (2005), "Three dimensional finite element modeling of flexible pavements, ASCE Geofrontiers conference, Austin, TX.
11. Corriveau J., Mandayam S., and Sukumaran B. (2005), "3-D Shape descriptors for geomaterial aggregates using multiple projective representations," ASCE Geofrontiers conference, Austin, TX.
12. Mehta, Y. A., Stevenson, J.\* and Sukumaran, B., "Evaluation of Viscoelastic Limits of Asphalt Concrete Using Creep Test," 3<sup>rd</sup> Eurobitume-Eurasphalt Congress, Vienna, Austria, 2004.
13. Sukumaran, B., Mike Willis and Nishanth Chamala (2004), "Three-dimensional finite element analysis of flexible pavements," Airport Technology Conference, Atlantic City.
14. Ashmawy, A.K., Sukumaran B., Hoang V. (2003), "Evaluating the Influence of Particle Shape on Liquefaction Behavior Using Discrete Element Modeling," Annual International Society of Offshore and Polar Engineering Conference, Kyushu, Japan.
15. Sukumaran, B., and McCarron, W.O. (2002), "Drained and Undrained Behavior of Suction Caissons for Taut Leg Mooring Systems," Annual International Society of Offshore and Polar Engineering Conference, Kyushu, Japan.
16. Sukumaran, B., and Ashmawy, A.K. (2002), "Influence of inherent particle characteristics on hopper flow rate," World Congress on Particle Technology, Sydney.
17. Sukumaran, B., Vishal Kyatham, Amip Shah, and Disha Sheth (2002), "Suitability of using California Bearing Ratio test to Predict Resilient Modulus," Airport Technology Conference, Atlantic City.

18. Sukumaran, B., and Ashmawy, A.K. (2001), "Influence of Inherent Particle Characteristics on the Strength Properties of Particulate Materials," Annual International Society of Offshore and Polar Engineering Conference, Oslo, Norway.
19. McCarron, W.O., and Sukumaran, B. (2000), "Ultimate Capacities of Suction Caisson and pile elements for deepwater applications," Proceedings of the International Society of Offshore and Polar Engineering Conference.
20. Sukumaran, B., and Odud, Claire (2000), "Current State of the Practice of Construction on Closed Landfill Sites," Published and presented at the Sixteenth International Conference on Solid Waste Technology and Management, Philadelphia, PA.
21. Sukumaran, B., and McCarron, W.O. (1999), "Total and Effective Stress Analysis of Suction Caissons for Gulf of Mexico Conditions," Proceedings of the Offshore Technology Conference.
22. Sukumaran, B. (1998), "Suction Caisson Foundations - A Better Option for Deep Water Applications," Proceedings of the SWE Annual Conference, Houston, TX.

#### **CONFERENCE PRESENTATIONS**

1. Sukumaran, B., and Hartman, H. (2002), "Lessons from the Developing World on Improving Female Enrolment in Engineering," ASEE regional conference, Manhattan, NY.
2. Sukumaran, B., and Ashmawy, A.K. (2002), "Influence of inherent particle characteristics on hopper flow rate," World Congress on Particle Technology, Sydney.
3. Sukumaran, B., and Ashmawy, A.K. (2001), "Influence of Inherent Particle Characteristics on the Strength Properties of Particulate Materials," International Society of Offshore and Polar Engineering Conference annual conference, Oslo, Norway
4. Sukumaran, B., and William McCarron (2001), "Behavior of Suction Caissons for Taut Leg Mooring Systems Under Dynamic Loads," Accepted for publication and presentation at the International Conference of Soil Dynamics and Earthquake Engineering. The paper will also be published in the International Journal of Soil Dynamics and Earthquake Engineering.
5. McCarron, W.O., and Sukumaran, B. (2000), "Ultimate Capacities of Suction Caisson and pile elements for deepwater applications," Proceedings of the International Society of Offshore and Polar Engineering Conference.
6. Sukumaran, B., and Odud, Claire (2000), "Current State of the Practice of Construction on Closed Landfill Sites," Published and presented at the Sixteenth International Conference on Solid Waste Technology and Management, Philadelphia, PA.

7. Sukumaran, B., and McCarron, W.O. (1999), "Total and Effective Stress Analysis of Suction Caissons for Gulf of Mexico Conditions," Proceedings of the Offshore Technology Conference.
8. Sukumaran, B. (1998),"Suction Caisson Foundations - A Better Option for Deep Water Applications," Proceedings of the SWE Annual Conference, Houston, TX.
9. Sukumaran, B. (1998), "Review of the Current State of the Practice of Mine Tailings Disposal Using Paste Fill Technology," Proceedings of the 14<sup>th</sup> International Conference on Solid Waste Technology and Management.
10. Sukumaran, B. (1998),"Geo-Environmental Engineering - An Integral Part of Civil Engineering," Proceedings of the ASEE Annual Conference, Seattle, WA.
11. Sukumaran, B., and Jahan, K. (1998), "The Engineering Workplace - Is it Conducive to Women?" Presented at the ASEE Middle Atlantic Regional Conference, Howard University, Washington, D.C.
12. Beena Sukumaran, "Innovative Experiments that Enhance Civil Engineering Concepts (2001)," Presented at the ASEE Regional Conference, Rowan University, April 2001, Glassboro, NJ.

### **PEER REVIEWED EDUCATIONAL PUBLICATIONS**

1. Sukumaran, B. (1998),"Geo-Environmental Engineering - An Integral Part of Civil Engineering," Proceedings of the ASEE Annual Conference, Seattle, WA.
2. Keil, Z.O., Sukumaran, B., and Jahan, K. (1998), "Interdisciplinary Engineering Clinic Courses to Enhance Student Learning," Presented at the ASEE Middle Atlantic Regional Conference, Howard University, Washington, D.C.
3. Sukumaran, B., and Jahan, K. (1998), "The Engineering Workplace - Is it Conducive to Women?" Presented at the ASEE Middle Atlantic Regional Conference, Howard University, Washington, D.C.
4. K. Jahan, B. Sukumaran, L. Head, Z.O. Keil, J. Ferraris, S. Perlis, L. Callahan and M. Jacques (1999), "Mentoring Experiences by Faculty and Students", Proceedings of the Middle Atlantic Section Fall 1999 Regional Conference, Harrisburg, PA.
5. K. Jahan, B. Sukumaran, L. Head and Z.O. Keil (1999), "AWE: Attracting Women into Engineering," Proceedings of the Middle Atlantic Section Fall 1999 Regional Conference, Harrisburg, PA.
6. K. Jahan, B. Sukumaran, L. Head and Z.O. Keil (2000), "AWE: An Outreach Workshop for Middle School Girls", Proceedings of the 2000 Annual ASEE Conference, St. Louis, MO.

7. K. Jahan, B. Sukumaran, L. Head and Z.O. Keil (2000), "AWE: A Workshop for Attracting Middle School Girls", Annual Conference of WEPAN (Women in Engineering Programs & Advocate Networks), June 2000, Washington, D.C.
8. K. Jahan, B. Sukumaran, L. Head and Z.O. Keil (2000), "AWE: An Attracting/Mentoring Program for Girls", Proceedings of the Annual SWE Conference, Washington DC, June 2000.
9. K. Jahan, B. Sukumaran, L. Head J. Kadlowec and Z.O. Gephardt (2001), "Implementing Successful Outreach Programs for Women in Engineering" Proceedings of the Annual WEPAN conference, Alexandria, VA.
10. K. Jahan, B. Sukumaran, L. Head J. Kadlowec and Z.O. Gephardt (2001), "Cost Effective Modules for Engineering Outreach" Submitted for presentation and publication in the Annual ASEE Conference, Albuquerque, New Mexico.
11. J.L. Schmalzel, S.A. Mandayam, A.J. Marchese, H.C. Gabler, B. Sukumaran, K. Jahan, J. Newell, R.K. Hesketh, "The Engineering Clinics: A Four-Year Multidisciplinary Design (2001)," Submitted for presentation and publication in the Annual ASEE Conference, Albuquerque, New Mexico.
12. Anthony J. Marchese, Eric Constans, Kevin Dahm, Kathryn Hollar, David Hutto, Frances Johnson, Carlos Sun and Paris von Lockette, Jennifer Kadlowec, Doug Cleary and Beena Sukumaran, "The Sophomore Engineering Clinic I: Integrating Statics, Solid Mechanics and Product Development in a Sophomore Level Design Course (2001)," Annual ASEE Conference, June 2001, Albuquerque, New Mexico.
13. Jess Everett, Ralph Dusseau, Doug Cleary, Kauser Jahan, Joseph Orlins, Beena Sukumaran, and Carlos Sun (2001), "A Civil Engineering Program Developed in the "Age" of ABET 2000," Annual ASEE Conference, June 2001, Albuquerque, New Mexico.
14. Jess Everett, Kauser Jahan, Linda Head, Beena Sukumaran, Joseph Orlins, "Field Experiences in the Engineering Curriculum (2001)," Annual ASEE Conference, June 2001, Albuquerque, New Mexico.
15. Beena Sukumaran, "Innovative Experiments that Enhance Civil Engineering Concepts (2001)," ASEE Regional Conference, Rowan University, April 2001, Glassboro, NJ.
16. Jess Everett, Kauser Jahan, Linda Head, Beena Sukumaran, Joseph Orlins (2001), "Providing Multidisciplinary Field Experiences in an Engineering Curriculum," AWMA Annual Conference.
17. Kathryn Hollar and Beena Sukumaran (2002), "Teaching students sustainability: An interdisciplinary design project for sophomore engineering students" Accepted for publication and presentation at the ASEE Annual Conference, Montreal, 2002.

18. Kauser Jahan, Beena Sukumaran, Kathryn Hollar, Janet Lindman and Harriet Hartman, "The History of Women in Engineering," ASEE Regional conference, NY, 2002.
19. Kathryn Hollar and Beena Sukumaran (2002), "Energy, Economics, and Education: An Interdisciplinary Analysis & Design Project for Sophomore Engineering Students," ASEE Regional conference, NY, 2002.
20. Kadowec, J., von Lockette, P., Constans, E., Sukumaran, B. and Cleary, D. (2002) "Visual Beams: Tools for Statics and Solid Mechanics." Proceedings of the Frontiers in Education Conference.
21. Kadowec, J., von Lockette, P., Constans, E., Sukumaran, B. and Cleary, D. (2002) "Hand-on Learning Tools for Engineering Mechanics." Proceedings of the American Society for Engineering Education Conference. (this one will be featured in the NSF grantees' showcase)
22. Chaubal, A., Brown, F., Plitz, J., Resciniti, M. and Kadowec J. (2002) "Visual Beams" Student Presentation at Mid-Atlantic Region ASEE Mtg., West Point, NY. First place in student competition.
23. Kathryn Hollar and Beena Sukumaran (2002), "Energy, Economics, and Education: An Interdisciplinary Analysis & Design Project for Sophomore Engineering Students," AIChE annual conference, 2002.
24. Everett, J., M. Cinaglia, D. Cleary, K. Jahan, J. Orlins, B. Sukumaran, Y. Mehta, E. Hansen\*, and D. Cissi\* (2002) "Garden City – A Virtual City for Undergraduates", 2002 ASEE Annual & Exposition, Montréal, Quebec Canada.
25. Everett, J., M. Cinaglia, D. Cleary, K. Jahan, J. Orlins, B. Sukumaran, Y. Mehta (2002) "Garden City – Design throughout the curriculum", 2002 EWRI conference.
26. Sukumaran, B., and Hartman, H. (2002), "Lessons from the Developing World on Improving Female Enrolment in Engineering," ASEE regional conference, Manhattan, NY.
27. Tahamont, M., Lindman, J., Sukumaran, B., and Leftwich, S. (2003), "Designing a workshop to develop team taught interdisciplinary courses to address issues of democracy and diversity in America," 89th Meeting of the Association of American Colleges and Universities, Seattle, WA.
28. Tahamont, M., Lindman, J., and Sukumaran B. (2003), "Developing Team-Taught Interdisciplinary Courses That Address Issues of Diversity and Democracy," International Conference on the First Year Experience, Vancouver, BC.
29. Kauser Jahan, John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadowec, Paris von Lockette and Robi Polikar (2003), "Digital Imaging Across the Curriculum", Proceedings of the Mid-Atlantic ASEE Fall Conference, Baltimore, MD.

30. Jess Everett, M. Cinaglia, D. Cleary, K. Jahan, J. Orlins, B. Sukumaran, Y. Mehta, M. Grosse\*, B. Smith\*, W. Kim\*, and P. Violante\* (2003) "Garden City – A Virtual City for Undergraduates", World Water and Environmental Resources Congress 2003, Philadelphia, PA.
31. Everett, J., J. Newell, K. Dahm, J. Kadlowec, B. Sukumaran (2004) "Engineering Clinic: Bringing practice back into the engineering curriculum" Engineering Education Conference, University of Wolverhampton, England, UK.
32. Everett, J., M. Cinaglia, D. Cleary, K. Jahan, J. Orlins, B. Sukumaran, Y. Mehta, M. Gross (2004) "Garden City – Design Throughout the Curriculum", 2004 ASEE Annual & Exposition, Salt Lake City, UT.
33. Kauser Jahan, John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, J. Orlins and Robi Polikar (2004) "Digital Imaging for Engineering Students", Annual ASEE Conference, Salt Lake City, Utah.
34. Kauser Jahan, John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, J. Orlins and Robi Polikar (2004), "Integrating Digital Imaging Experiences throughout the Curricula," NSF Showcase Poster Session, Annual ASEE Conference, Salt Lake City, Utah.
35. Tahamont, M., Lindman, J., Sukumaran B., Hostetter, E., and Philips, A. (2004), "The Pleasure and Pain of Faculty Development: Teachers as Learners," International Conference on the First Year Experience, Maui, Hawaii.
36. Sukumaran, B., Hartman, H. and Johnson, D. (2004), "How to Improve Enrollment of Women in Engineering: Lessons Learnt from the Developing World," ASEE annual conference, Salt Lake City, UT.
37. Sukumaran, B., Chen, J., Hollar, K., Mehta, Y., and Mirchandani, D. (2004), "A Sustained Effort for Educating Students about Sustainable Development," ASEE annual conference, Salt Lake City, UT.
38. Kauser Jahan\*, Mariano Savelski, Joseph Orlins, Yusuf Mehta, William Riddell, Stephanie Farrell, Gina Tang, Anthony Marchese, Paris von Lockette, Courtney Richmond, Catherine Yang, Beena Sukumaran, Patricia Mosto and Demond Miller (2004) "*Research Experiences in Pollution Prevention and Sustainability*" 3rd ASEE International Colloquium on Engineering Education, Beijing, China.
39. Kauser Jahan\*, Mariano Savelski, Joseph Orlins, Yusuf Mehta, William Riddell, Stephanie Farrell, Gina Tang, Anthony Marchese, Paris von Lockette, Courtney Richmond, Catherine Yang, Beena Sukumaran, Patricia Mosto and Demond Miller (2004) "*Research Experiences in Pollution Prevention and Sustainability for Undergraduates*", Proc. of the ASEE Midatlantic Section Fall Meeting, Washington D.C.

40. Kauser Jahan\*, Mariano Savelski, Joseph Orlins, Yusuf Mehta, William Riddell, Stephanie Farrell, Gina Tang, Anthony Marchese, Paris von Lockette, Courtney Richmond, Catherine Yang, Beena Sukumaran, Patricia Mosto and Demond Miller (2004) *“Research Experiences in Pollution Prevention and Sustainability” Extended Abstract*, Proceedings of the 36th Annual Mid-Atlantic Industrial and Hazardous Waste Conference, Storrs, Connecticut.
41. Jahan, K., John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, Robi Polikar (2004) Digital Imaging Experiences in the Engineering Curriculum, NSF Grantees Poster Session, Annual ASEE Conference, Salt Lake City, UT
42. Jahan, K., John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, Robi Polikar (2005) A Picture is Worth a Thousand Words, Proceedings of the Mid-Atlantic ASEE Spring Conference, Teaneck, New Jersey.
43. Jahan, K., Shreekanth Mandayam, Beena Sukumaran and Yusuf Mehta (2005) Digital Imaging Activities for Civil Engineering Students, Proceedings of the ASEE Annual Conference, Portland, OR.
44. Jahan, K., John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, Robi Polikar (2005) Digital Imaging Across the Curriculum, (2005), Poster Presentation, 2005 Engineering & Education Computing Program Grantee Meeting, NSF, Washington D.C., February 2005.
45. Jahan, K., John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, Robi Polikar (2005) Digital Imaging Across the Curriculum, NSF Grantees Poster Session, Annual ASEE Conference, Portland, Oregon.

#### **NON-PEER REVIEWED PUBLICATIONS**

1. Sukumaran, B. (1996), "Analysis of suction caissons for deep water platforms in the Gulf of Mexico," Report submitted to Amoco Worldwide Engineering & Construction.
2. Sukumaran, B. (1997), "Spreadsheet CHAIN, Version 1.0, Theory, user manual and certification," NGI report 524096-5.
3. Sukumaran, B. (1997), "Spreadsheet DEEPCAP, Version 1.0, Theory, user manual and certification," NGI report 524096-4.
4. Sukumaran, B. (1997), "Three dimensional analyses of dams," NGI report.
5. Mehta, Yusuf A; Sukumaran, Beena; Liddle, John; Stevenson, Jeremy, "Investigation of New Devices for Use in Determining Mechanistic Properties and Performance," Wisconsin

Department of Transportation; Federal Highway Administration, 2005  
[http://www.whrp.org/Research/Flex/flex\\_0092-03-15/0092-03-15\\_final\\_report.pdf](http://www.whrp.org/Research/Flex/flex_0092-03-15/0092-03-15_final_report.pdf)

### **POSTER/PAPER AWARDS WITH UNDERGRADUATES**

1. Bradley Summerville, "Influence of inherent particle characteristics on the flow behavior and strength properties of granular material," Best Undergraduate Paper Award, Delaware Valley Engineer's council, 1999.
2. Claire Odud, "State of the practice of construction on closed landfills," Best Undergraduate Paper Award, Delaware Valley Engineer's council, 2001.
3. Amip Shah, and Disha Sheth (2002), "Suitability of using California Bearing Ratio test to Predict Resilient Modulus," Best Undergraduate Paper Award, Delaware Valley Engineer's council, 2002.

### **INVITED PRESENTATIONS**

1. Fuzzy Liquefaction Susceptibility Index, CE seminar, Auburn University, 1992.
2. Liquefaction and its consequences – Lessons learned from the Kobe Earthquake, Tschebotoriaff seminar, Purdue University, 1995.
3. Influence of inherent particle characteristics on the flow behavior and shear strength of soils, CE seminar, Purdue University, 1995.
4. Undergraduate education and research, Rowan University seminar, 1997.
5. Suction anchor foundations, ASCE Seminar, Rowan University, 1998.
6. Advent of women engineers in academia, AFT Retiree's luncheon, Rowan University, 1999.
7. Panel discussion on education from an international perspective, Invited presentation, Rowan Seminar, 1999.
8. Community Voices – Women in Engineering, WGLS-FM, Rowan Radio, 1999.
9. Community Voices – Women in Engineering, WGLS-FM< Rowan Radio, 2000.
10. Panel discussion on one-minute tips for integrating writing across the curriculum, Faculty Center for Excellence in Teaching and Learning, 2000.
11. Panel discussion on boundaries and borderlands, 4<sup>th</sup> annual Rowan Professional Conference, 2000.
12. "Suction Caisson Foundations – A better option for deepwaters," Invited lecture, University of Rhode Island, 2001.

13. Panel discussion on perspectives of women in engineering, Invited presentation, Gender role seminar, 2001.
14. Is the engineering workplace conducive to women? Invited presentation, Women's history month celebrations, FAA, 2001.
15. History of women in science and engineering, Women's history month celebrations, Rowan University, 2002.
16. Panel discussion on working overseas, Invited presentation, SWE regional conference, Bethlehem, PA, 2002.
17. "Suction anchors – A better option for deepwater oil rigs," Invited lecture, Villanova University, February 2004.
18. "Effect of inherent particle characteristics on shear strength of sands," Invited lecture, Rutgers University, March 2004.
19. "Effect of inherent particle characteristics on shear strength of sands," Invited lecture, Drexel University, April 2004.
20. "Gender and engineering: A cross-cultural comparison," Invited lecture, University of Western Australia, April 2005.
21. "Discrete element modeling of particulate materials," Invited lecture, University of Western Australia, June 2005.

#### **FUNDED RESEARCH AND INSTRUMENTATION GRANTS**

1. "Curriculum Pathfinder: A Comprehensive Guide for Students in Engineering," Rowan University, Courseware Development Grant, 275985, \$14,493.
2. "Field Experiences for Undergraduate Engineers," Co-Principal Investigator, NSF, \$39,854.
3. "AWE: Attracting Women into Engineering," Co-Principal Investigator, EIF foundation, \$50,057.
4. "Airfield Surfacing system and Aircraft Recovery System," **Principal Investigator**, US Navy, Lakehurst, \$10,000.
5. "A Bridge to the 21st Century: A Proposal for a Strategic Engineering Partnership Between Rowan University and DRPA," Co-Principal Investigator, Delaware River Port Authority, \$1,364,936.00.
6. "AWE: Attracting Women into Engineering," EIF foundation, \$30,000.

7. "Garden City: Implementing Sooner City at Rowan University," Co-Principal Investigator, NSF, \$79,897.
8. "Boundaries and Borderlands III: The Search for recognition and community in America," Co-Principal Investigator, AAC&U.
9. "Visual Beams for Enhanced Learning in Statics and Solid Mechanics," Co-Principal Investigator, NSF-CCLI-EMD, \$40,132.
10. "Finite Element Analyses of Subgrade and Flexible Pavements, **Principal Investigator**, FAA, \$43,424.
11. Investigation of new devices for use in determining mechanistic properties and performance, Co-Principal Investigator, Wisconsin DOT, \$34,681.
12. Bildner New Jersey Campus Diversity Initiative, Co-Principal Investigator, \$194,000
13. National Science Foundation travel grant to attend the World Congress on Particle Technology, \$1,000.
14. Analyses of suction caissons, Travel grant to establish collaborative proposal with University of Western Australia, **Principal Investigator**, \$4300.
15. Imaging across the curriculum, National Science Foundation, Co-Principal Investigator, \$74,998.
16. Micromechanical modeling and discrete element modeling of angular materials, National Science Foundation, \$146,000, **Principal Investigator**.
17. Modeling of flexible pavements under moving loads, FAA, \$55,000, **Principal Investigator**.
18. Acquisition of a Desktop, High-Resolution, Three-Dimensional X-Ray Computed Tomography (CT) System, NSF, \$238,698, co-PI.
19. Microgeomechanics across multiple strain scales, NSF, \$76,156, co-PI.
20. Investigation of the performance of flexible pavement systems under moving loads using finite element analyses, FAA, \$57,609, PI.
21. Entrepreneurs without Borders – An interdisciplinary program for engineering and business students to develop devices for the developing world to alleviate poverty and promote development, NCIIA, \$49,350.
22. Offshore Wind Farm Pilot Facility Study Concept Proposal, NJDEP, co-PI.

23. Southern New Jersey GAMTTEP, Garrett A. Morgan Technology and Transportation Education Program, \$100,000, Subcontract to Rowan University by the Millville School District, submitted to the USDOT, co-PI.

24. Ocean/Wind Power Baseline Ecological Studies, NJDEP, co-PI, \$4,634,000.

### **MASTER'S STUDENT THESIS**

Modeling of flexible pavements under moving loads, Mike Willis, Rowan University, 2003-2004.

Finite element analysis of the Betsy Ross bridge foundation, Brian Atkins, Rowan University, 2001.

Modeling of the Betsy Ross bridge substructure, David Marks, Rowan University, 2002.

### **P.h.d. STUDENT COMMITTEE**

Ph.D. committee for Nivedita Das, University of South Florida.

External Examiner for Chairat Suparchawarote, University of Western Australia.

### **REVIEWER FOR JOURNALS, CONFERENCES, & FUNDING ORGANIZATIONS**

- World Congress on Earthquake Engineering
- Canadian Journal of Geotechnical Engineering
- National Science Foundation, NEES and CMS
- National Science Foundation, STEM
- American Society of Testing and Materials Geotechnical Engineering Journal
- ASCE Journal of Geotechnical and Geoenvironmental Engineering
- WEPAN Annual Conference
- Journal of Engineering Geology
- American Society of Testing and Materials Journal
- Session Chair, World Congress on Particle Technology 2006
- Journal of Professional Issues in Engineering Education and Practice

### **SERVICE TO THE PROFESSION**

- Session Chair, Education Panel, GeoFrontiers, 2005
- Session Chair, World Congress on Particle Technology 2006
- Chair, USUCGER Education Committee, 2003-2006
- Judge, Geoinstitute Student competition, 2007

### **ROWAN UNIVERSITY COMMITTEES**

- Search committee, Jewelry/Metals faculty position, 2007.
- Search committee, Provost, 2006.
- Chair, Search Committee, Civil Engineering, 2004.
- Member, Institutional Review Board, 2000-present.
- Member, Faculty Senate, 1999-present.
- Member, Ethics Committee, 1998-1999.

- Member, Academic Policies and Procedure, 1999-present.
- Member, Honors Committee, 2001-present.
- Interim Coordinator, Honors Program 2002-2003.
- Women's studies advisory board, 1998-present.
- Faculty center board, 2002-present.
- Member, Promotion Committee, 2003-2004.
- Member, Lindback Awards Review Committee, 2002-2004.
- Member, Bildner committee.

### **ENGINEERING COMMITTEES**

- Member, Search Committee, Civil Engineering, 1998-present.
- College of Engineering, Laboratory Committee, 1998
- College of Engineering, Clinics Committee, 2000-present.
- Discipline Manager, Junior and Senior Clinics, 1999-present.
- Civil Engineering accreditation committee, 1998-present.
- Member, College Planning Committee, 2002-2003.
- Member, Computer Resources Committee, 2003.
- Member, graduate studies committee.
- Member, department curriculum committee, 1998-present.
- Member, department equipment committee, 1998-present.

### **FACULTY ADVISOR**

- American Society of Civil Engineers student chapter, 1998.
- Society of Women Engineers, 1998-2000.

### **ORGANIZER**

- Women's history month, Panel discussion on perspectives of women in engineering, 1999. Panel comprised of women faculty in engineering.
- Women's history month, Panel discussion on Women of courage and vision, 2001. Panel comprised of Dr. Ann Harlan, Dr. Dianne Dorland, and Mayor Susan Bass Levin. Broadcast on Rowan radio.
- Women's history month, Panel Discussion on Influencing public policy : Women working together, 2003. Panel comprised of Hon. Gwendoline Faison, Dr. Helen Giles-Gee, Dr. Linda Head and Dr. Cynthia Line.

### **COMMUNITY SERVICE**

- Junior Achievement Volunteer, Clayton Middle School.
- Super Engineering Saturday Volunteer, Princeton, NJ. Introduction to engineering for home schooled children. Sponsored by the Society of Women Engineers.

- Attracting Women into Engineering workshop, 1999-2003. Faculty participant in the 2-week workshop for middle school girls.
- Logan Township elementary simple machines project.
- Volunteer, A brief introduction to engineering for high school seniors, Afro-American, Cultural, Technological, and Scientific Olympics.
- Fundraising for Engineers without Borders
- Board member, Alice Paul Institute

### **CAREER DEVELOPMENT**

NJ Project Summer Institute, June 1999

Bildner workshop participant on promoting Democracy and Diversity on NJ campuses, June 21-24, 2002, Princeton University.

Bildner workshop participant on promoting Democracy and Diversity on NJ campuses, 2003, Rutgers University.