BIOGRAPHICAL SKETCHES

SHARIF RAHMAN

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A. Professional Preparation

B.Sc. (1984), Civil Engineering, Bangladesh University of Engineering & Technology

M.S. (1986), Solid Mechanics, Purdue University

Ph.D. (1991), Stochastic Mechanics, Cornell University

B. Appointments

Professor, The University of Iowa, 2005-Present
Associate Professor, The University of Iowa, 2001-2005
Assistant Professor, The University of Iowa, 1995-2001
Research Scientist, Battelle Columbus Laboratories, 1990-1995

C. Products

C.1 Five Products (Publications) Closely Related to Proposed Project:

1. Rahman, S., "Approximation Errors in Truncated Dimensional Decompositions," *Mathematics of Computation*, Vol. 83, No. 290, pp. 2799-2819, 2014.

2. Rahman, S., "Uncertainty Quantification by Alternative Decompositions of Multivariate Functions," *SIAM Journal on Scientific Computing*, Vol. 35, pp. A3024-A3051, 2013.

3. Rahman, S., "A Generalized ANOVA Dimensional Decomposition for Dependent Probability Measures," *SIAM/ASA Journal on Uncertainty Quantification*, Vol. 2, pp. 670-697, 2014.

4. Rahman, S., "The f-Sensitivity Index," to appear in *SIAM/ASA Journal on Uncertainty Quantification*, 2015 (In Press).

5. Yadav, V. and Rahman, S., "Adaptive-Sparse Polynomial Dimensional Decomposition Methods for High-Dimensional Stochastic Computing," *Computer Methods in Applied Mechanics and Engineering*, Vol. 274, pp. 56-83, 2014 (also presented as a keynote lecture at *3rd Sparse Grids and Applications* Conference, Stuttgart, Germany, September 1-5, 2014).

C.2 Five Other Significant Products (Publications) for Proposed Project:

1. Rahman, S., "A Polynomial Dimensional Decomposition for Stochastic Computing," *International Journal for Numerical Methods in Engineering*, Vol. 76, pp. 2091-2116, 2008.

2. Xu, H. and Rahman, S., "A Generalized Dimension-Reduction Method for Multi-Dimensional Integration in Stochastic Mechanics," *International Journal for Numerical Methods in Engineering*, Vol. 61, pp. 1992-2019, 2004.

3. Rahman, S. and Yadav, V., "Orthogonal Polynomial Expansions for Solving Random Eigenvalue Problems," *International Journal for Uncertainty Quantification*, Vol. 1, No. 2, pp. 163-187, 2011.

4. Rahman, S., "Stochastic Dynamic Systems with Complex-Valued Eigensolutions," *International Journal for Numerical Methods in Engineering*, Vol. 71, pp. 963-986, 2007.

5. Yadav, V. and Rahman, S., "Uncertainty Quantification of High-Dimensional Complex Systems by Multiplicative Polynomial Dimensional Decompositions," *International Journal for Numerical Methods in Engineering*, Vol. 94, pp. 221-247, 2013.

D. Synergistic Activities

1. Associate Editor or Editorial Board Member for four technical journals (J. of Pressure Vessel Tech.; Int. J. of Uncertainty Quantification; Eng. Fracture Mech., Prob. Eng. Mech.).

2. Chairman of ASME Materials & Fabrication Committee (responsible for developing 30-40 technical sessions every year in ASME's Pressure Vessels and Piping conferences).

3. Chair or Developer of 75 symposia/sessions in various Eng. and Applied Math. conferences.

4. Member of six professional organizations (AIAA, ASCE, ASME, IASSAR, USACM, IACM).

5. Reviewer of 500+ journal and conference papers, books and monographs, and proposals.

E. Collaborators & Other Affiliations

E.1 Collaborators and Co-Editors (Total = 12):

Kyung Choi (Iowa), Pingsha Dong (Michigan), Mircea Grigoriu (Cornell), Weimin Han (Iowa), Tony Ingraffea (Cornell), Young-Ho Park (New Mexico State), Pol Spanos (Rice), Judy Todd (Penn State), Shinobu Yoshimura (University of Tokyo), Nicholas Zabaras (University of Warwick), Masaru Zako (Osaka University), Sam Zamrik (Penn State).

E.2 Graduate Advisors and Postdoctoral Sponsors (Total = 2):

○ *Graduate Advisors (2)*: John Gaunt (Purdue), Mircea Grigoriu (Cornell).

○ *Postdoctoral Sponsors (0)*: None.

E.3 Thesis Advisor and Postgraduate-Scholar Sponsor (Total = 19):

○ *Ph.D. Students (11)*: Arindam Chakraborty (Senior Engineer, Woodgroup Kenny, Houston, TX), Guofeng Chen (Consultant, Ann Arbor, MI), Amin Joodaky (current student, Iowa), Kuan Lu (current student, Iowa), Bhaba Rao (Professor, IIT, Chennai, India), Andreas Sandvik (Senior Executive Officer, Statoil, Trondheim, Norway), Xuchun Ren (Professor, Georgia Southern University, Statesboro, GA), Dong Wei (Senior Engineer, Caterpillar, Peoria, IL), Heqin Xu (Senior Engineer, NuScale Power, Portland, OR), Vaibhav Yadav (Post-Doctoral Researcher, San Diego State University, San Diego, CA), Tao Zhang (Senior Engineer, Caterpillar, Peoria, IL).

○ *M.S. Students (7)*: Rob Firmature (Engineer, IBM, Denver, CO), Jacob Foxen (Engineer, John Deere, Dubuque, IA), Mark Francis (Senior Engineer, Eastman Kodak, Rochester, NY), Joong-Soo Kim (Unknown), Chintan Rajyaguru (Consultant, Raleigh-Durham, NC), John Steffen (Senior Engineer, CIVCO, Amana, IA), Derek Wilson (Unknown).

○ *Post-Doctoral Researchers (1)*: Bhaba Rao (Professor, IIT, Chennai, India).