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### **Education:**

B.S.: Aeronautical Engineering, University of Illinois, Urbana-Champaign, 1971  
M.S.: Structural Mechanics, Dept. of Aeronautics, MIT, 1972  
Sc.D.: Structural Mechanics, Dept. of Aeronautics, MIT, 1974

### **Professional Experience:**

2004-present Professor of Biomedical Engineering and Chair  
Dept. of Biomedical Engineering, Rensselaer Polytechnic Institute  
2006 Visiting Professor, Biomechanical Engineering Division, Mechanical  
Engineering Department, Stanford University  
1994-2004 Professor of Biomedical Engineering and Chair  
Dept. of Biomedical Engineering, Rensselaer Polytechnic Institute  
1984-present Professor of Computational Mechanics and Biomechanics  
Dept. of Mechanical Engineering, Aeronautical Engineering, and Mechanics  
Rensselaer Polytechnic Institute  
1980-1984 Associate Professor of Structural Mechanics  
Dept. of Civil Engineering, Mechanics, and Metallurgy  
University of Illinois at Chicago  
1980-1981 Director of Graduate Studies and Associate Professor of Structural Mechanics  
1976-1980 Assistant Professor of Structural Mechanics  
1974-1976 Senior Research Engineer, Aeroelastic and Structures Research Laboratory  
Massachusetts Institute of Technology

### **Professional Societies and Service:**

#### **American Society of Mechanical Engineers**

1989-1994 Executive Committee, Bioengineering Division  
1991-1992 Secretary, Executive Committee, Bioengineering Division  
1992-1993 Chairman, Executive Committee, Bioengineering Division

#### **U. S. National Committee on Biomechanics**

1988-present Member  
1991-present Executive Committee  
1994-2003 Secretary, Vice-Chair, Chair, Executive Committee

#### **Orthopaedic Research Society**

1991-present Member

**U. S. Association for Computational Mechanics**

1990-present Member

**American Society for Engineering Education**

1996-present Member

**Council of Chairs of Bioengineering and Biomedical Engineering**

2000-2001 Chair

**American Institute for Medical and Biological Engineering**

2003-2004 Chair, Academic Council

**Honors & Awards:**

Fellow, American Society of Mechanical Engineers

Fellow, American Institute for Medical and Biological Engineering

Fellow, Inaugural Class, Biomedical Engineering Society

NIH ORTH Study Section

**Publications (2001 – 2007):**

1. Dunbar, W., K. Ün, P. Donzelli, and R. Spilker, An evaluation of three dimensional diarthrodial joint contact using penetration data and the finite element method. *Journal of Biomechanical Engineering*, 2001. 123: p. 333 - 340.
2. Miller, E.M. and R.L. Spilker, A method for regional averaging of finite element solutions and evaluation of cartilage inhomogeneity in unconfined compression. *Journal of Biomechanical Engineering*, 2001: p. (in review).
3. Ün, K. and R.L. Spilker, Comparison of linear and nonlinear models for biphasic tissues in contact, in *Proceedings of the 2001 Bioengineering Conference*. 2001, ASME: Snowbird, UT.
4. Newman, D.L., K.S. Manning, M.H. Holmes, and R.L. Spilker, Longitudinal Evaluation of Innovative Technology Based Curricula: Integrating the Learning of Mathematics with Applied Science and Engineering. *ASEE Transactions*, 2002: p. Session 2176: 1- 8.
5. Donzelli, P., L. Gallo, R. Spilker, and S. Palla, Biphasic finite element simulation of the TMJ disc from in vivo kinematic and geometric measurements. *Journal of Biomechanics*, 2004. 37: p. 1787-1791.
6. Ün, K. and R.L. Spilker, A Penetration-Based Finite Element Method for Hyperelastic 3-D Biphasic Tissues in Contact: Part I - Derivation of Contact Boundary Conditions. *Journal of Biomechanical Engineering*, 2006. 128: p. 124-130.
7. Ün, K. and R.L. Spilker, A Penetration-Based Finite Element Method for Hyperelastic 3-D Biphasic Tissues in Contact: Part II - Finite Element Simulations. *Journal of Biomechanical Engineering*, 2006. 128: p. 124-130.
8. Yang, T.S. and R.L. Spilker, A Patch Test for a Mixed Finite Element Approach for Three-Dimensional Contact of Biphasic Tissues. *Journal of Biomechanical Engineering*, 2006. (in review).
9. Yang, T.S. and R.L. Spilker, A Study of Preconditioned Krylov Subspace Methods with Reordering for Linear Systems from a Biphasic v-p Finite Element Formulation. *Computer Methods in Biomechanics and Biomedical Engineering*, 2007. 10: p 13 - 24.
10. Yang, T.S. and R.L. Spilker, A Lagrange Multiplier Mixed Finite Element Formulation for Three-Dimensional Contact of Biphasic Tissues. *Journal of Biomechanical Engineering*, 2007. (in press).