Vijay K. GOEL, Ph.D.

Position Title: Distinguished University Professor, Endowed Chair and McMaster-Gardner Professor of Orthopaedic Bioengineering
Mailing Address: 5046 NI, MS 303, College of Eng., The University of Toledo, Toledo, Ohio 43606

a. Professional Preparation

Panjabi University, India	Mechanical Eng	B.E.	1966
Roorkee University, India	Mechanical (Machine Design)	M.S.,	1971
University of New South Wales, Australia,	Mechanical (Hip Joint Stress Analysis)	Ph.D.,	1978

b. Appointments

June 2009-Distinguished University Professor
June 2006- Endowed Chair & McMaster-Gardner Professor of Orthopaedic Bioengineering, Departments of Bioengineering and Orthopaedics
June 2006- Co-Director, Engineering Center for Orthopaedic Research Excellence
Dec. 2000 – 06 Professor and Chair, Bioengineering, University of Toledo, Toledo, OH
Dec. 2000 – 06 Co-Director of Spine Research Center, University of Toledo
Dec. 2000 - Adjunct Professor, Department of Orthopedics, Medical College of Ohio
1994- Associate Director, Iowa Spine Research Center
1992 - 96 Acting Director, Iowa Institute of Biomedical Engineering
1990 - 95 Prof. & Chairman, Department of Biomedical Engineering
1990- 00 Prof., Department of Biomedical Engineering and Orthopaedics, University of Iowa
1986 - 90 Assoc. Prof. (Biomedical Engineering), University of Iowa, Iowa City, IA
1982 - 86 Asst. Prof. (Biomedical Engineering), University of Iowa, Iowa City, IA
1979 - 82 Research Associate (Orthopaedics), Yale Medical School, New Haven, CT

c. Publications

Five Publications Most Closely Related to the Proposed Work (selected out of a total of 345)

1. T. Oktenoglu T, Erbulut DU, Kiapour A, Ozer AF, Lazoglu, I, Kaner T, Sasani M, Goel VK: Pedicle screw-based posterior dynamic stabilization of the lumbar spine: in vitro cadaver investigation and a finite element study. Computer Methods in Biomechanics and Biomedical Engineering, 04/2014, http://dx.doi.org/10.1080/10255842.2014.890187
2. Erbulut DU, Kiapour A, Oktenoglu T, Ozer AF, Goel VK: A Computational Biomechanical Investigation of Posterior Dynamic Instrumentation: Combination of Dynamic Rod and Hinged (Dynamic) Screw. J. Biomech Engrg., 136, 051007-1 – 7;, 2014of Biomechanical Engineering MAY 2014, Vol. 136 / 051007-7, 2014. http://asmedigitalcollection.asme.org/ on 04/16/2014 Terms of Use: http://asme.org/terms
3. Zhou H, Goel VK, Bhaduri S: A fast route to modify biopolymer surface: A study on polyetheretherketone (PEEK). Materials Letters 125(2014)96–98, 2014. http://dx.doi.org/10.1016/j.matlet.2014.03.130
4. Agarwal Aakash, Jayswal A, Agarwal A, Goel VK: Effect of Distraction Force on Growth and Biomechanics of the Spine: A Finite Element Study on Normal Juvenile Spine with Dual Growth Rod Instrumentation. Spine Deformity, 2(4), 260-269, 2014.
5. Agarwal AK, Goel, Vijay K, D'Onotrio JR, DuBois NE, Pack JR, Taylor, DJ: Stabilized Spinal Fixation Hook, Provisional Application, I-54962 (D2013-70), US Serial # 61/815,992, Filed April 25, 2013. Underlined authors were undergraduate students at the time of filing and have graduated since then.

Five Other Significant Publications (listed out of total of 345, are most recent ones)

1 Dreischarf M, Zander T, Shirazi-Adl A, Puttlitz CM, Adam CJ, Chen CS, Goel VK, Kiapour A, Kim YH, Labus KM, Little JP, Park WM, Wang YH, Wilke HJ, Rohlmann Schmidt H: Comparison of Eight Published Static Finite Element Models of the Intact Lumbar Spine: Predictive Power of Models Improves When Combined Together. J Biomech, In Press, Accepted Manuscript, Available online 5 April 2014.

2. Palepu V, Kiapour A, Goel VK, Moran JM: A Unique Modular Implant System Enhances Load Sharing in Anterior Cervical Interbody Fusion: A Finite Element Study. BioMedical Engineering OnLine 03/2014; 13(1):26. http://www.biomedical-engineering-online.com/content/13/1/26
3. Lin B, Zhou H, Leaman D, Goel VK, Agarwal AK, Bhaduri S: Sustained Release of Small Molecules from Carbon Nanotube-reinforced Monetite Calcium Phosphate Cement. Materials Science and Engineering C (Accepeted)
4. Karami KJ, Buckenmyer LE, Kiapour AM, Kelkar PS, Goel VK, Demetropoulos CK, Soo TM: Biomechanical Evaluation of the Pedicle Screw Insertaion Depth Effect on Screw Under Cyclic Loading and Subsequent Pullout. J Spinal Disord Tech, Oct 10, 2014 [Epub ahead of print]
5. Momeni NS, Fatemi A, Goel VK, Agarwal A: On the Use of Biaxial Properties in Modeling Annulus as a Holzapfel-Gasser-Ogden Material. Frontiers in Bioengineering and Biotechnology, Section Biomechanics, 2015.

d. Synergistic Activities

- Chair of the ASME-Bioeng. Division to promote collaboration in this area.
- TECHS Biomedical Orthopaedic Module: Design of a spinal implant: A challenge Scholars Program for future scientists and clinicians; http://toledoearlycollege.org/ (Program for High School Students)
- 4 Lifetime Achievement Award, latest 2014 Borelli Award, American Society of Biomechanics
- Hold 2 patents licensed to companies; 10 provisional patents; Four start-ups established
- Co-Director, NSF I/UCRC titled “center for Disruptive Musculoskeletal Innovation” in collaboration with University of San Francisco, San Francisco, CA, www.nsfcdmi.org

e. Collaborators and Other Affiliations

(i) Collaborators with Dr. Goel within the last 48 months (Total 10):

1. Dr. Anand Agarwal, Ph.D., Dept. of Bioeng., The Univ. of Toledo, Toledo, Ohio
2. Dr. Sarit Bhaduri, Ph.D., Dept. of Mechanical Eng., The Univ. of Toledo, Toledo, Ohio
4. Dr. Mohamed Elahinia, Ph.D., Dept. of Mechanical Eng., The Univ. of Toledo, Toledo, Ohio
5. Dr. Hossein Elgafy, M.D., Dept. of Orthopaedic Surgery, The Univ. of Toledo, Toledo, Ohio
6. Dr. Tim Hewett, PhD, Ohio State University, Columbus, OH
7. Dr. Ata Kiapour, PhD, Harvard University, Boston, MA
8. Dr. Dong-shik Kim, Ph.D., Dept. of Chem Eng., The Univ. of Toledo, Toledo, Ohio
9. Dr. Jeffrey Lotz, PhD, University of California San Francisco, San Francisco, CA

(ii) Postdoctoral and Graduate Students Supervision:

1) Tomoya Terai, MD (Japan) 2008-09
2) Ali Kiapour, PhD (Iran) 2009-12
3) Boren Lin, PhD (Toledo) 2012-

Graduate Student Supervision: Rachit Parikh, 2010; Leonora A. Felon, 2010; Richard Ditto, 2011; Avanthi Chikka, 2011; Sanghita Bhattacharya, 2011; Devdatt D. Mhatre, 2011; Asem F. Aboelzahab, 2012; Andrew D. Jones, 2013; Laura Buckenmeyer, 2013; Ata Kiapour, 2013; Vivek Palepu, 2013; Narjes Momeni Shahraki, 2014; Aaksh Agarwal, 2015

Undergraduate Students: 15+ over last 3 years

(iii) Thesis Advisors for Dr. Goel:

Prof. Noel Svennson, Retired Prof., Univ. of NSW, NSW, Australia.