

1. **Name:** Vijay K. Goel
2. **Education – degrees, discipline, institution, year:**
 - Ph.D. University of New South Wales Australia (Stress Analysis Associated with Total Hip Prosthesis) 1977
 - M.E. (Mech. Design) Roorkee University, India 1971
 - B.E. (Mech.) Hons. Panjabi University, India 1966.
3. **Academic Experience - 51 years**
 - Distinguished University Professor, Bioengineering April 2009-present
 - Endowed Chair & McMaster-Gardner Professor of Orthopaedic Bioengineering, Co-Director, Engineering Center for Orthopaedic Research Excellence (EC-CORE), July 2006-present
 - Professor, Dept of Bioengineering Dec. 2000-April 2009
4. **Non-academic experience:** N/A
5. **Certifications or professional registrations:** N/A
6. **Current membership in professional organizations (out of 11):**
 - American Institute for Medical and Biological Engineering (AIMBE)
 - ASME-Bioengineering - Fellow
 - American Society of Biomechanics – ASB - Fellow
 - Member- Academic Honors Committee (University of Toledo) -2016
 - Member NIH Study Section ZRG1 SBIB-Z Z(55) 2016, on going
7. **Honors and Awards (Out of 20):**
 - ASB Goel Scholarship Award -Established Scholarship Award in honor by the ASB- 2016
 - Borelli Award-Presented at World Congress on Biomechanics - 2014
 - J. Biomech. Award: Kiapour, Goel et al: World Congress on Biomechanics, Boston, USA, July 6-11, 2014
8. **Service Activities (most important within and outside of the institution, out of 100)**

Chaired Conference Sessions:

● Seminar Speaker	Drexel University, Philadelphia, PA	Feb 19, 16
● Keynote Speaker	Kentucky University, Lexington, KY	April 21, 16
● Invited Talk	54 th Japanese Spine Association, Fakudha, Japan	May 15
● Honorable Member	Editorial Board; Formosan Journal of Musculoskeletal Disorders (FJMD); Taiwan Orthopaedic Association	2016
● Co Organizer/Speaker	International Workshop on Clinical Spine Biomechanics New Delhi, India	Mar 4-6, 17
● Chairperson/Speaker	International Workshop on Clinical Orthopaedic Biomech, N. Delhi, India	Mar 19, 17
● Guest Speaker	Spine Biomechanics and Clinical Application, KOC University Turkey	July 8, 17

University, College, and Department

● Co Organizer	2015 CDMI Fall Symposium, San Francisco, CA	2015
● Co Organizer	2016 CDMI Spring Symposium, Toledo OH	2016
● Invited Speaker	Distinguished University Professor Lecture Series, Univ of Toledo	Oct. 10, 16
● Member	Dean's Administrative Council	2000-2006
● Co-Director	Engineering center for Orthopaedic Research Excellence (E-CORE)	2006-
9. **Most Important Publications: Refereed Journal Articles/Patents (Out of 300+ full length papers & patents):**
 - **Patent:** Core Muscle Strengthening: Goel, Vijay K.; Dick, David; Schultheis, Alan; Germano, K: US Patent # 8827880; Ref. No.: D2011-25, Filed Date: 01/24/2013 (Divisional); Issue Date 09/09/2014.
 - **Patent:** Core Muscle Strengthening: Goel, Vijay K.; Dick, David; Schultheis, Alan; Germano, K: Australia Patent# 2006280267; Ref. No.: ENG 00504; File Date: 08/01/2016 (Nationalized PCT); Issue Date: 03/29/2012.
 - **Patent:** Core Muscle Strengthening: Goel, Vijay K.; Dick, David; Schultheis, Alan; Germano, K: Japan Patent# 55073660; Ref. No.: ENG00504; File Date: 03/9/2008 (Nationalized PCT); Issue Date: 08/31/2012.
 - **Patent:** Core Muscle Strengthening: Goel, Vijay K.; Dick, David; Schultheis, Alan; Germano, K: US Patent # 8790226; Ref No. ENG00504; File Date 08/29/2011 (Divisional); Issue Date: 07/29/2014.

●**Patent:** Fixation Assembly Having An Expandable Insert: Elahinia, M.; Goel, Vijay K.; and Tabesh, Majid: Issue date: US Patent #8591559 B2, I-50573/D2009-06, 11/26/2013.

●**Patent:** Anchoring Pedicle Screw: Goel, VK; Matyas, AJ: Patent # 873449782, May 27, 2014; Ser. No. 61/159,910 filed March 13, 2009; Our File No.: 1-50795, Issue date: 02/01/2014.

●**Patent:** Simplified Spine Testing Device: Carroll, Norman L; Cartwright, Edward C.; Gephardt, Robert J.; Dixon, Christopher L.; Goel, Vijay K.; and Friis, Elizabeth A.: US-Patent Number 9,378,662. June 28, 2016.

●**Patent:** Minimally Invasive Collapsible Cage: Goel, VK; Matyas, AJ: Patent # ??? Date???; (UT File 2009-37; Attorney file 1-50976); Ser. No. 13/254,965 filed Sep 23, 2011; Issue date: Oct 31, 2016.

●**Patent:** Injectable, Biodegradable Bone Cements and Methods of Making and Using Same: Bhaduri Sarit B.; Zhou, Huan; Agarwal, Anand K.; Goel, Vijay K.: Patent # 2013215158; UT D2012-10, Filed Jan 31, 2013, Award Date: Sept 29, 2016.

●**Patent:** Expandable Inter-Vertebral Cage and Method of Installing Same: Elahinia, Mohammad; Agarwal, Anand; Goel, Vijay K.; Anderson, Walter; and Chapman, Cory A.: Japanese patent; JP allowed claims Patent # 6030140, D2011-10 File No. 6-53327, Award Date: October 28, 2016.

●**Patent:** Expandable Inter-Vertebral Cage and Method of Installing Same: Elahinia, Mohammad; Agarwal, Anand; Goel, Vijay K.; Anderson, Walter; and Chapman, Cory A.: U.S. Patent# 9561115B2; UT File# D2011-10, File Mar. 18, 2014, Award Date: February 7, 2017.

●**Inventors:** Goel, Agarwal and Dick: Bioactive Facet Fusion Device. D2012-09, U.S. Provisional Patent Application, Serial No. 61/599,988, Feb 17, 2012 PCT Filed Jan 2013

●**Inventors:** Anand K. Agarwal, Vijay K. Goel, Dong-Shik Kim, Do-Young Yoon, Boren Lin, Hamid Feyzizarnagh; A Biosensor Device to Detect Infection in Real Time and Methods of Making Same. PCT filed, PCT/US2014/023126 filed 3-11-14; Priority Info: US 61/775/939 filed 3-11-13 Provisional

●**Inventors:** Anand K. Agarwal, Vijay K. Goel, Dong-Shik Kim, Sarit Bhaduri, Boren Lin, Injectable Biodegradable Bone Matrix for Multiple Myeloma lesion Augmentation and osteoporosis. USPTO Application No. 61/783,100, dated March 14, 2013.

●**Inventors:** Anand K. Agarwal, Vijay K. Goel, Joel Gerber, Aakash Agarwal, Bone Graft Substitute Injection and Delivery System and Methods of Using the Same. D2014-56 – Provisional Patent Application; US Serial No.: 62/016,498 filed June 24, 2014, MST File No.: 1-56217

●**Inventors:** Erbulut Deniz Ufuk. Keles Suleyman, Ozer Ali Fahir, Goel Vijay – Artificial Cervical Disc, 62/055268; 09-25-2014; 130, I-56510.

●**Inventors:** Erbulut, Deniz, Keles, Suleyman, Ozer Ali Fahir, Goel, Vijay – Pedical Screw-Provisional Patent Application; US Application Number 62/055268; 09/25/14; 130, 1-56510.

22. **Inventors:** Bhaduri, Zhou, Agarwal, Goel, Saleh – Macroporous Granules of Alkaline earth Phosphates Using Cement Technology and Gas Evolving Porogen. PCT/US2014/066761 filed 11/21/14; Priority Info: US 61-907, 182 filed 11/21/13.

●**Inventors:** Erbulut, Deniz, Keles, Suleyman, Ozer, Ali Fahir, Goel, Vijay – Double Headed Pedicle Screw, - Provisional Patent Applicator; US Application Number, 62/268701; 12/17/15; 130, 1-57562.

Co-founded two startups, received FDA approval for 2 products, and are on the market

No publications are listed due to page limit.

Conference presentations and posters – (Out of 550+)

●**Sudershun, S; Agarwal, A; Goel, V.K.: ORS2017, San Diego, CA March 19-22, 2017.**

Joukar, A; Shah, A; Crutchfield, C; Zakeri, B; Kiapour, A; Agarwal, A; Elgafy, H; Ebraheim, N; Goel, V: Summer

●**Biomechanics, Bioengineering and Biotransport Conference (SB3C22017). June 22, 2017.**

10. Professional development activities in the last five years: Have attended professional conferences on a regular basis