

# CIRRICULUM VITAE

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## EDUCATIONAL BACKGROUND & WORK EXPERIENCES

- 04/2017-Current: Research Assistant Professor- Bioengineering Department, The University of Toledo, OH, USA
- 04/2015-04/2017: Assistant Professor at Department of Biomedical Engineering (Mechanical Engineering) , Istanbul Medipol University, Istanbul, Turkey.
- 10/2014-2015: Research Assistant Professor at Department of Mechanical Engineering and Neurosurgery, Koc University, Istanbul, Turkey.
- 10/2012-2014: Senior Research Specialist at Department of Mechanical Engineering and Neurosurgery, Koc University, Istanbul, Turkey.
- 10/2011-10/2012: Research Fellow at Department of Biomedical Engineering, The University of Toledo, OH, USA.
- 04/2010-10/2011: Research Fellow at Department of Mechanical Engineering and Neurosurgery Koc University, Istanbul, Turkey.
- 04/2009-01/2010: Postdoctoral Research Fellow at Department of Mechanical Engineering Koc University, Istanbul, Turkey.
- 10/2005-11/2008: PhD Degree, Doctor of Philosophy (Ph.D) (Mechanical Engineering) The University of Melbourne, Melbourne, Australia  
Title: "*Intelligent Process Design for Stretch Blow Moulding*"
- 08/2004-7/2005: Graduate Diploma of Engineering (Advanced Manufacturing Technologies) Swinburne University of Technology, Melbourne, Australia
- 2/2002-7/2004: Master of Information Technology Swinburne University of Technology, Melbourne, Australia
- 10/199-06/2001: Bachelor of Mechanical Engineering at Mechanical Engineering Department Kirikkale University – Kirikkale, Turkey

## TEACHING EXPERIENCES

- Taught engineering courses at both undergraduate and graduate level. Courses includes:
  - Soft and Hard Tissue Mechanics
  - Biomechanics
  - Orthopedic Biomechanics
  - Solid Mechanics
  - CAD/CAM and FEA
  - Mechanical Engineering Design

- Advanced Manufacturing Technologies
- Mechanics of Materials

## PUBLICATIONS and PATENT

### Patents:

1. **D.U. Erbulut**, S. Keles, A. Fahir Ozer, 2014, "Pedicule Screw", provisional application for patent (USPTO) Application No. 62/055,268
2. **D.U. Erbulut**, A. Fahir Ozer, I. Lazoglu "Koc University", 2012, "Development of a Cervical Total Disc Prosthesis", *International Patent No: WO 2013/132028 A1*.
3. **D.U. Erbulut**, A. Fahir Ozer, I. Lazoglu " Arac koltuk mekanizmasi" Patent application to TPE No: 2013/14696. Under revision.
4. **D.U. Erbulut**, K. Turker, A. Fahir Ozer, I. Lazoglu " Neck collar mechanics to prevent whiplash injuries" under preparation.

### Book:

1. **D.U. Erbulut**, "Intelligent Process Design for Stretch Blow Moulding", VDM Verlag Publishing, 2010, ISBN-10:3639224655

### Journal Articles:

#### 2017

1. **Deniz U Erbulut**, Ali Fahir Özer BIOMECHANICAL AND MECHANICAL TESTING OF SPINAL IMPLANTS, Principle of Spine Surgery, ED. A.F Ozer. Intertip - 2017: 1-24
2. Ali Fahir Ozer, Tunc Oktenoglu, Emrah Egemen, Mehdi Sasani, Atilla Yilmaz, **Deniz Ufuk Erbulut**, Onur Yaman, Tuncer Suzer., Lumbar Single-Level Dynamic Stabilization with Semi-Rigid and Full Dynamic Systems: A Retrospective Clinical and Radiological Analysis of 71 Patients, JClinics in orthopedic surgery.2017 9(3):310-316
3. Mert Ciplak, Tuncer Suzer, Salim Senturk, Onur Yaman, Mehdi Sasani, Tunc Oktenoglu, Atilla Yilmaz, **DU. Erbulut**, Ali Fahir Özer Complications of 2-level dynamic stabilizationon, Turkish Neurosurgery, 2017 DOI: 10.5137/1019-5149.JTN.21036-17.1 (Published online)

#### 2016

4. **D.U. Erbulut**, I. Zafarparandah, A.F. Ozer, " Effect of Sagittal Plane Translation of a Cervical Artificial Disc Replacement", 2016 (**Under preparation**)
5. Zafarparandeh I, **DU. Erbulut** Ozer Ali F., Influence of three-dimensional reconstruction method for building a model of the cervical spine on its biomechanical responses: a finite element analysis study, Advances in Mechanical Engineering. 2016 8(3)
6. Zafarparandeh I, **D.U. Erbulut**, Ozer Ali F., Motion analysis study on sensitivity of finite element model of the cervical spine to geometry, Journal of Engineering in Medicine.2016 230(7):700-706
7. C. Yaldiz, B. Ozkan, Y. Guvenc, S. Senturk, **D.U. Erbulut** et.al, Comparison of the Rigid Rod System with Modlula Plate with the Finite Element Analysis in Short-Segment Posterior Stabilization in the Lower Lumbar Region, 2016 DOI: 10.5137/1019-5149.JTN.16203-15.1 (Published online)

#### 2015

8. **D.U. Erbulut**, C.R. Hassan, I. Zafarparandah, A.F. Ozer, " Biomechanical effect of an interspinous device on the implanted and adjacent lumbar spinal segments: a finite element study" *The Journal of Neurosurgery:Spine* , 2015 Aug;23(2):200-8
9. **D.U. Erbulut**, T. Oktenoglu, V. K. Goel, A. F. Ozer, Ismail Lazoglu " Pedicle screw-based posterior dynamic stabilization of the lumbar spine: in vitro cadaver investigation and a finite element study" *Computer Methods in Biomech and Biomedical Engineering*, 2015 Aug;18(11):1252-1261
10. A. Ozer, T. Suzer, M. Sasani, T. Oktenoglu, P. Cezayirli, H.Marandi, **D.U. Erbulut**, Simple facet joint repair with dynamic pedicular system: Technical note and case series, *J Craniovertebr Junction Spine* 2015 6(2) 65-68

### 2014

11. **D.U. Erbulut**, I. Zafarparandah, I. Lazoglu, A.F. Ozer, " Application of an asymmetric finite element model of the C2-T1 cervical spine in evaluating the role of soft tissues in stability" *Medical Engineering and Physics*, 2014 36(7):915-21.
12. **D.U. Erbulut**, T. Oktenoglu, I. Lazoglu, V. K. Goel, A. F. Ozer, " Stabilization of the Lumbar Spine with a Posterior Dynamic Instrumentation with Low Stiff Rod and Hinged Screw: A Computational Study" *Journal of Biomechanical Engineering*, 2014 136(5):051007 (doi: 10.1115/1.4027060)
13. AF Ozer, T Suzer, P Cezayirli, D.U. Erbulut, "Evaluating Lumbar Disc Herniation and Other otion Segment Pathologies from the Window of Dynamic Stabilization Systems." *J Spine Neurosurg S2*. 2014: 6(2) doi:10.4172/2325-9701.S2-001
14. **D.U. Erbulut**, " Biomechanics of neck injuries resulting from rear-end vehicle collisions" *Turkish Neurosurgery*, 2014;24(4):466-70
15. I. Zafarparandah, **D.U. Erbulut**, I. Lazoglu, A.F Ozer, " Development of a finite element model of the human cervical spine" *Turkish Neurosurgery*, 2014;24(3):312-8

### 2013

16. **D.U. Erbulut**, A. Fahir Ozer, V.K. Goel, "Biomechanics of Posterior Dynamic Stabilization: A Review" *Advances in Orthopedic*, 2013; (6) (doi: 10.1155/2013/451956)
17. **D.U. Erbulut**, S.H. Masood, H. Senko, K. Davies, "Preheating of Poly(Ethylene Terephthalate) Preform for Stretch Blow Moulding Using Microwave " *Journal of Applied Polymer Science* 2009;112(3):1670-1679
18. H. Haddad, S. Masood, **D.U. Erbulut**, "A Study of Blow Moulding Simulation and Structural Analysis for Pet Bottles" *Australian Journal of Mechanical Engineering* 2009;7(1):69-76
19. **D.U. Erbulut**, S.H. Masood, V.N. Tran and I. Sbarski " A Novel Approach of Measuring the Dielectric Properties of PET Preforms of Stretch Blow Moulding", *Journal of Applied Polymer Science* 2008;109(5):3196-3203

### **Book Chapters:**

1. A.F. Ozer, D.U.Erbulut, "Posterior Dynamic Stabilization" Ch10 pp342-52- Ed. F. Landriel, E. Vecchi, " *Frontiers in Neurosurgery*"– Benthan Books, 2016
- 2.
3. **D.U.Erbulut**, A. F. Ozer, "Contribution of Lumbar Disc Prosthesis to Spine Biomechanics and FE Modelling" – Ed. A.F. Ozer, M. Cosar. –*Turkish Neurosurgery*, 2013
4. **D.U.Erbulut**, A. F. Ozer, "Trafik Kazalarinda Boyun Yaralanmalarinin Biyo-Mekanigi"– Ed. M. Zileli, A.F. Ozer , Omurilik ve Omurga Cerrahisi - Intertip Yayınevi, 2013
5. **D.U.Erbulut**, A. F. Ozer, "Posterior Dynamic Stabilization "– Ed. F. Landriel, E. Vecchi and A. Gonzalvo – *Atlas of Spine Surgical Techniques*- Betham Science Publishers, 2013
6. **D. U. Erbulut**, A.F. Ozer, "Tafik Kazalarinda Boyun Yaralanmalarinin Biyo-Mekanigi" Intertip Yayınevi, Istanbul, 2012
7. **D.U. Erbulut**, I. Lazoglu, "Specialty Materials for Total artificial Hearts (TAH) and for Ventricular Assist Devices (VAD)". Michael Lysaght (Eds), *Biomaterials for artificial organs*, Woodhead Publishing Limited, London, 2011

8. **D.U. Erbulut**, I. Lazoglu, "Lomber Disk Projelerinin Omurga Biyomekanigine Katkisi ve Sonlu Elemanlar Yontemi ile Modellenmesi". A. Fahir Ozer (Eds) "*Lomber Dejeneratif Disk Hastaligi ve Dynamic Stabilizasyon*", Amerikan Hastanesi Yayinlari, Istanbul, 2010

#### Conference Proceedings:

1. **Erbulut DU.**, Zafarparandeh I., Ozer AF., "An investigation to the effect of an interspinous device on biomechanical parameters in L3-L4 and adjacent lumbar spine segments" SpineWeek 2016, taking place in Singapore, May 16 – 20, 2016
2. Zafarparandeh I, **Erbulut DU**, Ozer AF., "Biomechanical study of three atlantoaxial screw fixation techniques: finite element study. Orthopedic Research Society (ORS) Conference, Orlando, Florida, March 5-10, 2016
3. Hassan CR, Zafarparandeh I, **Erbulut DU**. "Load Sharing in L4-L5 Spinal Motion Segment using an Asymmetrical Finite Element Model." International Conference on Biomedical Engineering and Systems, Prague, Czech Republic. 14 August 2014.
4. I. Zafarparandeh, U. C. Cakmak, D. Senyuz, E. Koch, I. Lazoglu, A. F. Ozer, **D. U. Erbulut**, "A comparison of asymmetric and symmetric finite element model of cervical spine", 7<sup>th</sup> World Congress of Biomechanics, Boston, USA, 2014.
5. **D. U. Erbulut**, I. Zafarparandeh, C. R. Hassan, A. F. Ozer, "Effect of Sagittal Plane Translation of a Cervical Artificial Disc Replacement", 7<sup>th</sup> World Congress of Biomechanics, Boston, USA, 2014.
6. C. R. Hassan, I. Zafarparandeh, I. Lazoglu, A. F. Ozer, **D. U. Erbulut**, "Effect of graded facetectomy on motion response of an asymmetric finite element model of lumbar spine", 7<sup>th</sup> World Congress of Biomechanics, Boston, USA, 2014.
7. **D.U. Erbulut**, I. Zafarparandeh, I. Lazoglu, A.F. Ozer, "Effect of Sagittal-Plane Translational Functions for Cervical Total Artificial Disc", 14<sup>th</sup> Annual Conference for The International Society for the Advancement of Spine Surgery, ISASS, Miami Beach, Florida, USA, 2014
8. I. Zafarparandeh, **D.U. Erbulut**, I. Lazoglu, F. Ozer, "Effect of asymmetry on finite element model of cervical spine", Proceedings of the ASME 2013 Bioengineering Conference (SBC2013), June 26-29, Oregon, USA, 2013
9. **D.U. Erbulut**, I. Zafarparandeh, I. Lazoglu, F. Ozer, "An accurate finite element model of C4-C5 cervical spine segment", 19<sup>th</sup> Congress of the European Society of Biomechanics (ESB2013), August 25-28, Patras, Greece, 2013
10. I. Zafarparandeh, **D.U. Erbulut**, I. Lazoglu, F. Ozer, "Influence of ligaments on rotation response of cervical spine: finite element study", 37<sup>th</sup> Annual Meeting of the American Society of Biomechanics (ASB2013), September 4-7, Omaha, Nebraska, USA, 2013
11. **D.U. Erbulut**, A. Kiapour, T. Oktenoglu, A.F. Ozer and V. Goel, "Kinematical and load sharing effect of a novel posterior dynamic stabilization system implanted in lumbar spine", Presented at American Society of Biomechanics, Gainesville, USA, August 2012
12. Tunc Oktenoglu, **Deniz Ufuk Erbulut**, Mehdi Sasani, Ali Kiapour, Ali Fahir Ozer, Ismail Lazoglu, Tuncay Kaner, Vijay K. Goel "Stabilization of the Lumbar Spine with a Novel Posterior Dynamic Instrumentation: An in Vitro Study" WScJ 2: 185-222, 2011
13. **D.U. Erbulut**, T. Oktenoglu, A. F. Ozer, I. Lazoglu, V.K. Goel, Kaul, V<sup>4</sup>, T. Kenar, M. Sasani, "Biomechanical evaluation of posterior lumbar spine dynamic and rigid stabilization in vitro", Accepted by Lumbar Spine Research Society, Chicago, USA, May 24 2011
14. Oktenoglu T., **Erbulut D.**, Sasani M. Kiapour A., Ozer AF, Lazoglu I. Kaner T., Goel VK., "Stabilization of the Lumbar Spine with a Novel Posterior Dynamic Instrumentation: An in vitro Study. 1<sup>st</sup> Middle East Spine Meeting. December 7-9, 2011, Istanbul, Turkey
15. Oktenoglu T., **Erbulut D.**, Ozer AF., Sasani M., Ferrara L., Goel VK. "Dinamik enstrumantasyonun lomber omurga kinematigine etkileri: Biyomekanik calisma. " Turk Norosirurji Dernegi 25. Bilimsel Kongresi, 22-26 Nisan 2011, Antalya
16. Kaul V, O'Donnell J, Kodigudla M, Palepu V, Kiapour A, Goel V, Ferrara L, **Erbulut D**, Oktenoglu T, Ozer F. Restoration of the Lumbar Spine Kinematics by Dynamic Instrumentation In Vitro. Orthopedic Research Society Annual Meeting, Long Beach, California, January 13-16, 2011.

17. **D. U. Erbulut**, S. Vasa, S. H. Masood, K. Davies "Structural Strength of Blow Moulded PET Bottle Using Microwave Pre-heated Preforms", Accepted by International Annual Technical Conference, ANTEC, Chicago, USA, June 2009.
18. **D.U. Erbulut**, S.H. Masood "Dielectric Properties of Polyethylene Terephthalate PET Preforms" 16<sup>th</sup> Polychar World Forum on Advanced Materials, Lucknow, India, 17-21 February 2008
19. **D. U. Erbulut**, S. H. Masood, I. Sbarski "Comparative Study of Simulation Software for Stretch Blow Molding", International Annual Technical Conference, ANTEC, Ohio, USA, May 2007, pp 2165-2168 (**Winner of the scholarship award**)
20. **D.U. Erbulut**, S.H. Masood, I. Sbarski "A Simulation study of stretch blow moulding of PET bottle using B-Sim" World Conference on Integrated Design & Process Technology, SDPS, Antalya, Turkey, June 2007, pp 488-491.
21. D. Chettiar, S.H. Masood, **D.U. Erbulut**, "Optimization of a PET preform design for better bottle barrier properties" Proceedings of ANTEC2008 Conference, Milwaukee, WI, 4 – 8 May 2008, SPE, USA.
22. Header Haddad, S.H. Masood, **D.U. Erbulut** "A Study of Blow Moulding Simulation and Structural Analysis for PET Bottle", 9<sup>th</sup> Global Congress on manufacturing and Management (GCMM2008) November 2008, Surfers Paradise, Australia
23. S. H. Masood, V. Satyanarayana and **U. Erbulut**, "Design and Development of Large Collapsible PET Water Cooler Bottles", International Conference of Computer Graphics, Imaging & Visualization, Australia, July 2006, pp 528-533.

#### References:

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