1. **Name:** Eda D. Yildirim-Ayan

2. **Education – degrees, discipline, institution, year:**
   Ph.D. in Mechanical Engineering, Drexel University, 2010
   M.S. in Mechanical Engineering, Izmir Institute of Technology, Turkey, 2005
   B.S. in Mechanical Engineering, Ege University, Turkey, 2001

3. **Academic Experience**
   12/2010 – present, Assistant Professor, Dept. of Bioengineering, University of Toledo
   05/2011 – present, Assistant Professor, Dept. of Orthopaedic Surgery, Univ of Toledo College of Medicine
   12/2010 – present, Director of Engineered Bio-system Laboratory (EBSL), University of Toledo
   04/2005 – 05/2010, Graduate Assistant, Dept. of Mechanical Engineering, Drexel University
   02/2002 – 02/2005, Graduate Assistant, Dept. of Mechanical Engineering, Izmir Institute of Technology

4. **Non-academic experience:**
   None

5. **Certifications or professional registrations:**
   None

6. **Current membership in professional organizations:**
   American Society of Mechanical Engineers
   Orthopaedic Research Society (ORS)
   Biomedical Engineering Society (BMES)

7. **Honors and Awards:**
   [1] Outstanding Undergraduate Mentor Award, University of Toledo, 2017
   [2] Graduate Student Research Award at Drexel, Drexel University, 2009
   [3] Mimics Innovation Awards in 2nd place for International Competition in Innovative Engineering Solutions in Medicine, 2009
   [4] Outstanding Graduate Research Award for Academic Merit, Department of Mechanical Engineering and Mechanics, Drexel University, 2008-2009
   [5] Graduate Student Travel Award Drexel University, May 2008 and June 2009
   [6] George Hill Graduate Fellowship for Academic Achievement, 2007- 2008
   [7] BP Young Scientists and Students Award (YSSA), October 2008

8. **Service Activities**

UNIVERSITY SERVICE ACTIVITIES

[1] Outreach Activities (2011-2014) through EXCELing into Engineering and Latino Youth Summit programs
[2] Chair of Clinical Immersion Co-Op Program Initiative (2017)
[3] Member of Multiple Ph.D. and M.S. Committees (2014 – Present) -10 students

PROFESSIONAL SERVICE ACTIVITIES

[1] Chair (Nationwide) at ASME Manufacturing Engineering Division (MED)- Biomanufacturing Technical Committee (July 2015-July 2017)
[2] Vice Chair at ASME-MED Biomanufacturing Technical Committee (July 2013-2015)
[3] NSF Panel Reviewer, 2012 – present
[4] NIH Panel Reviewer (Musculoskeletal Tissue Engineering Study Section), 2016.

[5] Symposium Organizer (Chair) at ASME NAMRI/MSEC- Advances in Assisted/Augmented Manufacturing Process, Virginia, 2016 and at ASME NAMRI/MSEC-Advances in Biomedical Manufacturing, Wisconsin, June 2013.

[6] Journal Article Reviewer for: ACS Applied Materials and Interface, Materials, Biofabrication, Nanotechnology, Applied Physics Letter, BioMed Research International, Biomedical Materials, Journal of Applied Physics, Biomaterials, Tissue Engineering A.

9. Selected Publications:

[1] Elsaadany M., Winter K., Adams S., Stasuk A., Ayan H., Yildirim-Ayan E., "Equiaxial Strain Modulates Adipose-derived Stem Cell Differentiation within 3D Biphasic Scaffolds towards Annulus Fibrosus" Nature, Scientific Reports, 2017. (in press)

[2] Elsaadany M., Chang Y.K., Yildirim-Ayan E., "Predicting Cell Viability under Equiaxial Strain: Multi-scale Finite Element Model of Collagen-Cardiomyocytes Constructs" Biomechanics and Modeling in Mechanobiology, DOI: 10.1007/s10237-017-0872-z, 2017.

[3] Subramanian G., Elsaadany M., Yildirim-Ayan E., "Creating Homogenous Strain Distribution within 3D Cell-encapsulated Constructs Using a Simple and Cost-effective Uniaxial Tensile Bioreactor: Design and Validation Study", *Biotechnology and Bioengineering*, DOI: 10.1002/bit.26304, 2017.

[4] Elsaadany M., Harris M., Yildirim-Ayan E., "Design and Validation of Equiaxial Mechanical Strain Platform, EQUicycler, for 3D Tissue Engineered Constructs", *BioMed Research International,* DOI:10.1155/2017/3609703, *(INVITED ARTICLE),*2017.

[5] Trumbull A., Subramanian G., Yildirim-Ayan E., "Mechanoresponsive Musculoskeletal Tissue Differentiation of Adipose-Derived Stem Cells: A Review", Biomedical Engineering Online, Vol.15, Issue 43, 2016.

[6] Elsaadany M., Subramanian G., Ayan H., Yildirim-Ayan E., "Exogenous nitric oxide (NO) generated by NO-plasma treatment modulates osteoprogenitor cells early differentiation," Journal of Physics D: Applied Physics, Vol. 48, 2015.

[7] Subramanian G., Bialorucki C., Yildirim-Ayan E., "Nanofibrous yet Injectable Polycaprolactone-Collagen Bone Tissue Scaffold with Osteoprogenitor Cells and Controlled Release of Bone Morphogenetic Protein-2",Material Science and Engineering C, V.51, 2015.

[8] Bialorucki C., Subramanian G., Elsaadany M., Yildirim-Ayan E., "In Situ Osteoblast Mineralization Mediates Post-Injection Mechanical Properties of Osteoconductive Material ", Journal of the Mechanical Behavior of Biomedical Materials. Volume 38, 2014.

[9] Baylan N., Bhat S., Ditto M., Lawrence JG., Lecka-Czernik B., Yildirim-Ayan E., "Polycaprolactone Nanofiber Interspersed Collagen Type-I Scaffold for Bone Regeneration: A Unique Injectable Osteogenic Scaffold", Biomedical Materials, Vol.8, 2013

[10] Agarwal A., Palepu V., Agarwal AK., Goel VK., Yildirim-Ayan E., "Biomechanical evaluation of an endplate-conformed polycaprolactone-hydroxyapatite intervertebral fusion graft and its comparison with a typical non-conformed cortical graft", Journal of Biomechanical Engineering, Vol.135, 2013.

[11] Ayan H., Yildirim-Ayan E., Pappas D., and Sun W., "Development of a cold atmospheric pressure microplasma jet for freeform cell printing", Applied Physics Letter, Vol 99, 2011.

10. Professional development activities in the last five years:

Grant Writing Workshops at the University of Toledo, Spring and Summer, 2011