

CURRICULUM VITAE

YENER N. YENI

PRIMARY SUBJECTS OF INTEREST

- **Medical:** Osteoporosis, Osteoarthritis, Stress Fractures, Fracture Healing, Spine, Hip.
- **Bioengineering:** Bone Mechanics, Skeletal Mechanobiology, Orthopaedic Biomechanics, Microtomography, Radiogrammetry, Instrumentation, Biomaterials, Ultrasound, Modeling, Image Analysis.
- **Solid Mechanics:** Composite Materials, Fracture Mechanics, Experimental Mechanics.

EDUCATION

- **B.Sc., Electrical and Electronics Engineering, Hacettepe University, Turkey, 1991.**
Senior Project: “Design and Implementation of a 5-Band Audio Equalizer”.
- **M.Sc., Engineering Sciences, Middle East Technical University, Turkey, 1994.**
Thesis Title: “Biomechanical Aspects of Osteoporosis: Effect of Medication on Biomechanical Properties of Rabbit Bones in Heparin Induced Osteoporosis and Ultrasonic Properties of Human Bones in Senile Osteoporosis”.
- **Ph.D., Mechanical Engineering (with certificate in Bioengineering), West Virginia University, 1998.**
Dissertation Title: “Fracture Mechanics of Human Cortical Bone: The Relationship of Geometry, Microstructure and Composition with the Fracture of the Tibia, Femoral Shaft and the Femoral Neck”.

NON-DEGREE EDUCATION AND TRAINING

- “Wavepak Vibrational Data Analysis Training”, Computational Systems Inc., Knoxville, Tennessee, June 21-24, 1993 (Certificated).
- “Dynamics of Systems and Applications Training”, METU Continuing Education Center, Ankara, Turkey, November 22-25, 1993 (Certificated).
- Summer School on “Biomechanical Aspects of Artificial Joints”, Centre International des Sciences Mecaniques (CISM), Udine, Italy, July 11-15, 1994 (Registration, lodging and stipend granted by CISM).
- Post-Baccalaureate student, Department of Biomedical Engineering, Drexel University, Philadelphia, Pennsylvania, September 1994 - January 1995.
- Basic Microsurgery, Henry Ford Health System, Detroit, Michigan, completed June 2004 (Certificated).
- “Introductory LS-DYNA”, LSTC Michigan, Troy, Michigan, July 28-29, 2008.
- “Introduction to Abaqus/CAE”, Simulia/Dassault Systemes, Dearborn, Michigan, November 30-December 1, 2015 (Certificated).
- “Introduction to Abaqus/Standard and Abaqus/Explicit”, Simulia/Dassault Systemes, Dearborn, Michigan, December 2-4, 2015 (Certificated).

AWARDS/HONORS

- 1st Place, Student Poster Competition, SAMPE Baltimore - Washington Chapter, Student Symposium, February 11, 1998.
Poster: Yeni, Y. N., Brown, C. U. and Norman, T. L., “The Influence of Microstructure and Composition on the Fracture Toughness of Human Cortical Bone”, presented by C. U. Brown.
- Graduate Student Research Award, Musculoskeletal Research Center, West Virginia University, May 29, 1998.
- Alice L. Jee Memorial Young Investigator Travel Award, International Society of Musculoskeletal and Neuronal Interactions, 31st International Sun Valley Hard Tissue Workshop, Sun Valley, Idaho, August 6-10, 2001.
- Best poster, 21st Annual Meeting of the Orthopaedic Trauma Association, Ottawa, Ontario, Canada,

October 20-22, 2005.

Poster: Dougherty, P., Kim, D-G., Meisterling, S. and Yeni, Y. N., "Proximal Tibia Locking Plates: Bicortical versus Unicortical Screw Placement", presented by P. Dougherty.

- Best poster, 8th Annual Research Symposium of Henry Ford Health System, Detroit, Michigan, May 12-13, 2011.

Poster: Oravec, D. J., Zauel, R. R. and Yeni, Y., "The Effect of Endplates on Cancellous Bone Strain Distribution in Uniaxially Compressed Rat T5 Vertebrae as Assessed by Digital Volume Correlation".

- Davidson Fellowship, Entrepreneurship in Digital Health, Henry Ford Innovation Institute, September 12, 2014 – June 4, 2015.

POSITIONS

- *1990-1991:* Electronics Engineer, ANI Computer Ltd., Ankara, Turkey.
- *1991-1992:* Electronics Engineer and Technical Service Manager, Data Computer Ltd., Ankara, Turkey.
- *1992 - September 1994:* Teaching and Research Assistant, Department of Engineering Sciences, Middle East Technical University, Turkey.
- *January 1995 - February 1998:* Graduate Research Assistant, Departments of Mechanical and Aerospace Engineering and Orthopedics, West Virginia University.
- *February 1998 - February 2000:* Post Doctoral Fellow, Bone and Joint Center, Henry Ford Hospital, Detroit, MI.
- *February 2000 – August 2001:* Assistant Staff Investigator, Bone and Joint Center, Henry Ford Hospital, Detroit, MI.
- *August 2001 – December 2002:* Associate Staff Investigator, Bone and Joint Center, Henry Ford Hospital, Detroit, MI.
- *January 2003 – present:* Head, Section of Biomechanics and Senior Bioscientific Staff, Bone and Joint Center, Henry Ford Hospital, Detroit, MI.
- *October 2003 – present:* Full-Time Affiliate Assistant Professor, Department of Biomedical Engineering, Wayne State University, Detroit, MI.

GRANTS

Active

Motion and Adjacent Segment Disease 5 Years After Cervical Fusion or Arthroplasty

Henry Ford Health System Mentored Physician Scientist Grant

Award period: 01/01/2016 – 12/31/2018

Principal Investigator: V Chang, Henry Ford Health System

Role on grant: Primary Mentor

A Clinically Viable Noninvasive Method for Direct Measurement of Mechanical Strains in Vertebral Bone

National Institutes of Health (R21 AR070363)

Award period: 04/01/2017 – 02/28/2019

Role on grant: Principal Investigator

Completed

Diagnosis of Crystal-Based Arthropathies via Raman Spectroscopy

National Institutes of Health (1R01 AR057812-01A1)

Award period: 09/01/2011 - 08/31/2014; no cost extension to 08/31/2015

Role on grant: Sub-contract PI

Principal Investigator: O Akkus, Case Western Reserve University

Novel In Vitro Modification of Bone for an Allograft with Improved Toughness and Osteoconductivity

FY11 DOD CDMRP Discovery Award

Requested award period: 09/30/2012 – 03/30/2014; no cost extension to 03/30/2015

Role on grant: Principal Investigator

Digital Tomosynthesis-Based Microstructural Measures to Predict Vertebral Fragility (R21)
National Institutes of Health

Award period: 8/1/2011-4/30/2013; no cost extension to 4/30/2014

Role on grant: Principal Investigator

Prediction of Vertebral Fractures Using Tissue Heterogeneity as a Measure of Bone Quality

Henry Ford Health System Competing Research Support

Award Period: 1/1/2011-12/31/2013

Role on grant: Principal Investigator

Quantitative Analysis of Bone Microstructure using Tomosynthesis

FY10 DOD CDMRP Peer Reviewed Medical Research Program Concept Award

Award period: 09/30/2011 - 10/29/2012; extension to 10/29/2013

Role on grant: Principal Investigator

Viscoelastic deformation of bone matrix in postmenopause (R21 AG033714)

National Institutes of Health, Award Period: 5/01/2009-4/30/2012

Role on grant: Co-Investigator

Principal Investigator: DG Kim, Ohio State University

Degradation and Recovery of Bone: OVX and Treatment (R01 AR50562)

National Institutes of Health, Award Period: 4/01/2005-3/31/2010

Role on grant: Co-Investigator

Principal Investigator: CM Les, Henry Ford Hospital

Tissue stress variability and strength in vertebral bone (R01 AR049343)

National Institutes of Health, Award Period: 1/10/03-12/31/07

Role on grant: Principal Investigator

New Ilizarov Technique for Pediatric Critical Care (R43 HD047493)

National Institutes of Health, Award Period: 05/01/06-6/19/07

Role on grant: Principal Investigator (HFH-Subcontract)

Principal Investigator: M Pitkin, Poly-Orth International

Strength and Microstrain in Vertebral Trabecular Bone (R01 AR40776)

National Institutes of Health, Award Period: 07/01/1991-08/31/2004

Role on grant: Co-Investigator

Principal Investigator: DP Fyhrie, Henry Ford Hospital

Mechanically Driven Release of Growth Factors in Bone

Junior Scientist Development Award

Henry Ford Health System, award Period: 07/01/2001-06/30/2003

Role on grant: Principal Investigator

PUBLICATIONS

Book Chapters

1. Papaioannou, G., Demetropoulos, C. K., Anderst, W., **Yeni, Y.**, Fyhrie, D. and Tashman, S., 2004, “Menisci Radial Displacement Under Joint Load”. In “Scattering Theory and Biomedical Engineering Modeling and Applications”, Publisher: World Scientific, Editors: G. Dassios, D. I. Fotiadis, K. Kiriaki, C. V. Massalas.

2. Papaioannou, G., **Yeni, Y. N.**, 2006, “Joints, Biomechanics of”. In “Encyclopedia of Medical Devices and Instrumentation”, 2nd Edition, Publisher: Wiley Interscience, Editor: John Webster.

Journal Covers

1. Contrast Media & Molecular Imaging, 2007, 2 (1).

Peer-Reviewed Journal Papers

1. **Yeni, Y. N.**, Gunel, U., Korkusuz, F. and Akkas, N., 1995, “Ultrasonic Properties of Human Bones in Senile Osteoporosis” (in Turkish with English abstract), Acta Orthopaedica and Traumatologica Turcica, Vol. 29, pp. 294-298.
2. Akkas, N., **Yeni, Y. N.**, Turan, B., Delilbasi, E. and Gunel, U., 1997, “Effect of Medication on Biomechanical Properties of Rabbit Bones: Clinically Induced Osteoporosis”, Clinical Rheumatology, Vol. 16, No. 6, pp. 585-595. PMID: 9456011.
3. **Yeni, Y. N.**, Brown, C. U., Wang, Z. and Norman, T. L., 1997, “The Influence of Bone Morphology on Fracture Toughness of the Human Femur and Tibia”, BONE, Vol. 21, No.5, pp. 453-459. PMID: 9356740.
4. **Yeni, Y. N.**, Brown, C. U. and Norman, T. L., 1998, “The Influence of Bone Composition and Apparent Density on Fracture Toughness of the Human Femur and Tibia”, BONE, Vol. 22, No. 1, pp. 79-84. PMID: 9437517.
5. Norman, T. L., **Yeni, Y. N.**, Brown, C. U. and Wang, Z., 1998, “Influence of Microdamage on Fracture Toughness of the Human Femur and Tibia”, BONE, Vol. 23, No. 2, pp. 303-306. PMID: 9737354.
6. Kocamis, H., **Yeni, Y. N.**, Kirkpatrick-Keller, D. C. and Killefer, J., “Postnatal Growth of Broilers in Presence of *in ovo* Administration of Chicken Growth Hormone, 1999, Poultry Science, Vol. 78, No. 8, pp. 1219-1225. PMID: 10472850.
7. Vashishth, D., Koontz, J., Qiu, S. J., Lundin-Cannon, D., **Yeni, Y. N.**, Schaffler, M. B. and Fyhrie, D. P., 2000, “In Vivo Diffuse Damage in Human Vertebral Cancellous Bone”, BONE, Vol. 26, No. 2, pp. 147-152. PMID: 10678409.
8. Brown, C. U., **Yeni, Y. N.** and Norman, T. L., “Fracture Toughness is Dependent on Bone Location – A Study of the Femoral Neck, Femoral Shaft and the Tibial Shaft”, 2000, Journal of Biomedical Materials Research, Vol. 49, pp. 380-389. PMID: 10602071.
9. **Yeni, Y. N.** and Norman, T. L., 2000, “Fracture Toughness of Human Femoral Neck: The Effect of Microstructure, Composition and Age”, BONE, Vol. 26, pp. 499-504. PMID: 10773590.
10. **Yeni, Y. N.** and Norman, T. L., 2000, “Calculation of Porosity and Osteonal Cement Line Effects on the Effective Fracture Toughness of Cortical Bone in Longitudinal Crack Growth”, Journal of Biomedical Materials Research, Vol. 51, No. 3, pp. 504-509. PMID: 10880095.
11. Kocamis, H., **Yeni, Y. N.**, Brown, C. U., Kenney, P. B., Kirkpatrick-Keller, D. C. and Killefer, J., 2000, “Effect of *in ovo* Administration of Insulin-Like Growth Factor-I on Composition and Mechanical Properties of Chicken Bone”, Poultry Science, Vol. 79, No. 9, pp. 1345-1350. PMID: 11020083.
12. **Yeni, Y. N.**, Vashishth, D. and Fyhrie, D. P., 2001, “Estimation of Bone Matrix Apparent Stiffness Variation Caused by Osteocyte Lacunar Size and Density”, Journal of Biomechanical Engineering, Vol. 123, pp. 10-17. PMID: 11277294.
13. **Yeni, Y. N.**, Hou, F. J., Vashishth, D. and Fyhrie, D. P., 2001, “Trabecular Shear Stress in Human Vertebral Cancellous Bone: Intra- and Inter-Individual Variations”, Journal of Biomechanics, Vol. 34, No. 10, pp. 1341-1346. PMID: 11522314.
- 13.1. **Yeni, Y. N.**, Hou, F. J., Vashishth, D. and Fyhrie, D. P., 2004, Corrigendum to “Trabecular Shear Stress in Human Vertebral Cancellous Bone: Intra- and Inter-Individual Variations”, Journal of Biomechanics, Vol. 37, No. 10, pp. 1635-1637.

14. **Yeni, Y. N.** and Fyhrie, D. P., 2001, "Finite Element Predicted Apparent Stiffness is a Consistent Predictor of Apparent Strength in Human Cancellous Bone Tested with Different Boundary Conditions", *Journal of Biomechanics*, Vol. 34, No. 12, pp. 1649-1654. PMID: 11716868.
15. **Yeni, Y. N.** and Fyhrie, D. P., 2002, "Fatigue Damage-Fracture Mechanics Interaction in Cortical Bone", *BONE*, Vol. 30, No. 3, pp. 509-514. PMID: 11882466.
16. **Yeni, Y. N.**, Schaffler, M. B., Gibson, G. and Fyhrie, D. P., 2002, "Prestress Due to Dimensional Changes Caused by Mineralization: A Potential Mechanism for Microcracking in Bone", *Annals of Biomedical Engineering*, Vol. 30, pp. 217-225. PMID: 11962773.
17. **Yeni, Y. N.**, Hou, F. J., Ciarelli, T., Vashishth, D. and Fyhrie, D. P., 2003, "Trabecular Shear Stresses Predict in vivo Linear Microcrack Density but not Diffuse Damage in Human Vertebral Cancellous Bone", *Annals of Biomedical Engineering*, Vol. 31, No. 6, pp. 726-732. PMID: 12797623.
18. **Yeni, Y. N.** and Fyhrie, D. P., 2003, "A Rate-Dependent Microcrack-Bridging Model that Can Explain the Strain Rate Dependency of Cortical Bone Apparent Yield Strength", *Journal of Biomechanics*, Vol. 36, No. 9, pp. 1343-1353. PMID: 12893043.
19. Dong, X., **Yeni, Y. N.**, Les, C. M. and Fyhrie, D. P., 2004, "Effects of end boundary conditions and specimen geometry on the viscoelastic properties of cancellous bone measured by dynamic mechanical analysis", *Journal of Biomedical Materials Research*, Vol. 68A, pp. 573-583. PMID: 14762938.
20. **Yeni, Y. N.**, Christopherson, G. T., Turner, A. S., Les, C. M. and Fyhrie, D. P., 2004, "Apparent viscoelastic anisotropy as measured from non-destructive oscillatory tests can reflect the presence of a flaw in cortical bone", *Journal of Biomedical Materials Research*, Vol. 69A, pp. 124-130. PMID: 14999759.
21. **Yeni, Y. N.**, Dong, X. N., Fyhrie, D. P. and Les, C. M., 2004, The Dependence Between the Strength and Stiffness of Cancellous and Cortical Bone Tissue for Tension and Compression: Extension of a Unifying Principle, *Bio-Medical Materials and Engineering*, Vol. 14, No. 3, pp. 303-310. PMID: 15299242.
22. Kim, D. G., Christopherson, G. T., Dong, X. N., Fyhrie, D. P. and **Yeni, Y. N.**, 2004, "The Effect Of Microcomputed Tomography Scanning And Reconstruction Voxelsize On The Accuracy Of Stereological Measurements In Human Cancellous Bone", *BONE*, Vol. 35, No. 6, pp. 1375-1382. PMID: 15589219.
23. Akkus, O., **Yeni, Y. N.** and Wasserman, N., 2004, "Fracture Mechanics of Cortical Bone Tissue: A Hierarchical Perspective", *Critical Reviews In Biomedical Engineering*, Vol. 32, No. 5-6, pp. 379-426. PMID: 15658930.
24. **Yeni, Y. N.**, Christopherson, G. T., Dong, X. N., Kim, D. G. and Fyhrie, D. P., 2005, The effect of microcomputed tomography voxelsize on the finite element model accuracy for human cancellous bone, *Journal of Biomechanical Engineering*, Vol. 127, pp. 1-8. PMID: 15868782.
25. Dong, X. N., **Yeni, Y. N.**, Zhang, B., Les, C. M., Gibson, G. J. and Fyhrie, D. P., 2005, "Matrix Concentration of Insulin-like Growth Factor I (IGF-I) is Negatively Associated with Biomechanical Properties of Human Tibial Cancellous Bone Within Individual Subjects", *Calcified Tissue International*, 77 (1): 37-44. PMID: 15906016.
26. Zauel, R., **Yeni, Y. N.**, Bay, B. K., Dong, X. N., and Fyhrie, D. P., 2006, "Comparison of the linear finite element prediction of deformation and strain of human cancellous bone to 3D digital volume correlation measurements", *Journal of Biomechanical Engineering*, Vol. 128, pp. 1-6. PMID: 16532610.
27. Kim, D. G., Dong, X. N., Cao, T., Baker, K. C., Shaffer, R. R. and Fyhrie, D. P., **Yeni, Y. N.**, 2006, "Evaluation Of Filler Materials Used For Uniform Load Distribution At Boundaries During Structural Biomechanical Testing Of Whole Vertebrae", *Journal of Biomechanical Engineering*, Vol. 128, pp. 161-165. PMID: 16532630.
28. **Yeni, Y. N.**, Kim, D. G., Dong, X. N., Turner, A. S., Les, C. M. and Fyhrie, D. P., 2006, "Do sacrificial bonds affect the viscoelastic and fracture properties of bone?", *Clinical Orthopaedics and Related Research*,

443:101-108. PMID: 16462432.

29. **Yeni, Y. N.**, Yerramshetty, J., Akkus, O., Pechey, C. and Les, C. M., 2006, "Effect of fixation and embedding media on Raman spectroscopy of bone tissue", *Calcified Tissue International*, 78: 363-371. PMID: 16830201.
30. Dougherty, P. J., Silverton, C., **Yeni, Y.**, Tashman, S., and Weir, R., 2006, "Conversion of Temporary External Fixation to Definitive Fixation-Shaft Fractures", *Journal of the American Academy of Orthopaedic Surgeons*, 14: S124-S127. PMID: 17003183.
31. Sterba, W., Kim, D. G., Fyhrie, D. P., **Yeni, Y. N.**, Vaidya, R., 2007, "Biomechanical Analysis of Differing Pedicle Screw Insertion Angles", *Clinical Biomechanics*, 22: 385-391. PMID: 17208340.
32. **Yeni, Y. N.**, Shaffer, R. R., Baker, K. C., Dong, X. N., Grimm, M. J., Les, C. M. and Fyhrie, D. P., 2007, "The Effect Of Yield Damage On The Viscoelastic Properties Of Cortical Bone Tissue As Measured By Dynamic Mechanical Analysis", *Journal of Biomedical Materials Research*, Vol. 82A: 530-537. PMID: 17295254.
33. Kim, D. G., Hunt, C. A., Zuel, R., Fyhrie, D. P. and **Yeni, Y. N.**, 2007, "The effect of regional variations of the trabecular bone properties on the compressive strength of human vertebral bodies", *Annals of Biomedical Engineering*, 35: 1907-13. PMID: 17690983.
34. Brown, S. L., Freytag, S. O., Barton, K. N., Flynn, M. J., Peck, D. J., Dragovic, A., Jin, R., **Yeni, Y. N.**, Fyhrie, D. P., Les, C. M., Zhu, G., Kolozsvary, A., Pitchford, W., Nathanson, S. D., Fenstermacher, J. D., Kim, J. H., 2007, "Reporter gene imaging using radiographic contrast from nonradioactive iodide sequestered by the sodium-iodide symporter", *Contrast Media & Molecular Imaging*, 2: 240-247. PMID: 18058866.
35. **Yeni, Y. N.**, Zelman, E. A., Divine, G. W., Kim, D. G., and Fyhrie, D. P., 2008, "Trabecular shear stress amplification and variability in human vertebral cancellous bone: relationship with age, gender, spine level and trabecular architecture", *BONE*, 42: 591-596. PMID: 18180212.
36. Dougherty, P. J., Kim, D. G., Meisterling, S., Wybo, C. D., **Yeni, Y.**, 2008, "Biomechanical comparison of bicortical versus unicortical screw placement of proximal tibia locking plates: a cadaveric model", *Journal of Orthopaedic Trauma*, 22: 399-403. PMID: 18594304.
37. Norman, T. L., Little, T. M., **Yeni, Y. N.**, 2008, "Cortical Bone Remodeling and In-Service Damage Accumulation", *Journal of Biomechanics*, 41: 2868-2873. PMID: 18703196.
38. Kiner, D. W., Wybo, C. D., Sterba, W., **Yeni, Y. N.**, Bartol, S. W., and Vaidya, R., 2008, "Biomechanical Analysis of Different Techniques in Revision Spinal Instrumentation: Larger Diameter Screws versus Cement Augmentation", *SPINE*, 33: 2618-2622. PMID: 19011543.
39. **Yeni, Y. N.**, Kim, D-G., Divine, G. W., Johnson, E. M. and Cody, D. D., 2009, "Human cancellous bone from T12-L1 vertebrae has unique microstructural and trabecular shear stress properties", *BONE*, 44: 130-136. PMID: 18848654.
40. Cheng, X., Haggins, D. G., York, R. H., **Yeni, Y. N.**, and Akkus, O., 2009, "Diagnosis of Crystals Leading to Joint Arthropathies by Raman Spectroscopy: Comparison with Compensated Polarized Imaging", *Applied Spectroscopy*, 63: 381-386. PMID: 19366502.
41. **Yeni, Y. N.**, Dong, X. N., Zhang, B., Gibson, G. J., and Fyhrie, D. P., 2009, "Cancellous Bone Properties and Matrix Content of TGF- β 2 and IGF-I in Human Tibia", *Clin Orthop Relat Res*, 467:3079-86. PMID: 19472023.
42. Yerramshetty, J. S., Kim, D-G. and **Yeni, Y. N.**, "Increased microstructural variability is associated with decreased structural strength but with increased measures of structural ductility in human vertebrae", *J Biomech Eng*. 2009: 131(9):094501. PMID: 19725698.

43. Bonifasi-Lista, C., Cherkaev, E. and **Yeni, Y. N.**, “Analytical approach to recovering bone porosity from effective complex shear modulus”, *Journal of Biomechanical Engineering*, 2009;131(12): 121003. PMID: 20524726.
44. **Yeni, Y. N.** “Tissue Variability: An Important Quality of Bone”, 2010, *In “On the Horizon From the ORS” by Arnoczky SP, Caballero O, Yeni YN*, the *Journal of the American Academy of Orthopaedic Surgeons*, 18(7):445-8. PMID: 20595137.
45. Nekkanty, S., Yerramshetty, J., Kim, D-G., Zael, R., Johnson, E., Cody, D. D. and **Yeni, Y. N.**, 2010, “Stiffness of the endplate boundary layer and endplate surface topography are associated with brittleness of human whole vertebral bodies”, *BONE*, 47: 783-789. PMID: 20633709.
46. Guan, F, Mao, H., Han, X., Wagner, C., **Yeni, Y. N.** and Yang, K. H., “Application of Optimization Methodology and Specimen-Specific Finite Element Models for Investigating Material Properties of Rat Skull”, 2011, *Annals of Biomedical Engineering*, 39: 85-95. PMID: 20652748.
47. Mao, H., Wagner, C., Guan, F, **Yeni, Y. N.** and Yang, K. H., “Material Properties of Adult Rat Skull”, 2011, *Journal of Mechanics in Medicine and Biology*, Vol. 11, No. 5, 1199–1212.
48. Kim, D-G., Shertok, D., Ching Tee, B. and **Yeni, Y. N.**, “Variability of Tissue Mineral Density can Determine Physiological Creep of Human Vertebral Cancellous Bone”, 2011, *Journal of Biomechanics*, 44:1660-5. PMID: 21481880.
49. **Yeni, Y. N.**, Zinno, M. J., Yerramshetty, J., Zael, R. and Fyhrie, D. P., 2011, “Variability of trabecular microstructure is age-, gender-, race- and anatomic site-dependent and affects stiffness and stress distribution properties of human vertebral cancellous bone”, *BONE*, 49:886-894. PMID: 21802536. PMCID: PMC3170516.
50. **Yeni, Y. N.**, Brown, C. U., Gruen, T. A. and Norman, T. L., 2013, “The Relationships between Femoral Cortex Geometry and Tissue Mechanical Properties”, *Journal of the Mechanical Behavior of Biomedical Materials*, 21: 9-16. PMID:23454364.
51. **Yeni, Y. N.**, Poisson, L. M. and Flynn, M. J., 2013, “Heterogeneity of bone mineral density and fatigue failure of human vertebrae”, *Journal of Biomechanics*, 46:1396-1399. PMID:23538003. PMCID:3628284.
52. **Yeni, Y. N.**, Wu, B., Huang, L. and Oravec, D., 2013, “Mechanical Loading Causes Detectable Changes in Morphometric Measures of Trabecular Structure in Human Cancellous Bone”, *Journal of Biomechanical Engineering*, 135 (5): 054505. doi:10.1115/1.4024136. PMID:24231966. PMCID:PMC3705850.
53. Yang, S., Li, B., Slipchenko, M. N., Akkus, A., Singer, N. G., **Yeni, Y. N.** and Akkus, O., 2013, “Laser Wavelength Dependence of Background Fluorescence in Raman Spectroscopic Analysis of Synovial Fluid from Symptomatic Joints”, *Journal of Raman Spectroscopy*, 44: 1089-1095. DOI 10.1002/jrs.4338. PMID:24058259. PMCID:PMC3775384.
54. Kim, W., Oravec, D., Nekkanty, S., Yerramshetty, J., Sander, E., Divine, G. W., Flynn, M. J. and **Yeni, Y. N.**, 2015, “Digital tomosynthesis (DTS) for quantitative assessment of trabecular microstructure in human vertebral bone”, *Medical Engineering & Physics*, 37(1):109-20. PMID: 25498138.
55. Oravec, D., Quazi, A., Xiao, A., Yang, E., Zael, R., Flynn, M. J. and **Yeni, Y. N.**, 2015, “Digital Tomosynthesis and High Resolution Computed Tomography as Clinical Tools for Vertebral Endplate Topography Measurements: Comparison with Microcomputed Tomography”, *BONE*, 81:300-305. PMID: 26220145.
56. Li, B., Singer, N. G., **Yeni, Y. N.**, Haggins, D. G., Barnboym, E., Oravec, D., Lewis, S. and Akkus, O., 2016, “A point of care Raman spectroscopy based device to diagnose gout and pseudogout: comparison with the clinical standard microscopic analysis”, *Arthritis & Rheumatology*, 68(7):1751-7. PMID: 26882173 DOI: 10.1002/art.39638.
57. Nelson, F., Bokhari, O., Oravec, D., Kim, W., Flynn, M., Lumley, C., McPhilamy, A. and **Yeni, Y. N.**,

2017, “The use of tomosynthesis in the global study of knee subchondral insufficiency fractures”, *Academic Radiology*, 24:175-183. PMID: 28010915.

58. Kim, W., Oravec, D., Divine, G., Flynn, M. J. and **Yeni, Y. N.** “Effect of View, 2017, Scan Orientation and Analysis Volume on Digital Tomosynthesis (DTS) Based Textural Analysis of Bone”, *Annals of Biomedical Engineering*, 45: 1236-1246. PMID: 28083858.
59. Chang, V., Basheer, A., Baumer, T., Oravec, D., McDonald, C. P., Bey, M. J., Bartol, S. W. and **Yeni, Y. N.**, 2017, “Dynamic height and width of cervical neural foramina during normal neck rotation and extension in asymptomatic volunteers”, *Surgical and Radiologic Anatomy*, Mar 25. doi: 10.1007/s00276-017-1847-6. [Epub ahead of print], PMID: 28343254.
60. **Yeni, Y. N.**, Baumer, T., Oravec, D., Basheer, A., McDonald, C. P., Bey, M. J., Bartol, S. W. and Chang, V., “Dynamic Foraminal Dimensions During Neck Extension and Rotation in Fusion and Artificial Disc Replacement: An Observational Study”, *The Spine Journal*, *in press*.
61. Okoroa, K., Buraimoh, B., Oravec, D. J., Peltz, C. D., **Yeni, Y. N.** and Muh, S. J., “A Biomechanical Comparison of Subscapularis Peel and Lesser Tuberosity Osteotomy Repair Integrity”, *Journal of Shoulder and Elbow Surgery Open Access*, *submitted*.
62. Li, B., Singer, N., Rosenthal, A., Unal, M., Haggins, D., Yeni, Y. and Akkus, O., “Chemical characterization of Maltese-cross birefringent particles in synovial fluid samples collected from symptomatic joints”, *Joint Bone Spine*, *submitted*.

Reviewed Conference Papers / Abstracts

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88. **Yeni, Y. N.**, Zinno, M., Yerramshetty, J. and Fyhrie, D. P., “Within-bone Variability of Human Vertebral Trabecular Microstructure is Age, Gender and Vertebra-Dependent and Affects Stress Distribution Properties Independently from Average Bone Volume”, Transactions of the 55th Annual Meeting, Orthopaedic Research Society, February 22-25, 2009, Las Vegas, Nevada, p. 710.
89. **Yeni, Y. N.**, Zinno, M., Vashishth, D. and Fyhrie, D. P., “Trabecular Stress and Microstructural Variability are Associated with Osteocyte Density in Human Vertebral Cancellous Bone”, Transactions of the 55th Annual Meeting, Orthopaedic Research Society, February 22-25, 2009, Las Vegas, Nevada, p. 716.

90. **Yeni, Y. N.**, Yerramshetty, J., Kim, D-G., Johnson, E. and Cody, D. D., “The Increases in FE Stiffness and Bone Stress Variability Due to a Simulated Change from Compliant (Disc) to Stiff (Bone) Endplate Boundary Layer are Strongly Associated with Structural Measures of Vertebral Brittleness”, Transactions of the 55th Annual Meeting, Orthopaedic Research Society, February 22-25, 2009, Las Vegas, Nevada, p. 756.
91. Kim, D-G., Shertok, D. and **Yeni, Y. N.**, “Rate of Physiological Creep of Cancellous Bone can be Estimated by Variability of Mineralization”, Transactions of the 55th Annual Meeting, Orthopaedic Research Society, February 22-25, 2009, Las Vegas, Nevada, p. 1762.
92. Cheng, X, Haggins, D. G., **Yeni, Y. N.** and Akkus, O., “Raman-Based Identification of Crystals in Synovial Samples from Patients with Gouty Symptoms”, Transactions of the 55th Annual Meeting, Orthopaedic Research Society, February 22-25, 2009, Las Vegas, Nevada, p. 2119.
93. Yerramshetty, J. S., Kim, D-G. and **Yeni, Y. N.**, “Increased microstructural variability is associated with decreased structural strength but with increased measures of structural ductility in human vertebrae”, Proceedings of the ASME Summer Bioengineering Conference, June 17-21, 2009, Lake Tahoe, California, SBC2009- 206824: p.1-2.
94. Nekkanty, S., Yerramshetty, J., Kim, D-G. and **Yeni, Y. N.**, “Endplate Topography is Associated with the Brittleness of Human Whole Vertebral Bodies”, Transactions of the 56th Annual Meeting, Orthopaedic Research Society, March 6-9, 2010, New Orleans, Louisiana, p. 634.
95. Ciarelli, T. and **Yeni, Y. N.**, “Statistical Distribution Properties of Femoral Neck Cancellous Bone Microstructure are Different Between Females with a Hip Fracture and Non-fracture Controls with Equal Bone Mass”, Transactions of the 56th Annual Meeting, Orthopaedic Research Society, March 6-9, 2010, New Orleans, Louisiana, p. 601.
96. Oravec, D. J., Zael, R. R. and **Yeni, Y. N.**, “The Effect of Endplates on Cancellous Bone Strain Distribution in Uniaxially Compressed Rat T5 Vertebrae as Assessed by Digital Volume Correlation”, Transactions of the 57th Annual Meeting of the Orthopaedic Research Society, January 13-16, 2011, Long Beach, California, p. 668.
97. Nekkanty, S., Divine, G. W., Flynn, M. J. and **Yeni, Y. N.**, “Digital Tomosynthesis-Based Textural Measures Predict Vertebral Strength”, Transactions of the 57th Annual Meeting of the Orthopaedic Research Society, January 13-16, 2011, Long Beach, California, p. 670.
98. Xia, Y., Oravec, D., Mittelstaedt, D., Badar, F., **Yeni, Y.** and Matyas, J., “Depth-dependent Ion Concentrations in Healthy and Lesioned Articular Cartilage by μ CT and μ MRI”, Transactions of the 57th Annual Meeting of the Orthopaedic Research Society, January 13-16, 2011, Long Beach, California, p. 1609.
99. Huang, L., Shetty, T., Raza, S., Nekkanty, S. and **Yeni, Y. N.**, "Effect of Osteoid on Trabecular Surface Strains in Human Cancellous Bone as Estimated from Microcomputed Tomography-Based Large Scale Finite Element Analysis", 58th Annual Meeting, Orthopaedic Research Society, February 4-7, 2012, San Francisco, California, p. 367.
100. **Yeni, Y. N.**, Wu, B., Huang, L. and Oravec, D., "Mechanical Loading Causes Detectable Changes in Microstructural Heterogeneity of Cancellous Bone", 58th Annual Meeting, Orthopaedic Research Society, February 4-7, 2012, San Francisco, California, p. 1375.
101. **Yeni, Y. N.** and Oravec, D., "Is Microstructural Heterogeneity Accounted for by Plate/Rod-Likeness of Trabeculae in Vertebral Cancellous Bone?", 58th Annual Meeting, Orthopaedic Research Society, February 4-7, 2012, San Francisco, California, p. 1141.
102. Oravec, D. J., Zael, R. R. and **Yeni, Y. N.**, "The role of endplates in strain distributions and microstructural organization within the vertebral shell and cancellous centrum of a rat T5 vertebra during loading", 58th Annual Meeting, Orthopaedic Research Society, February 4-7, 2012, San Francisco, California, p. 1142.

103. Steel, E. M., Pechey, C. L., Ruehlman, D., MacLeay, J. M., Turner, A. S., Fyhrie, D. P., **Yeni Y.** and Les, C. M., "The Relationship Between Material Stiffness and Fracture Toughness in Ovine Compact Bone at Fast Fracture Exists for Sham but not OVX and is Rescued with Estrogen Replacement Therapy", 58th Annual Meeting, Orthopaedic Research Society, February 4-7, 2012, San Francisco, California, p. 540.
104. **Yeni, Y. N.**, Poisson, L. M. and Flynn, M. J., "Heterogeneity of bone mineral density and fatigue failure of human vertebrae", Proceedings of the ASME Summer Bioengineering Conference, June 20-23, 2012, Fajardo, Puerto Rico, SBC2012-80908: p. 1-2.
105. Kim, W., Oravec, D., Sander, E., Divine, G. W., Flynn, M. J. and **Yeni, Y. N.**, "Digital Tomosynthesis-Derived Microstructural Parameters Predict Cancellous Bone Stiffness in Human Vertebrae", 59th Annual Meeting, Orthopaedic Research Society, January 26-29, 2013, San Antonio, Texas, p.0701.
106. **Yeni, Y. N.**, Oravec, D., Nekkanty, S. and Les, C. M., "Ovariectomy Causes Anatomic Orientation-Dependent Changes in the Heterogeneity of Cancellous Bone in Rat Vertebrae", 59th Annual Meeting, Orthopaedic Research Society, January 26-29, 2013, San Antonio, Texas, p.1472.
107. Kim, W., Oravec, D., Divine, G. W., Flynn, M. J. and **Yeni, Y. N.**, "Digital Tomosynthesis of Human Vertebral Bone: The Effect of Positioning and Scan Orientation on Prediction of Cancellous Bone Stiffness", 60th Annual Meeting, Orthopaedic Research Society, March 15-18, 2014, New Orleans, Louisiana, p. 0710.
108. Kim, W., Oravec, D., Maatman, T., Divine, G. W., Flynn, M. J. and **Yeni, Y. N.**, "Digital Tomosynthesis for Prediction of Human Whole Vertebral Stiffness", 60th Annual Meeting, Orthopaedic Research Society, March 15-18, 2014, New Orleans, Louisiana, p. 1522.
109. Singer, N., Li, B., **Yeni, Y.**, Barnboym, E., Lewis, S., Oravec, D., Haggins, D., and Akkus, O., "Raman Spectroscopy: Point of Service Diagnosis Is Sensitive and Specific-a Tool for Improving Accuracy and Reducing Future Hospital Admission", American College of Rheumatology Annual Meeting, Boston, Nov 14-19, 2014, paper no: L11.
110. Kim, W., Oravec, D., Nixon, M., Divine, G., Flynn, M. J. and **Yeni, Y. N.**, "Prediction of Vertebral Wedge Strength Using Density, Morphometric and Microstructural Properties Derived from DXA, HRCT and DTS", 61st Annual Meeting, Orthopaedic Research Society, March 28-31, 2015, Las Vegas, Nevada, paper no: 0242.
111. Kim, W., Oravec, D., Xiao, A., Yang, E., Divine, G., Flynn, M. J. and **Yeni, Y. N.**, "DTS Derived Fractal, LFD and MIL Parameters Contribute to Prediction of Whole Vertebral Strength and Energy to Fracture Independent From Bone Mass", 61st Annual Meeting, Orthopaedic Research Society, March 28-31, 2015, Las Vegas, Nevada, paper no: 1466.
112. Oravec, D., Quazi, A., Xiao, A., Yang, E., Flynn, M. J. and **Yeni, Y. N.**, "Digital Tomosynthesis and High Resolution Computed Tomography as Clinical Tools for Vertebral Endplate Topography Measurements: Comparison with Microcomputed Tomography", 61st Annual Meeting, Orthopaedic Research Society, March 28-31, 2015, Las Vegas, Nevada, paper no: 0116.
113. **Yeni, Y. N.**, Bokhari, O., Oravec, D., Kim, W., Flynn, M. J., Lumley, C. and Nelson, F., "Quantitative Analysis of Bone Texture Using Digital Tomosynthesis in Spontaneous Osteonecrosis of the Knee (SONK)", 61st Annual Meeting, Orthopaedic Research Society, March 28-31, 2015, Las Vegas, Nevada, paper no: 1099.
114. Akkus, O., Li, B., Singer, N., Haggins, D. G. and **Yeni, Y. N.**, "A Portable Clinical Grade Raman Device for Point-of-Care Diagnosis of Gout and Pseudogout", The Great Scientific Exchange conference (SCIX), September 27-October 12, 2015, Providence, Rhode Island, p. 673.
115. **Yeni, Y. N.**, Baumer, T., Oravec, D., Basheer, A., Bey, M. J., Bartol, S. W. and Chang, V., "Dynamic Foraminal Dimensions During Neck Extension and Rotation in Fusion and Artificial Disc Replacement", 62nd Annual Meeting, Orthopaedic Research Society, March 5-8, 2016, Orlando, Florida, poster no: 0262.

Selected for a podium teaser.

116. Oravec, D., Yaldo, O., Flynn, M. J. and **Yeni, Y. N.**, “Digital tomosynthesis and fractal analysis predict prevalent vertebral fractures: a preliminary in vivo study”, 62nd Annual Meeting, Orthopaedic Research Society, March 5-8, 2016, Orlando, Florida, poster no: 0779.
117. **Yeni, Y. N.**, Baumer, T., Oravec, D., Basheer, A., Bey, M. J., Chang, V. and Bartol, S. W., “In Vivo Dynamic Changes in the Foraminal Dimensions During Neck Extension and Rotation”, 62nd Annual Meeting, Orthopaedic Research Society, March 5-8, 2016, Orlando, Florida, poster no: 1762. ***Nominee for ORS Spine Section Poster Awards.***
118. Oravec, D., Zael, R., Flynn, M. J. and **Yeni, Y. N.**, “A Clinically Viable Noninvasive Method for Direct Measurement of Mechanical Strains in Vertebral Bone”, 62nd Annual Meeting, Orthopaedic Research Society, March 5-8, 2016, Orlando, Florida, poster no: 2184. ***Late breaking abstract.***
119. Basheer, A., **Yeni, Y. N.**, Baumer, T., Oravec, D., Bey, M. J., Bartol, S. W. and Chang, V., “Dynamic Foraminal Dimensions During Neck Extension and Rotation in Fusion and Artificial Disc Replacement”, Joint Section on Disorders of the Spine and Peripheral Nerves Spine Summit, March 16-19, 2016, Orlando, Florida. Abstract No. 308
120. Chang, V., Bartol, S. W., Basheer, A., Baumer, T., Oravec, D., Bey, M. J., McDonald, C. and **Yeni, Y. N.**, “Dynamic Foraminal Dimensions During Neck Extension and Rotation in Fusion and Artificial Disc Replacement”, 31st Annual Meeting, North American Spine Society, October 26-29, 2016, Boston, Massachusetts, Abstract #100.
121. Oravec, D. J., Kim, W., Flynn, M. J. and **Yeni, Y. N.**, “Whole Human Vertebral Body Creep is Associated with DTS-Derived Texture Parameters”, 63rd Annual Meeting, Orthopaedic Research Society, March 19-22, 2017, San Diego, California, poster no: 1284.
122. **Yeni, Y. N.**, Dix, M. R., Xiao, A., Oravec, D. J., Flynn, M. J., “Vertebral Endplate and Shell Thickness Measurement Using Digital Tomosynthesis”, 63rd Annual Meeting, Orthopaedic Research Society, March 19-22, 2017, San Diego, California, poster no: 1287.
123. **Yeni, Y. N.**, Lindquist, M., Oravec, D. J., Baumer, T., Bey, M. J., Bartol, S. and Chang, V., “Cervical Nerve Root to Foraminal Size Ratio Correlates with Post-Surgical Patient-Reported Outcomes”, 63rd Annual Meeting, Orthopaedic Research Society, March 19-22, 2017, San Diego, California, poster no: 1288.
124. Oravec, D. J., Flynn, M. J. and **Yeni, Y. N.**, “The Relationship of Whole Human Vertebral Body Creep to Geometric, Microstructural and Material Properties”, 63rd Annual Meeting, Orthopaedic Research Society, March 19-22, 2017, San Diego, California, poster no: 1849.

SERVICE AND ACTIVITIES

• **Editorial:**

2007- 2013: Associate Editor, ASME Journal of Biomechanical Engineering.

2012- 2013: Editorial Board, ISRN Biomedical Engineering.

2013: Editorial Board, ISRN Orthopedics.

2013- Editorial Board, BONE.

• **Study Sections/Grant Review Panels:**

2004 Reviewer for Research Project Grants, Health Research Board of Ireland.

2005 Reviewer for Military Operational Medicine Research Program/Special Programs, US Army Medical Research and Materiel Command (USAMRMC).

2005 Member of Special Emphasis Panel/Scientific Review Group 2006/01 ZAR1 YZW-H (O2) (1); Core Center for Musculoskeletal Disorders, National Institutes of Health/NIAMS.

2006 Reviewer for Equipment Grants, Swiss National Science Foundation.

2006 Member of Special Emphasis Panel/Scientific Review Group 2006/10 ZAR1 EHB-M (O1) (1); R03

- Applications, National Institutes of Health/NIAMS.
- 2007 Member of Special Emphasis Panel/Scientific Review Group 2007/05 ZAR1 EHB-H (O1) (1); R03 Applications, National Institutes of Health/NIAMS.
- 2008 Member of Special Emphasis Panel/Scientific Review Group 2008/05 ZAR1 EHB-H (M1) 1; R03 Applications, National Institutes of Health/NIAMS.
- 2008 Reviewer for Military Operational Medicine Research Program/Special Programs, US Army Medical Research and Materiel Command (USAMRMC).
- 2008 Member of Special Emphasis Panel/Scientific Review Group 2008/10 ZAR1 EHB-H (M1) 1; R03 Applications, National Institutes of Health/NIAMS.
- 2008 Member of Special Emphasis Panel/Scientific Review Group 2009/01 ZAR1 EHB-D (M1) 1; R03 Applications, National Institutes of Health/NIAMS.
- 2009 Reviewer for Research Growth Initiative (RGI) Grant Applications, University of Wisconsin-Milwaukee Graduate School.
- 2009 Reviewer for Summer Research Fellowships and Research Support Grants, Villanova University.
- 2010 Member of Special Emphasis Panel/Scientific Review Group 2011/01 ZAR1 EHB (M1) 2; Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2011 Member of Special Emphasis Panel/Scientific Review Group 2011/05 ZAR1 EHB (M1) 1 - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2011 Panelist, Review Panel for “Tissues and Modeling”; Biomechanics and Mechanobiology (BMMB) Program, National Science Foundation (NSF).
- 2011 Member of Special Emphasis Panel/Scientific Review Group 2012/01 ZAR1 EHB (M1) 1 - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2012 Member of Special Emphasis Panel/Scientific Review Group 2012/05 ZAR1 EHB (M1) 1 - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2012 Reviewer for Military Operational Medicine Research Program/Special Programs, US Army Medical Research and Materiel Command (USAMRMC).
- 2012 Member of Special Emphasis Panel/Scientific Review Group 2013/01 ZAR1 EHB (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2012 Member of Special Emphasis Panel/Scientific Review Group 2013/01 ZRG1 MOSS-F (02) S, SBSR/SBDD Conflicts, National Institutes of Health/NIAMS.
- 2013 Member of Special Emphasis Panel/Scientific Review Group 2013/05 ZAR1 EHB (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2013 Member of Special Emphasis Panel/Scientific Review Group 2013/10 ZAR1 KM (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2013 Member of Special Emphasis Panel/Scientific Review Group 2014/01 ZAR1 CNR (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2014 Member of Special Emphasis Panel/Scientific Review Group 2014/05 ZAR1 CNR (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2014 Member of Special Emphasis Panel/Scientific Review Group 2014/10 ZAR1 XZ (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2014 Member of Segmental Bone Defect (SBD) Review Panel, Discovery Awards, Peer Reviewed Medical Research Program (PRMRP), Department of Defense Congressionally Directed Medical Research Programs (CDMRP).
- 2014 Member of Special Emphasis Panel/Scientific Review Group 2015/01 ZAR1 XZ (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2015 Panelist, Review Panel for “Cell System and Organ Development”; Biomechanics and Mechanobiology (BMMB) Program, National Science Foundation (NSF).
- 2015 Member of Special Emphasis Panel/Scientific Review Group 2015/05 ZAR1 XZ (M1) - Small Grants Research Review (R03 Applications), National Institutes of Health/NIAMS.
- 2016 Ad-hoc Reviewer, Special Emphasis Panel/Scientific Review Group 2016/10 ZRG1 DTCS-A (81) S - Clinical and Translational Imaging Applications, National Institutes of Health.

2017 Stage 1 Reviewer, Special Emphasis Panel/Scientific Review Group ZRG1 DTCS-A (81) S - Clinical and Translational Imaging Applications, National Institutes of Health.

- **Peer reviewer for journals:**

1999- Annals of Biomedical Engineering, Journal of Biomechanics

2000- Bone, Journal of Orthopaedic Research

2001- Experimental Techniques, Journal of Biomechanical Engineering

2003- Biomechanics and Modeling in Mechanobiology, Connective Tissue Research

2004- Biomaterials, Clinical Orthopaedics and Related Research, Journal of Biomedical Materials Research: Part B - Applied Biomaterials, Medical & Biological Engineering & Computing

2005- Clinical Anatomy, Medical Engineering and Physics

2006- BioMedical Engineering OnLine, Journal of Mechanics in Medicine and Biology, Acta Biomaterialia

2007- Journal of Biomedical Materials Research: Part A

2008- Clinical Biomechanics, Journal of Bone and Joint Surgery

2010- Journal of Rehabilitation Research and Development, Journal of the Mechanical Behavior of Biomedical Materials

2012- The Aging Male

2013- ISRN Biomedical Engineering, ISRN Orthopedics

2014- Journal of Neurorestoratology

2015- Journal of Bone and Mineral Research, PLOS One

2017 - Advances in Medical Sciences

- **Conferences:**

Judge, Student Paper Competition, Annual Research Day, Wayne State School of Medicine, 2004.

Moderator, Short Talk Session: Bone Adaptation and Mechanics, 52nd Annual Meeting, Orthopaedic Research Society, March 19-22, 2006, Chicago, Illinois.

Co-Chair, Session: Bone Mechanics, ASME Summer Bioengineering Conference, June 17-21, 2009, Lake Tahoe, California.

Judge, 8th Annual Research Symposium of Henry Ford Health System, May 12-13, 2011, Detroit, Michigan.

Abstract Reviewer, Topic: Bone, 58th Annual Meeting, Orthopaedic Research Society, February 4-7, 2012, San Francisco, California.

Judge, 9th Annual Research Symposium of Henry Ford Health System, May 10-11, 2012, Detroit, Michigan.

Reviewer, Proceedings of the ASME 2013, ASME International Mechanical Engineering Congress and Exposition (IMECE), November 15-21, 2012 San Diego, LA.

Abstract Reviewer, Topic: Spine, 61st Annual Meeting, Orthopaedic Research Society, March 28-31, 2015, Las Vegas, Nevada.

Abstract Reviewer, Topics: Bone, Spine and Diagnostic Imaging, 62nd Annual Meeting, Orthopaedic Research Society, March 5-8, 2016, Orlando, Florida.

Abstract Reviewer, Topic: Diagnostic Imaging, 63rd Annual Meeting, Orthopaedic Research Society, March 19-22, 2017, San Diego, California.

- **Other Societal Activities:**

Treasurer and founding member, Biomedical Engineering Society, West Virginia University Student Chapter, January 1995-February 1996; March 1997-January 1998.

Founding member and member of student board of directors, Science-Fiction and Fantasy Society, Middle East Technical University, Turkey (1992-1994).

- **Membership to Professional Organizations:**

- ASB (American Society of Biomechanics)
- ASBMR (American Society for Bone and Mineral Research)
- ASME (American Society of Mechanical Engineers)
- BMES (Biomedical Engineering Society)
- ORS (Orthopaedic Research Society)
- SEM (Society of Experimental Mechanics)

TEACHING / MENTORSHIP

Teaching Assistant, Middle East Technical University: Experimental Vibrational and Ultrasound Analysis for graduate students, Statics, Strength of Materials and Engineering Mathematics for sophomore level students (1993-1994).

Biomechanics/Biomaterials Basic Science Lecture Series, Henry Ford Hospital, Department of Orthopaedics, for Orthopaedics Residents (2005 – 2011).

Instructor (team-teach), Wayne State University, Biomedical Engineering: BME5210 - Musculoskeletal Biomechanics, (Winter 2006).

Residents (served as research advisor / co-advisor / collaborator):

1. Joseph Sizensky, MD, Henry Ford Hospital: Mechanical properties of Kevlar fiber-reinforced bone cement, 2000. (*Awarded best resident research of the class.*)
2. William Sterba, MD, Henry Ford Hospital: Biomechanical analysis of differing pedicle screw insertion angles, 2005.
3. Steven Meisterling, MD, Henry Ford Hospital: Proximal Tibia Locking Plates: Bicortical versus Unicortical Screw Placement, 2004-2007
4. Rahul Basha, MD, Henry Ford Hospital: New Ilizarov Technique for Pediatric Critical Care, 2007-2008
5. Justin Hollander, DO, Garden City Hospital: Variation of within-vertebra variability of cancellous tissue architecture with vertebra level in human spine, Oct-Dec, 2007.
6. Shaunak S. Desai, MD, Henry Ford Hospital: Screw Configuration in Polyaxial Locking Plates to Treat Unstable Proximal Tibia Fractures: A Biomechanical Study, 2007-2008. (*Awarded best resident research of the class.*)
7. Michael Bryant, DO, Garden City Hospital: Variation of cancellous bone mechanical anisotropy with vertebra level in human spine, Jan-Mar 2008.
8. Matthew Zinno, DO, Garden City Hospital: The relationship of the statistical distribution of trabecular structural properties with age, gender, spine level and shear stress distribution properties in human vertebral cancellous bone, Apr-Jun 2008.
9. Joseph Farber, MD, Henry Ford Hospital: Biomechanical comparison of compression hip screw (CHS), standard dynamic hip screw (DHS) and DHS with derotational screw, 2009 – 2012.
10. Srinivasu Kusuma, MD, Henry Ford Hospital: Biomechanical effects of harvesting bone graft cores from the lumbar vertebral body, 2009 – 2012.
11. Kirk Cleland, MD, Henry Ford Hospital: Biomechanical comparison of dynamic hip screws (DHS), with derotational screw, and intermedullary hip screw (IMHS) in a basicervical femur fracture model, 2010 – 2012.
12. Nicholas B. Frisch, MD, Henry Ford Hospital: Cerclage Fixation for Cementless Total Hip Arthroplasty Complicated by Intraoperative Vancouver B1 Periprosthetic Fractures: A Biomechanical Analysis, 2013 – 2014.
13. M. Ayodele Buraimoh, MD, Biomechanical Comparison of Lesser Tuberosity Osteotomy and a New Subscapularis Peel Technique for Repair of Subscapularis, 2014 – 2015.

14. Azam Basheer, MD, Three dimensional characterization of dynamic cervical foraminal geometry during neck motion in-vivo, 2014 -

Postdoctoral Fellows (trained in my laboratory):

15. Do-Gyoon Kim, PhD: Rensselaer Polytechnic Institute
 - 15.1. Post Doctoral Fellow, 2003 – 2005.
 - 15.2. Research Associate, 2005 – 2007.
Henry Ford Health System, Mentored Scientist Award, 2007, “Contribution of creep to age related deformation of vertebral body”. (\$50K per year, 3 years + 50% FTE.)
16. Janardhan Yerramshetty, PhD: University of Toledo, Post-doc fellow, 2007 – 2009.
17. Srikant Nekkanty, PhD: Ohio State University, Post-doc fellow, 2009 – 2011.
18. Woong Kim, PhD: University of Auckland, New Zealand, Post-doc fellow, 2012 – 2014.

Graduate-Level Students (trained in my laboratory):

19. Nishant Trivedi, BSc: Wayne State University, Biomed Eng., MSc student, January-April, 2005.
20. Eric Zelman, BSc: Un. of Michigan, Dearborn, Mechanical Engr., Res. Assist, 2005 – 2006.
21. Daniel Oravec, MSc: Tampere University of Technology, Finland, Biomedical Engineering, 2009 – 2010
22. Elisabeth Michels, BSc: Wayne State University, Biomedical Engineering, 2010-2012.
23. Ryan Bylsma, Wayne State University, School of Medicine, October 2011 – January 2012.
24. Mary Nixon, Wayne State University, School of Medicine, May 2012 – July 2012.
25. Justin Schupbach, Wayne State University, School of Medicine, June 2012 – July 2012.
26. Kaitlin McLoughlin, Wayne State University, School of Medicine, August 2012 – September 2012.
27. Kalyan Sreeram, Wayne State University, School of Medicine, August 2012 – April 2013.
28. Thomas K Maatman, Wayne State University, School of Medicine, August 2012 – May 2013.
29. Toufic Jildeh, Wayne State University, School of Medicine, Year 1, May – September 2013.
Medical Student Summer Research Fellowship Award, Wayne State University, 2013.
“Comparative Quantitative Assessment of Bone Microstructure”; Stipend + \$1,000
30. Matthew Varga, Wayne State University, BMS Masters Program, June 2013 – December 2013.
31. Omaima Bokhari, Wayne State University, School of Medicine, Year 4, August 2013 – May 2014.
“Quantitative Analysis of Bone Texture Using Digital Tomosynthesis in Spontaneous Osteonecrosis of the Knee (SONK)”
32. Ali Sobh, Wayne State University, School of Medicine, Year 3, December 2013 – January 2014.
“Repeatability and Reproducibility of Digital Tomosynthesis for Quantification of Vertebral Bone Texture”
33. Matthew Madion, Wayne State University, School of Medicine, Class of 2017, April – December 2014.
Medical Student Summer Research Fellowship Award, Wayne State University, 2014.
“Can Trabecular Texture Analysis Predict Vertebral Fracture”; Stipend + \$1,000
34. Lamees Yahya, Wayne State University, Biomedical Engineering, January – December, 2015.
“Cortical bone changes in diabetic obese mice treated with a crosslink breaker”
35. Sasha Stein, Wayne State University, School of Medicine, Year 1, February - November 2015.
“Nonlinear ultrasound for detecting cortical microfractures”
36. Omar Yaldo, Oakland University William Beaumont School of Medicine, March – August 2015.
“In vivo tomosynthesis analysis of vertebral bone in multiple myeloma”
37. Nicholas Adams, Wayne State University, School of Medicine, Class of 2018, May – August 2015.
Medical Student Summer Research Fellowship Award, Wayne State University, 2015.
“Tomosynthesis scans for mapping vertical and horizontal trabeculae”; Stipend + \$1,000
38. Hunter Trafton, Wayne State University, School of Medicine, Year 1, January – September, 2016.
“Cervical spinal canal geometry during neck motion”
39. Sherwin Azad, Wayne State University, School of Medicine, Year 1, March 2016 – September 2016.
“Three dimensional In-Vivo Motion Analysis of the Cervical Spine 5 Years Following Anterior Cervical Decompression and Fusion”
40. Mirabelle Lindquist, Wayne State University, School of Medicine, Year 1, March – July, 2016.

Medical Student Summer Research Fellowship Award, Wayne State University, 2015.

“Nerve Root to Foraminal Wall Distances During Neck Motion”; Stipend + \$1,000

41. Michael Dix, Wayne State University, School of Medicine, Year 1, March – July, 2016.

Medical Student Summer Research Fellowship Award, Wayne State University, 2015.

“Measurement of Vertebral Geometry from Digital Tomosynthesis Images”; Stipend + \$1,000

42. Parnell White, Wayne State University, School of Medicine, Year 1, April – July 2016.

“Three dimensional In-Vivo Motion Analysis of the Cervical Spine 5 Years Following Arthroplasty with an Artificial Disc”

43. Ian Monk, Wayne State University, School of Medicine, Year 1, May 2016 – July 2016.

“Quantitative morphometric assessment of vertebral fracture from low-dose CT scout views in NLST”

Undergraduate Students (trained in my laboratory):

44. Greg Christopherson: Michigan Technological Un., Biomedical Engr., (Jan-Aug 2001 and Summer 2002).

45. Richard Shaffer: Michigan Technological Un., Biomedical Engr., senior, June-July, 2003.

46. Kevin Baker: Michigan Technological Un., Biomedical Engr., senior, June-July, 2003.

47. Fadel Mahfouz, Un. of Toledo, Bioengineering, senior, May-August, 2004.

48. Christine Ann Hunt: Michigan State Un., Mechanical Engr., junior, May-August, 2004.

49. Elisabeth Michels: Un. of Toledo, Bioengineering, senior, October-December, 2004.

50. Jason Turri, BS: Un. of Michigan, Dearborn, Mechanical Engr., senior, May-August, 2005.

51. Tina Redd: Wayne State University, Mechanical Eng., junior, September 2006 – January 2007.

52. Katherine Haddad, Un. of Michigan, Dearborn, Philosophy/PreMed, junior, May 2008 – August 2008.

53. Scott Hoffmann, Kettering University, Biomedical Engr., Spring 2010, Fall 2010, Spring 2011.

54. Daniel Weitzel, Kettering University, Biomedical Engr., Spring 2010.

55. Michael McDonald, Kettering University, Biomedical Engr., Summer 2010, Spring 2013.

56. Nicole Ramo, Kettering University, Biomedical Engr., Winter 2011, Spring 2012, Spring 2013.

57. Jason Bagnall, Oakland Community College, Engineering, March – August 2012.

58. Jihad Mims, Georgia Institute of Technology, Biomedical Engr., May 7, 2014 – August 15, 2014.

“Bone Turnover Biomarkers and CT Density Heterogeneity”

59. Adam Mulka, Wayne State University, Biomedical Engineering, August 8, 2016 – March 13, 2017.

“Three dimensional In-Vivo Motion Analysis of the Cervical Spine”

60. Anish Saraswat, University of Michigan, June 16 – August 11, 2017

“Bone Mineral Density in the Cervical Spine”

High School Students

61. Lily Huang, Troy High School, Troy, MI, June 22 – August 15, 2009.

62. Shuaib Raza, Troy High School, Troy, MI, June 22 – August 15, 2009.

63. Tushar Shetty, Troy High School, Troy, MI, June 22 – August 15, 2009.

Team (Huang, Raza, Shetty): Regional Semi-Finalist; Siemens-Westinghouse Competition in Math, Science, Technology, 2009. “Effect of Osteoid on Stress and Strain Distribution in Human Cancellous Bone as Estimated from Microcomputed Tomography-Based Large Scale Finite Element Analysis.”

64. Anuhya Bhogineni, Athens High School, Troy, MI, June 21 – August 13, 2010.

65. Fariha Ghazi, Athens High School, Troy, MI, June 21 – August 13, 2010.

66. Subhum Sidhar, West Bloomfield High School, MI, June 21 – August 13, 2011.

67. Brenda Wu, Troy High School, Troy, MI, June 21 – August 13, 2011.

68. Vincent Giacobelli, Harrison High School, Farmington, MI, June 18 – August 10, 2012.

69. Joy Zhang, Detroit Country Day High School, Beverly Hills, MI, June 10 – August 9, 2013.

70. Angela Xiao, Troy High School, Troy, MI, June 17 – September 30, 2013.

71. Ellen Yang, Troy High School, Troy, MI, July 17 – September 30, 2013.

72. Abrar Quazi, International Academy (IB Program), Bloomfield, MI, June 23 – August 1, 2014.

“Digital Tomosynthesis and High Resolution Computed Tomography as Clinical Tools for Vertebral Endplate Topography Measurements: Comparison with Microcomputed Tomography”

73. Bhavini Patel, Athens High School, Troy, MI, July 25 – September 1, 2016.
“Neck muscle condition after fusion and arthroplasty surgeries”
74. Andrew Schildcrout, Berkley High School, May - August, 2017
“Cervical spine motion tracking”
75. Imran Quazi, International Academy Bloomfield Campus High School, June 19 – August 11, 2017
“3D fractal based BMD texture to predict vertebral fracture”

LANGUAGES

English, Turkish.