Grace D. O'Connell, PhD

Associate Professor of Mechanical Engineering
Associate Dean for Inclusive Excellence, College of Engineering
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EDUCATION

2000 – 2001	**VIRGINIA POLYTECHNIC INSTITUTE** Bachelor of Science, Aerospace Engineering	Blacksburg, VA
2001 – 2004	**UNIVERSITY OF MARYLAND** Bachelor of Science, Aerospace Engineering	College Park, MD
2004 – 2009	**UNIVERSITY OF PENNSYLVANIA** Doctor of Philosophy, Bioengineering (Dec. 2009) *National Institutes of Health Predoctoral Fellow* "Degeneration affects the structural and tissue mechanics of the intervertebral disc" Advisor: Dawn M. Elliott, Ph.D	Philadelphia, PA

APPOINTMENTS

2002	**Undergraduate Research Scientist**, Space Systems Laboratory, University of Maryland (PI: David Akin, PhD)
2002	**Undergraduate Research Scientist**, Glenn L. Martin Wind Tunnel, University of Maryland (PI: Benjamin Shapiro, PhD)
2004 –2009	**Graduate Research Scientist**, McKay Orthopaedic Research Laboratory, University of Pennsylvania (PI: Dawn M. Elliott, PhD)
2009 – 2013	**Postdoctoral Research Scientist**, Cellular Engineering Laboratory, Columbia University (PI: Clark T. Hung, PhD)
2013 – Present	**Faculty Affiliate**, University of California, Berkeley Stem Cell Center
2013 – 2019	**Assistant Professor**, Department of Mechanical Engineering, UC Berkeley
2014	**Faculty Affiliate**, UCSF/Berkeley Graduate Group in Bioengineering
2014 – Present	**Core Faculty**, UCSF/Berkeley Graduate Group in Bioengineering
2017 – Present	**Adjunct Assistant Professor**, Department of Orthopaedic Surgery, University of California, San Francisco
2018 – Present	CITRIS Principal Investigator
2018 – 2022	**Member, Jacobs Institute Director's Council**, UC Berkeley
2019 – Present	**Associate Professor**, Department of Mechanical Engineering, UC Berkeley
2019 – 2021	**Vice Chair for Equity & Inclusion**, Department of Mechanical Engineering, UC Berkeley
2021 – Present	**Executive Board Member**, AT Dev., Inc.
2021 – Present	**Associate Dean for Inclusive Excellence**, College of Engineering, UC Berkeley
2022 – 2023	**Member – Publications Chair**, Organizing Committee for SB3C Annual Meeting

AWARDS & HONORS

2000	Society of Women Engineer (SWE) Award for Mathematics
2004	Inducted into Sigma Gamma Tau (honor society for Aerospace Engineering)
2004	Graduate Diversity Fellowship, University of Pennsylvania
2007	East Asia Summer Fellowship (NSF-EAPSI) in Taipei, Taiwan at National Taiwan University (Dr. Jaw-Lin Wang)
2008	National Institutes of Health Pre-doctoral Fellowship, University of Pennsylvania
2009	National Institutes of Health Diversity Fellowship, Columbia University
2011	Federation of American Societies for Experimental Biology (FASEB) Postdoctoral Professional Development and Enrichment Award

2014 Association of Women in Mathematics Travel Grant
2014 Regents' Junior Faculty Fellow, University of California
2014 Rose Hills Innovator Award, University of California, Berkeley
2015 Hellman Family Faculty Award, University of California, Berkeley
2015 Grainger Foundation Frontiers of Engineering Grant through the National Academy of Engineers (co-awardee: Jeannette Garcia at IBM)
2016 Minner Faculty Fellow in Engineering Ethics and Professional/Social Responsibility, University of California, Berkeley
2017 Finalist for ORS Spine Section Poster Award, Orthopaedic Research Society Meeting (San Diego, CA)
2017 ACS Polymeric Materials: Science and Engineering (PMSE) Young Investigator
2017 Diablo Magazine's 40 Under 40
2017 Journal of Biomechanical Engineering Editors Choice Paper for 2017 for the paper titled *"A Novel Method for Repeatable Failure Testing of Annulus Fibrosus"*
2018 Arthritis National Research Foundation John Vaughan Scholar
2018 NSF CAREER Award
2018 Don M. Cunningham Endowed Professorship, Inaugural Chair
2019 YC Fung Young Investigator Award (ASME Award)
2019 ASME Henry Hess Early Career Publication Award
2020 JOR Spine Early Career Award (inaugural awardee)
2021 Inducted into the American Institute for Medical and Biological Engineering (AIMBE Fellow)
2021 UC Berkeley Chancellor's Award for Public Service
2022 University of Maryland's College of Engineering Early Career Distinguished Alumni

PEER-REVIEWED JOURNAL PUBLICATIONS

(underline indicates graduate student or postdoc; italics indicate undergraduate student trainee)

1. Johannessen W, Cloyd JM, **O'Connell GD**, Vresilovic EJ, Elliott DM. Trans-Endplate Nucleotomy Increases Deformation and Creep Response in Axial Loading. Annals of Biomedical Engineering 34(4), 687-96, 2006.
2. **O'Connell GD**, Vresilovic EJ, Elliott DM. Comparison of Animals Used in Disc Research to Human Lumbar Disc Geometry. Spine 32(3), 328-33, 2007.
3. **O'Connell GD**, Johannessen W, Vresilovic EJ, Elliott, D.M. Human Internal Disc Strains in Axial Compression Measured Non-Invasively Using Magnetic Resonance Imaging. Spine 32(25), 2860-68, 2007.
4. **O'Connell GD**, Guerin HL, Elliott DM. Theoretical and Uniaxial Experimental Evaluation of Human Annulus Fibrosus Degeneration, Journal of Biomechanical Engineering, 131(11): 111007, 2009. PMCID: PMC3424515.
5. **O'Connell GD**, Vresilovic EJ, Elliott DM. Human Intervertebral Disc Internal Strain in Compression: The Effect of Disc Region, Loading Position, and Degeneration, Journal of Orthopaedic Research, 29(4): 547-55, 2011. PMCID: PMC3428014.
6. **O'Connell GD**, Jacobs NT, Sen S, Vresilovic EJ, Elliott DM. Axial Creep Loading and Unloaded Recovery of the Human Intervertebral Disc and the Effect of Degeneration, Journal of Mechanical Behavior and Biomedical Materials, 4(7): 933-42, 2011. PMCID: PMC3143379.
7. **O'Connell GD**, Malhotra NR, Vresilovic EJ, Elliott DM. The Effect of Nucleotomy and the Dependence on Degeneration of Human Intervertebral Disc Strain in Axial Compression, Spine, 36(21): 1765-71, 2011. PMCID: PMC3146972.
8. **O'Connell GD**, Sen S, Elliott DM. Human Annulus Fibrosus Material Properties from Biaxial Testing

and Constitutive Modeling are Altered with Degeneration, BMMB, 11(3-4): 493-503, 2011. PMID: 21748426.

9. Sampat S*, **O'Connell GD***, Fong JV, Augaron EA, Ateshian GA, Hung CT. Growth Factor Priming of Synovium Derived Stem Cells for Cartilage Tissue Engineering, Tissue Engineering Part A, 17(17-18): 2259-65, 2011. PMCID: PMC3161099. **These authors contributed equally to the study and manuscript.*
10. **O'Connell GD**, Lima EK, Bian L, Chahine NO, Albro MB, Cook JL Ateshian GA, Hung CT. Toward Engineering a Biological Joint Replacement. Invited review paper for the Journal of Knee Surgery; 25(3): 187-96, 2012. PMCID: PMC3700804.
11. **O'Connell GD**, Fong JV, Dunleavy N, Joff A, Ateshian GA, Hung CT. Trimethylamine N-Oxide found in shark cartilage improves collagen production in tissue-engineered cartilage. Journal of Orthopaedic Research, 30(12): 1898-905, 2012. PMCID: PMC3625430
12. Kelly TAN, Roach BL, Weidner ZD, Mackenzie-Smith CR, **O'Connell GD**, Lima EG, Stoker AM, Cook JL, Ateshian GA, Hung CT. Tissue-engineered articular cartilage exhibits tension-compression nonlinearity reminiscent of the native cartilage. Journal of Biomechanics, Jul 26; 46(11): 1748-91, 2013. PMCID: PMC3713158.
13. **O'Connell GD**, Nims R, Green J, Cigan A, Ateshian GA, Hung CT. Time and dose-dependent effects of chondroitnase ABC on growth of engineered cartilage. eCells and Materials Journal, 27:312-20, 2014. PMCID: PMC4096549.
14. Ponnurangam S**, O'Connell GD**, Chernyshova I, Woods K, Somasundaran P, Hung CT. Beneficial Effects of Cerium Oxide Nanoparticles in Development of Chondrocyte-Seeded Hydrogel Constructs and Cellular Response to Interleukin Insults. Tissue Engineering, Part A, Nov; 20(21-22):2908-19, 2014.
15. **O'Connell GD,** Newman IB, Carapezza MA. Effect of long-term osmotic loading culture on matrix synthesis from intervertebral disc cells. PMID: 25371861 BioResearch, Oct 1; 3(5):242-9, 2014. PMCID: PMC4215332.
16. Tan AR, Alegre-Aguaron E, **O'Connell GD,** VandenBerg CD, Aaron RK, Vunjak-Novakovic G, Bulinski JC, Ateshian GA, Hung CT. Passage-Dependent Relationship between Mesenchymal Stem Cell Mobilization and Chondrogenic Potential. PMID: 25452155 Osteoarthritis and Cartilage, 23:319-327, 2015.
17. Stannard JT, Edamura K, Stoker A, **O'Connell GD**, Kuroki K, Hung CT, Choma TJ, Cook, JL. Development of a Whole Organ Culture Model for Intervertebral Disc Disease. Journal of Orthopaedic Translation, Apr., 5: 1-8, 2015.
18. Bezci SE, *Nandy A,* **O'Connell GD**. Effect of hydration on healthy intervertebral disc mechanical stiffness. Journal of Biomechanical Engineering, Oct 1; 137(10), 2015. PMID: 26300418
19. **O'Connell GD,** Leach K, Klineberg E. Tissue engineering a biological repair strategy for lumbar disc herniation. BioResearch, Nov 1; 4(1): 431-45, 2015. PMID: 26634189
20. Ponnurangam S, **O'Connell GD**, Hung CT, and Somasundaran P, Biocompatibility of Polysebacic Anhydride Microparticles with Chondrocytes in Engineered Cartilage. Colloids and Surfaces B: Biointerfaces, Dec 1;136:207-13, 2015. PMID: 26398146
21. Nover AB, Hou GY, Han Y, Wang S, **O'Connell GD**, Ateshian GA, Konofagou EE, Hung CT. High Intensity Focused Ultrasound as a Tool for Tissue Engineering: Application to Cartilage. Med Eng Phys, Feb; 38(2), 192-198, 2016. PMID: 26724968
22. **O'Connell GD*,** Tan AR*, Palmer G, Cui V, Bulinski JC, Cook JL, Attur M, Abramson SB, Ateshian GA, Hung CT. Human chondrocyte migration behavior to guide the development of engineered cartilage. Journal of Tissue Engineering and Regenerative Medicine, Mar; 11(3):877-866, 2017. PMID:25627968 *These authors contributed equally to the study and manuscript.
23. Werbner BN, Zhou M, **O'Connell GD**. A Novel Method for Repeatable Failure Testing of Annulus Fibrosus. J Biomech Eng. Nov. 1; 139(11), 2017. PMID: 28886203. *Editors' Choice for 2017*

24. Yang B, **O'Connell GD**. Effect of collagen fibre orientation on intervertebral disc torsion mechanics. Biomech and Modeling in Mechanobiology. Dec.; 16(6): 2005-15, 2017. PMID: 28733922
25. **O'Connell GD**, Garcia J, Jamali A. 3D Bioprinting: New directions in articular cartilage tissue engineering. ACS Biomaterials Science & Engineering. 3(11); 2657-2668, Nov., 2017.
26. Bezci SE, **O'Connell GD**. Osmotic pressure alters time-dependent recovery behavior of the intervertebral disc. Spine. Mar 15;43(6):E334-E340, 2018. PMID: 28767637
27. Bezci SE, Klineberg EO, **O'Connell GD**. Effects of Axial Compression and Rotation Angle on Intervertebral Disc Mechanics in Torsion. JMBBM. Jan.; 77:353-359, 2018. PMID: 28965042
28. Ford AC, *Chui WF, Zeng AY, Nandy A, Liebenberg MA, Carraro C*, Kazakia G, Alliston T, **O'Connell GD**. A Modular Approach to Creating Large Engineered Cartilage Surfaces. J Biomech. Jan.; 67: 177-183, 2018.
29. Bezci SE, Eleswarapu A, Klineberg EO, **O'Connell GD**. The contribution of facet joints, axial compression, and composition to human lumbar disc torsion mechanics. JOR. 36(8): 2266-2273, Feb., 2018.
30. Yang B, **O'Connell GD.** Swelling of fiber-reinforced soft tissues is affected by fiber orientation, fiber stiffness, and lamella structure. JMBBM; 82: 320-328, June, 2018. PMID: 29653381.
31. López-Marcial GR, *Zeng AY, Osuna C*, García JM*, **O'Connell GD***. Agarose-Based Hydrogels as Suitable Bioprinting Materials for Tissue Engineering. * co-corresponding authors. ACS Biomaterials 4(10): 3610-3616, Sept., 2018.
32. Pendleton MM, Sadoughi S, Li A, **O'Connell GD**, Alwood JS, Keaveny TM. High-Precision Method for Cyclic Loading of Small Animal Vertebrae to Assess Bone Quality. Bone Reports 9(12): 165-172, Oct., 2018.
33. Werbner B, *Spack K,* **O'Connell GD**. Bovine annulus fibrosus hydration affects rate-dependent failure mechanics in tension. J Biomech. 89: 34-39, May, 2019. 10.1016/j.bonr.2018.10.002
34. Yang B, *Lu Y, Um C*, **O'Connell GD**. Relative Nucleus Pulposus Area and Position Alters Disc Joint Mechanics. J Biomech Eng. 141(5): 051004, May 2019. 10.1115/1.4043029
35. Yang B, **O'Connell GD**. GAG content, fiber stiffness, and fiber angle affect swelling-based residual stress in the intact annulus fibrosus. BMMB 18(3): 617-630, June, 2019. 10.1007/s10237-018-1105-9
36. Bezci SE, Werbner B, Zhou M, Malollari K, *Carraro C*, **O'Connell GD**. Radial variation in biochemical composition of the bovine caudal intervertebral disc. JOR Spine; 2(3), e1065, Sept. 2019. 10.1002/jsp2.1065
37. Eskandari M, Nordgren TM, **O'Connell GD**. Mechanics of Pulmonary Airways: Linking Structure to Function Through Constitutive Modeling, Biochemistry, and Histology. Acta Biomateriala 97(1): 512-523, Oct. 2019. 10.1016/j.actbio.2019.07.020
38. Pendleton MM*, Emerzian S*, Liu J, Tang SY, **O'Connell GD**, Alwood JS, Keaveny TM. Effects of *ex vivo* Ionizing Radiation on Collagen Structure and Whole-Bone Mechanical Properties of Mouse Vertebrae. **These authors contributed equally to the work.* Bone Vol. 128, 115043, Nov., 2019.
39. Soepriantna AH, Yeh AK, Clifford AD, Bezci SE, **O'Connell GD**, Goergen CJ. 3D Myocardial Strain Correlates with Murine Left Ventricular Remodeling Severity Post-Infarction. Journal of the Royal Society 16(160):20190570, Nov., 2019. 10.1098/rsif.2019.0570
40. Yang B, **O'Connell GD**. Intervertebral disc swelling maintains strain homeostasis throughout the annulus fibrosus: A finite element analysis of healthy and degenerated discs. Acta Biomaterialia Vol. 100, 61-74, Dec. 2019. 10.1016/j.actbio.2019.09.035
41. Zhou M*, Werbner B*, **O'Connell GD**. Historical review on combined experimental and computational approaches for investigating annulus fibrosus mechanics. **These authors contributed equally to the work.* Special Article for ASME YC Fung Awardee; J of Biomech. Eng, 142(3), Mar 2020. 10.1115/1.4046186
42. Zhou M, Bezci SE, **O'Connell GD**. Multiscale composite model of fiber-reinforced tissues with direct representation of subtissue properties. *BMMB,* Vol 19(2): 745-759, Apr. 2020. *10.1007/s10237-019-01246-x*

43. Yang B, Wendland M, **O'Connell GD**. Direct water content measurements using quantitative magnetic resonance imaging. *JMRI*, Vol. 52(4):1152-62, Oct. 2020.
44. Bezci SE, Lim S, **O'Connell GD**. Nonlinear stress-dependent recovery behavior of the intervertebral disc. *JMBBM,* Vol. 110, 103881, Oct. 2020. *10.1016/j.jmbbm.2020.103881*
45. Newell N*, Tapia RED, Lim S, Rahman T, **O'Connell GD***, Holsgrove TP*. Influence of testing environment and loading rate on intervertebral disc compressive mechanics: An assessment of repeatability at three different laboratories. *JOR Spine– Special Issue: Protocols, Methods, and Resources for Spine Research,* Vol. 3(3), Sept. 2020. *Indicates co-corresponding authors.
46. Bezci SE, *Torres K, Carraro C, Chiavacci D*, Werbner B, Lim S, **O'Connell GD**. Transient swelling behavior of the bovine caudal disc. *JMBBM,* Vol. 112, 104089, Dec. 2020.
47. Costi JC*, Ledet E*, **O'Connell GD***. Spine Biomechanical Testing Methodologies: The Controversy of Consensus vs Scientific Evidence. *JOR Spine,* Vol. 4(1), Mar. 2021. *Indicates co-corresponding authors.
48. Zhou M, Werbner B, **O'Connell GD**. Fiber engagement accounts for geometry-dependent annulus fibrosus mechanics: A Multiscale, Structure-Based Finite Element Study *Invited Paper for Special Issue: "Cell and Tissue Biomechanics: A Correlation of Structure and Function" to JMBBM,* 115:104292, Mar. 2021.
49. Zhou M, Lim S, **O'Connell GD**. A Robust Multiscale and multiphasic structure-based modeling framework for the intervertebral disc. *Frontiers,* 7;9:685799, June 2021.
50. Yang B, Klineberg E, **O'Connell GD**. Intervertebral Disc Mechanics with Nucleotomy: Differences between simple and complex loading. *J of Biomech Eng.,* Aug 1;143(8):081002, Aug. 2021.
51. Pendleton MM, Emerzian SR, Sadoughi S, Li A, Liu J, Tang SY, **O'Connell GD**, Sibonga JD, Alwood JS, Keaveny TM. Relations between bone quality, microarchitecture, and collagen-crosslinks on mechanics following in vivo irradiation in mice. *J Bone Mineral Research,* Vol. 5(11), e10545, Nov. 2021.
52. Werbner B, *Lee M, Lee A, Yang L*, Habib A, Fields AJ, **O'Connell GD**. Non-enzymatic glycation of annulus fibrosus alters tissue-level failure mechanics in tension. *JMBBM, 126:104992,* Nov. 2021.
53. Yan Y, Fan H, Li Y, Hoeglinger E, Wiesinger A, Barr A, **O'Connell GD**, Harris-Adamson C. Applying wearable technology and a deep learning model to predict occupational physical activities. Applied Sciences. 11(20), 9636, Nov. 2021.
54. Werbner B, McMindes N, Zhou M, *Lee A, Lee M*, **O'Connell GD**. Saline-polyethylene glycol blends preserve annulus fibrosus hydration and mechanics: an experimental and finite element analysis. *JMBBM,* 125:104951, Jan. 2022.
55. Zhou M, Huff RD, *Abubakr Y,* **O'Connell GD**. Torque- and muscle-driven flexion induced disparate risk of in vitro herniation: A multiscale and multiphasic structure-based finite element study. *J Biomech Eng. Invited for special edition.* 144(6):061005, June 2022
56. López-Marcial GR, *Elango K*, **O'Connell GD**. Addition of collagen type I in agarose created a dose-dependent effect on matrix production in engineered cartilage. *Regen. Biomat.* 9, rbac048, Aug. 2022.
57. Lim S, Huff RD, *Veres JE, Satish D*, **O'Connell GD**. Disc geometry measurement methods affect reported compressive mechanics by up to 65%. *JOR Spine.* 5(3), e1214, Sept. 2022.
58. McKinley JP, Montes AR, *Wang MN, Kamath AR, Jimenez G, Lim J, Marathe SA*, Mofrad M, **O'Connell GD.** Design of a flexing organ-chip to model *in situ* loading of the intervertebral disc. Journal of Biomicrofluidics. 16(5), 054111, Oct. 2022.

CONFERENCE PUBLICATIONS

(underline indicates graduate student or postdoc; italics indicate undergraduate student trainee)

1. **O'Connell GD**, Vresilovic EJ, Elliott DM. Comparative Intervertebral Disc Anatomy Across Several Animal Species. Abstract for podium presentation, 52nd Annual Orthopedic Research Society, Paper No. 0011, Chicago, IL USA, 2006.
2. **O'Connell GD**, Johannessen W, Vresilovic EJ, Elliott DM. Human Disc Internal Strains Under Compression Using Magnetic Resonance Imaging. Abstract for podium presentation, 53rd Annual Orthopedic Research Society, Paper No. 0270, San Diego, CA USA, 2007.

3. **O'Connell GD,** Vresilovic EJ, Elliott DM. Recovery of Human Intervertebral Disc Motion Segments Following Axial Compression Loading. Abstract for poster presentation, 6th Annual Combined Meeting of the Orthopaedic Research Societies, Paper No 274, Honolulu, HI USA, 2007.
4. Baker BM, **O'Connell GD**, Sen S, Nathan AS, Elliott DM, Mauck RL. Multi-Lamellar and Multi-Axial Maturation of Cell-Seeded Fiber-Reinforced Tissue Engineered Constructs. ASME Bioengineering Conference, SBC2007-176434, Keystone, CO USA, 2007.
5. **O'Connell GD**, Sen S, Baker BM, Mauck RL, Elliott DM. Biaxial Mechanics of Musculoskeletal Tissue and Fiber-Reinforced Scaffolds. Abstract for podium presentation, ASME Bioengineering Conference, SBC2007-176540, Keystone, CO USA, 2007.
6. **O'Connell GD**, Vresilovic EJ, Elliott DM. Recovery of Human Disc Height and Stiffness Following Axial Compression. Abstract for poster presentation, 54th Annual Orthopedic Research Society, Paper No. 1435, San Francisco, CA USA, 2008.
7. **O'Connell GD**, Guerin HL, Elliott DM. An Anisotropic Hyperelastic Model Applied to Nondegenerate and Degenerate Annulus Fibrosus. Abstract for podium presentation, ASME Bioengineering Conference, SBC2008-192890, Marco Island, FL USA, 2008.
8. Wright AC, Horng D, **O'Connell GD**, Elliott DM. Diffusion Tensor MRI on Human Disc Tissue at 90 mm Isotropic Resolution. Abstract for poster presentation, 55th Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV USA, 2009.
9. **O'Connell GD**, Jacobs JT, Sen S, Vresilovic EJ, Elliott DM. Viscoelastic Recovery of the Human Intervertebral Disc is Much Slower than Creep. Abstract for poster presentation, 55th Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV USA, 2009.
10. **O'Connell GD**, Vresilovic EJ, Elliott DM. Degeneration Alters Intradiscal Strains Under Compression and Bending Loading. Abstract for podium presentation, 55th Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV USA, 2009.
11. **O'Connell GD**, Sen S, Elliott DM. Physiological Biaxial Boundary Conditions Affects Stress-Stretch Behavior of the Annulus Fibrosus. Abstract for podium presentation, 55th Annual Meeting of the Orthopaedic Research Society, 2009.
12. **O'Connell GD**, Malhotra NR, Vresilovic EJ, Elliott DM. Discectomy Increases Internal Strains of the Disc Under Physiological Loads. Abstract for special emphasis poster presentation, Annual Meeting of the International Society for the Study of Lumbar Spine (ISSLS), Miami, FL USA, 2009.
13. **O'Connell GD**, Sen S, Cortes DH, Elliott DM. Biaxial Mechanics are Inhomogenous and Altered with Degeneration in the Human Annulus Fibrosus. Abstract for poster presentation, 56th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA USA, 2010.
14. **O'Connell GD,** Malhotra NR, Vresilovic EJ, Elliott DM. Discectomy Alters The Internal Strains of the Intervertebral Disc. Abstract for podium presentation, 56th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA USA, 2010.
15. Gunja N, Fong JV, Tan AR, Moy MY, Xu D, **O'Connell GD,** Bulinski JC, Ateshian GA, Hung CT. Priming of Synovium-Derived Mesenchymal Stem Cells for Cartilage Tissue Engineering. Abstract for podium presentation, ASME Bioengineering Conference, Naples, FL USA, 2010.
16. Ponnurangam S, **O'Connell GD**, Chernyshova IV, Hung CT, Somasundaran P. Acrylate Copolymeric Nanogels for Tissue Engineering of Articular Cartilage. Abstract for poster presentation, National Meeting of the American Chemistry Society (ACS), Anaheim, CA, USA, 2011.
17. Sampat SR, **O'Connell GD,** Fong JV, Ateshian GA, Hung CT. Optimization of Synovium-Derived Stem Cells for Cartilage Tissue Engineering. Abstract for poster presentation, 57th Annual Meeting of the Orthopaedic Research Society, Long Beach, CA, USA, 2011.
18. Nover AB, **O'Connell GD,** Ateshian GA, Lima EG, Konofagou EE, Hung CT. A Focused Ultrasoud Technique for Modulating Local Tissue Properties for Articular Cartilage Tissue Engineering. Abstract

for podium presentation, 57th Annual Meeting of the Orthopaedic Research Society, Long Beach, CA USA, 2011.

19. **O'Connell GD,** Fong JV, Joffe A, Moy MY, Newman IB, Hung CT. Trimethylamine N-Oxide enhances the Mechanical and Biochemical Properties of Tissue Engineered Cartilage. Abstract for poster presentation, 57th Annual Meeting of the Orthopaedic Research Society, 2011.
20. Gerasimowicz KM, Yoder JH, Tustison NJ, Song G, **O'Connell GD**, Malhotra NR, Vresilovic EJ, Wright AC, Gee JC, Elliott DM. Optimization of Image Registration and Application to Human Disc Mechanics with Nucleotomy. Abstract for podium presentation, Northeast Bioengineering Conference (NEBEC), Toronto, Canada, 2011.
21. **O'Connell GD**, Hung CT, Ateshian GA. Experimental and Theoretical Evaluation of Failure Properties for Immature Tissue Engineered Cartilage. Abstract for poster presentation, ASME Bioengineering Conference, Farmington, PA USA, 2011.
22. **O'Connell GD**, Gollnick C, Ateshian GA, Bellamkonda RV, Hung CT. Beneficial Effects of Chondroitinase ABC Release From Lipid Microtubes Encapsulated in Chondrocyte-Seeded Hydrogel Construct. Abstract for poster presentation, ASME Bioengineering Conference, Farmington, PA USA, 2011.
23. Nover AB, **O'Connell GD**, Ateshian GA, Lima EG, Konofagou EE, Hung CT. Effects of Focused Ultrasounds on Cell Viability in Its Application to Articular Cartilage Engineering. Abstract for poster presentation, BMES Conference, Hartford, CT, USA, 2011.
24. **O'Connell GD,** Dunleavy N, Carapezza M, Ateshian GA, Hung CT. TMAO Supplementation of Culture Media for Engineered Articular Cartilage. Abstract for podium presentation, BMES Conference, Hartford, CT, USA, 2011.
25. Luengo AS, **O'Connell GD.** Annulus Fibrosus Cells as a Potential Cell Source for Nucleus Pulposus Tissue Engineering. Abstract for poster presentation, BMES Conference, Hartford, CT USA, 2011.
26. Nover A, Ye M, Samojilk S, **O'Connell GD**, Ateshian GA, Lima EG, Hung CT. The Influence of Dynamic Loading on Bio-Titanium Hybrid Osteochondral Tissue Engineered Constructs. Abstract for poster presentation, 58th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA USA, 2012.
27. Ponnurangam, S, **O'Connell GD**, Somasundaran P, Hung CT. Microgel-based Delivery of Soluble Factors for Articular Cartilage Engineering. Abstract for poster presentation, 58th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA USA, 2012.
28. Edamura K, Stannard JT, Stoker AM, **O'Connell GD**, Kuroki K, Hung CT, Choma TJ, Jeffries JT, Cook JL. A Whole Organ Culture Model for Intervertebral Disc Using Rat Tail Explants in a Rotating Bioreactor. Abstract for poster presentation, 58th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA USA, 2012.
29. **O'Connell GD**, Carapezza M, Newman IB, Ateshian GA, Hung CT. Applied Dynamic Loading Following chABC Digestion Increases Collagen Production in Engineered Cartilage. Abstract for poster presentation, 58th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA USA, 2012.
30. **O'Connell GD**, Newman IB, Carapezza M, Urban JP, Hung CT. Osmotic Loading Effects on Juvenile Intervertebral Disc Cell Biosynthesis is Dependent on Cell Type and TGF-β3. Abstract for poster presentation, 58th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA USA, 2012.
31. **O'Connell GD**, Gollnick C, Ateshian GA, Bellamkonda RV, Hung CT. Lipid Microtubes Improve Nutrient Transport in Engineered Cartilage. Abstract for podium presentation, 58th Annual Meeting of the Orthopaedic Research Society, San Francisco, CA USA, 2012.
32. Stannard JT, Edamura K, Stoker A, **O'Connell GD**, Kuroki K, Hung CT, Choma TJ, Kuhns CA, Jefferies JT, Reinsel T, Cook, JL. A whole organ culture model for intervertebral disc using rat tail explants in a rotating bioreactor. Abstract for poster presentation, World Spine Forum, Helsinki,

Finland, 2012.

33. **O'Connell GD**, Gollnick C, Ateshian GA, Bellamkonda RV, Hung CT. Lipid Microtubes as a Nutrient Reservoir or Enzyme Delivery Vehicle in Engineered Cartilage. Abstract for poster presentation, ASME Summer Bioengineering Conference, Fajardo, PR USA, 2012.
34. Nover AB, Wood KC, **O'Connell GD**, Essner AP, Klein RW, Napolitano AP, Lima EG, Ateshian GA, Hung CT. Characterization Of Depth-Dependent Mechanical Properties In Bio-Titanium Hybrid Osteochondral Tissue Engineered Constructs. Abstract for poster presentation, ASME Summer Bioengineering Conference, Fajardo, PR USA, 2012.
35. Reinsel TE, Stannard JT, Edamura K, Choma TJ, Stoker A, O'Connell GD, Kuhns CA, Jeffries JT, Cook JL. A novel model for intervertebral disc degeneration using whole organ explants in a rotating bioreactor. Abstract for podium presentation, 27th NASS Annual Meeting, Dallas, TX USA, 2012.
36. Ponnurangam S, **O'Connell GD**, Somasundaran P, Hung CT. Microgel-based Delivery of Bioactive Souble Factors for Articular Cartilage Engineering. Abstract for poster presentation, National Meeting of the American Chemistry Society (ACS), Philadelphia, PA USA, 2012.
37. Nims R, Cigan A, Albro M, **O'Connell GD**, Park D, Hung CT, Ateshian GA. Frequent Chondroitinase Treatment in Engineered Cartilage with Native Level of Cell Seeding Density Does Not Enhance Collagen Deposition and is Detrimental to Chondrocytes. Abstract for poster presentation, 59th Annual Meeting of the Orthopaedic Research Society, San Antonio, TX USA, 2013.
38. Kelly TAN, Roach BL, Mackenzie-Smith CR, **O'Connell GD**, Ateshian GA, Hung CT. Chondroitinase ABC-Treatment Enhances Tension Compression Nonlinearity in Tissue-Engineered Articular Cartilage. Abstract for poster presentation, 59th Annual Meeting of the Orthopaedic Research Society, San Antonio, TX USA, 2013.
39. Ponnurangam S, Chernyshova I, **O'Connell GD**, Woods K, Hung CT, Somasundaran P. Ceria Nanoparticles as Anti-inflammatory Agent in Engineered Articular Cartilage: *In vitro* Raman Microspectroscopy of Single Cells. Abstract for poster presentation, National Meeting of the American Chemistry Society (ACS), New Orleans, LA USA, 2013.
40. Kelly TAN, Roach BL, Mackenzie-Smith CR, Nover AB, Estell EG, **O'Connell GD**, Ateshian GA, Hung CT. Chondroitinase ABC-Digestion and Dynamic Loading Increased Tension-Compression Nonlinearity in Tissue-Engineered Cartilage. Abstract for podium presentation, ASME Summer Bioengineering Conference, Sunriver, OR USA, 06/2013.
41. **O'Connell GD,** Cui VH, Nims RJ, Nover AB, Ateshian GA, Hung CT. Prolonged Treatment of Ultra-Low Dose Chondroitinase ABC Improves Matrix Production in Engineered Cartilage. Abstract for podium presentation, ASME Summer Bioengineering Conference, Sunriver, OR USA, 06/2013.
42. **O'Connell GD**, Cui VH, Palmer G, Hung CT. Differences in Engineered Cartilage from Human Chondrocytes and Mesenchymal Stem Cells in Pellet and Construct Culture. Abstract for poster presentation, to ASME Summer Bioengineering Conference, Sunriver, OR USA, 06/2013.
43. **O'Connell GD**. Experimental and Theoretical Evaluation of Failure Properties for Immature Tissue Engineered Cartilage. Abstract for podium presentation to the 2nd Annual USACM Meeting, Berkeley, CA USA 02/2014.
44. **O'Connell GD,** Carapezza MA, Newman IB. Osmotic Loading and Growth Factor Supplementation Alters Tissue Growth of Intervertebral Disc Cells. Abstract accepted for podium presentation to 60th Annual Meeting of the Orthopaedic Research Society, New Orleans, LA USA, 03/2014.
45. *Bezci SE, Felipe JM*, **O'Connell GD**. Osmotic loading environment alters intervertebral disc mechanical function. Abstract selected as a finalist to the Bachelor's student competition to the 7th World Bioengineering Conference, Boston, MA USA, 07/2014.
46. Tong EL, Kelly TN, **O'Connell GD**, Hung CT. The effect of varying concentrations and application periods of chondroitinase ABC on tissue-engineered cartilage. Columbia University Undergraduate

Research Symposium, Published 09/2014.

47. Bezci SE, **O'Connell GD**. Effect of axial compression on intervertebral disc torsional mechanics. Abstract for poster presentation to the International Society for the Study of the Lumbar Spine (ISSLS) Annual Meeting, San Francisco, CA USA, 06/2015.
48. Ford AC, Wolf K, *Nandy A, Zeng AY*, **O'Connell GD**. Modular tissue engineered cartilage surfaces. Abstract for poster presentation to the Annual Summer Bioengineering Conference (SB3C), Snowbird, UT USA, 06/2015.
49. Bezci SE, **O'Connell GD**. Effect of axial compression on intervertebral disc torsional mechanics. Abstract for poster presentation to the Annual Summer Bioengineering Conference (SB3C), Snowbird, UT USA, 06/2015.
50. Bezci SE, **O'Connell GD**. Effect of rotation angle in disc torsional mechanics. Abstract for poster presentation to the American Society of Biomechanics (ASB) 39th Annual Meeting, Columbus, OH USA, 08/2015.
51. Yang, B, **O'Connell GD.** Effect of Annulus Fibrosus Collagen Orientation on Intervertebral Disc Torsional Mechanical Behavior. Abstract for podium presentation at the Annual Orthopaedic Research Society Meeting, Orlando, FL, 03/2016.
52. Bezci SE, **O'Connell GD**. Axial-torsion behavior of human lumbar intervertebral discs under physiological compressive loads. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, Orlando, FL, 03/2016.
53. Ford AC, *Chui WF, Zeng AY, Nandy A, Liebenberg E,* Alliston T, **O'Connell GD**. Large-Scale Engineered Cartilage Surfaces with Evenly Distributed Properties. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, Orlando, FL, 03/2016.
54. Bezci SE, **O'Connell GD**. Compression-torsion mechanical properties of the human intervertebral joint. Abstract for podium presentation to the International Society for the Study of the Lumbar Spine (ISSLS) Annual Meeting, Singapore, 05/2016.
55. Pendleton MM, Alwood JS, **O'Connell GD**, Keaveny TM. Design of Fatigue Test for Ex-Vivo Mouse Vertebra. Abstract for podium presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), National Harbor, MD, 06/2016.
56. Bezci SE, **O'Connell GD**. Effect of Hydration on Intervertebral Disc Recovery. Abstract for poster presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), National Harbor, MD, 06/2016. *MS Paper Competition Finalist.*
57. Yang B, Zhou M, **O'Connell GD**. Detailed Finite Element Modeling of Fiber-Reinforced Tissues. Abstract for poster presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), National Harbor, MD, 06/2016
58. Bonnheim N*, Werbner B*, **O'Connell GD**. Failure Properties of Annulus Fibrosus: Effects of chABC and Strain Rate. Abstract for podium presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), National Harbor, MD, 06/2016. **These authors contributed equally.*
59. *Change JM,* Emerzian SR, Pendleton MM, Keaveny TM, **O'Connell GD**. Robust Method for Mechanical Testing of Rat Vertebrae to Determine Compressive Bone Properties. Abstract for poster presentation to the Annual BioMedical Engineering Society (BMES) Conference, Minneapolis, MN, 10/2016.
60. *Change JM*, Emerzian SR, Pendleton MM, Keaveny TM, **O'Connell GD**. Robust Method for Mechanical Testing of Rat Vertebrae to Determine Compressive Bone Properties. Abstract for oral presentation to the Gulf Coast Undergraduate Research Symposium (GCURS), Rice University, Houston, TX, 10/2016.
61. Yang B, Zhou M, **O'Connell GD**. Osmotic Swelling Alters Tissue Mechanics in Fiber-Reinforced Tissues. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, San

Diego, CA, 03/2017.

62. Werbner B, **O'Connell GD**. A Method for Repeatable Tensile Total-Life Fatigue Testing of Annulus Fibrosus. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, San Diego, CA, 03/2017.
63. Wendland M, **O'Connell GD**. Herniation and Hydration Alters Quantitative MRI Parameters of the Intervertebral Disc. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, San Diego, CA, 03/2017.
64. **O'Connell GD**. Cartilage tissue engineering: using soft material scaffolds. Abstract for oral presentation to the 253rd Annual American Chemical Society – Division of Polymeric Materials and Science Engineering (PSME), San Francisco, CA 04/2017.
65. Yang B, Jbaily A, *Yintong L*, Szeri AJ, **O'Connell GD**. Lung micromechanics of pulmonary fibrosus: A finite element analysis. Abstract for poster presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Tucson, AZ 06/2017.
66. Yang B, *Habtegebriel YB, Ma Y,* Wendland MF, **O'Connell GD**. A semi-automated approach for creating a subject-specific finite element model of the intervertebral disc. Abstract for poster presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Tucson, AZ 06/2017.
67. Yang B, **O'Connell GD**. Effect of osmotic swelling in soft tissue is dependent on collagen fiber orientation. Abstract for podium presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Tucson, AZ 06/2017. *PhD Paper Competition Finalist.*
68. Werbner B*, Zhou M*, **O'Connell GD**. Finite element method for predicting failure location of annulus fibrosus in uniaxial tension. Abstract for poster presentation to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Tucson, AZ 06/2017. **These authors contributed equally.*
69. Zhou M*, Werbner B*, **O'Connell GD**. Effect of fiber architecture on tissue failure dynamics: A finite element study. Abstract selected as finalist in the MS Paper Competition to the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Tucson, AZ 06/2017. **These authors contributed equally. MS Paper Competition Finalist.*
70. Pendleton MM, Sadoughi S, Li A, Liu JW, **O'Connell GD,** Alwood JS, and Keaveny TM. Effect of spaceflight-relevant ionizing radiation on mechanical properties of mouse vertebrae for repetitive loading. Abstract for poster presentation at ASBMR, Denver, CO 09/2017
71. López-Marcial GR, *Zeng AY, Osuna C*, García JM, **O'Connell GD**. Agarose-alginate hydrogels as suitable bioprinting materials. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, New Orleans, 03/2018.
72. Bezci SE, **O'Connell GD**. Disc torsional mechanics are influenced by axial compression, rotation angle, and disc geometry. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, New Orleans, 03/2018.
73. Zhou M, **O'Connell GD**. Swelling affects failure mechanics of the annulus fibrosus. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, New Orleans, 03/2018.
74. Emerzian SR, Pendleton MM, Li A, Liu JW, Tang SY, Alwood JS, **O'Connell GD**, Keaveny TM. Effect of ex vivo ionizing radiation on static and fatigue properties of mouse vertebral bodies. Abstract for podium presentation at the Annual Orthopaedic Research Society Meeting, New Orleans, 03/2018.
75. Zhou M, Bezci SE, **O'Connell GD**. Effects of specimen geometry and boundary conditions on fiber engagement and mechanical properties. Abstract for podium presentation at the Annual Orthopaedic Research Society Meeting, New Orleans, 03/2018.
76. Yang B, *Um C, Lu Y*, **O'Connell GD**. Effect of Nucleus Pulposus Size and Location on Internal Stresses in the Intervertebral Disc. Abstract for poster presentation at the World Congress of Biomechanics Meeting, Dublin, Ireland, 07/2018.

77. Eskandari M, **O'Connell GD**. Mechanical Characterization of Lung Tissue. Abstract for poster presentation at the World Congress of Biomechanics, Dublin, Ireland, 07/2018.
78. Zhou M, Bezci SE, Borroni-Bird CL, **O'Connell GD**. Modulus of Fiber-Reinforced Tissues is Sensitive to Specimen Dimension. Abstract for poster presentation at the World Congress of Biomechanics Meeting, Dublin, Ireland, 07/2018.
79. Yang B, *Lu Y, Um C*, **O'Connell GD**. Nucleotomy Increases Disc Bending Stiffness under Complex Loading Modalities. Abstract for podium presentation at the World Congress of Biomechanics Meeting, Dublin, Ireland, 07/2018.
80. Yang B, **O'Connell GD**. Residual Strain in the Annulus Fibrosus Decreases with Disc Degeneration. Abstract for podium presentation at the World Congress of Biomechanics Meeting, Dublin, Ireland, 07/2018.
81. Emerzian SR, Pendleton MM, Li A, Liu JW, Tang SY, Alwood JS, **O'Connell GD**, Keaveny TM. Ionizing radiation from ex vivo sterilization diminishes collagen integrity and vertebral body mechanics. Abstract submitted for the 8th World Congress of Biomechanics, Dublin, Ireland, 2018.
82. Lim D, Georgiou T, Bhardwaj A, **O'Connell GD**, Agogino AM. Customization of a 3D Printed Prosthetic Finger Using Parametric Modeling. *ASME – IDETC/CIE*, 06/2018, Quebec City, Canada.
83. Bezci SE, Werbner B, Zhou M, **O'Connell GD**. Radial variations in composition and swelling properties of bovine caudal discs. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, Austin, TX, 02/2019.
84. Zhou M, **O'Connell GD**. Hydration Mitigates Rapid Changes in Microscopic Strains of the Annulus Fibrosus During Tensile Loading. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, Austin, TX, 02/2019.
85. Werbner B, *Spack K*, **O'Connell GD**. Effect of Proteoglycan and Water Content on Annulus Fibrosus Failure Mechanics. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, Austin, TX, 02/2019.
86. Bezci SE, Carraro C, **O'Connell GD**. A novel method for measuring water distribution in the intervertebral disc using Raman spectroscopy. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, Austin, TX, 02/2019.
87. Emerzian SR, Pendleton MM, **O'Connell GD**, Alwood JS, Keaveny TM. Ionizing Radiation from Ex Vivo Sterilization Diminishes Fatigue but Not Static Murine Vertebral Body Mechanics. Abstract for poster presentation at the Annual Orthopaedic Research Society Meeting, Austin, TX, 02/2019.
88. Yang B, **O'Connell GD**. Residual stress and pressure formation due to swelling of tissues within the intervertebral disc. Abstract submitted for presentation at the Annual Orthopaedic Research Society Meeting, Austin, TX, 02/2019.
89. **O'Connell GD**, López-Marcial GR, García JM. 3D Printable Bioinks for Soft Tissue Engineering. Invited Abstract for the National Academy Science/USNCTAM/AmeriMech conference, Berkeley, CA, 06/2019.
90. Soepriatna AH, Boyle JJ, Clifford AD, Yeh AK, Bezci SE, **O'Connell GD**, Goergen CJ. 3D Strain gradients correlate with murine myocardial infarct severity. Abstract for podium presentation to the Annual SB3C Meeting, Pennsylvania, PA, 06/2019.
91. Yang B, Wendland MF, *Ma Y*, **O'Connell GD**. Direct quantification of intervertebral disc water content using magnetic resonance imaging. Abstract for podium presentation to the Annual SB3C Meeting, Pennsylvania, PA, 06/2019.
92. Werbner B, *Spack K*, **O'Connell GD**. Annulus Fibrosus Hydration Affects Rate-Dependent Failure Mechanics In Tension. Abstract for invited podium presentation to the 3rd International Workshop on Spine Biomechanics, Berlin, Germany, 07/2019.
93. Eskandari M, **O'Connell GD**. Constitutive Modeling of Lung Bronchi. Invited presentation to the 16th

International Symposium on Computer Methods in Biomechanics and Biomedical Engineering (CMBBE) Meeting, New York City, NY, 08/2019.

94. Zhou M, **O'Connell GD**. Novel Structure-based Model for Investigating Damage in the Annulus Fibrosus. Invited presentation to the 16th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering (CMBBE) Meeting, New York City, NY, 08/2019.
95. Werbner B, Habib M, Fields AJ, **O'Connell GD**. Human Annulus Fibrosus Failure Mechanics are Correlated with Tissue Composition. Accepted for poster presentation to the ORS PSRS 5th International Spine Research Symposium (Skytop, PA, 11/2019).
96. *Elango K*, Lopez-Marcial GR, **O'Connell GD**. Towards development of engineered tissues with gradients: Tensile and compressive properties of agarose-alginate hydrogels with collagen. Abstract for podium and poster presentation to the Annual ORS Meeting (Phoenix, AZ, 03/2020).
97. Werbner B, Habib M, Fields AJ, **O'Connell GD**. Human Annulus Fibrosus Failure Mechanics are Correlated with Tissue Composition. Accepted for poster presentation to the Annual ORS Meeting (Phoenix, AZ, 03/2020).
98. Zhou M, *Vickers EN*, **O'Connell GD**. Hydration and fiber architecture affect failure initiation and accumulation at the fiber-matrix interface. Abstract accepted for oral presentation at the annual SB3C meeting, 06/2020, virtual meeting due to COVID19.
99. Zhou M, *Vickers EN*, **O'Connell GD**. Effect of subtissue level fiber-matrix stiffness gradient on annulus fibrosus mechanics. Abstract accepted for oral presentation at the annual SB3C meeting, 06/2020, virtual meeting due to COVID19.
100. McKinley JP, *Quinnert A, Jimenez G*, López Marcial GR, **O'Connell GD.** Mechanically Active Microfluidic Device to Mimic Tensile Hoop-Strains in the Annulus Fibrosus. Abstract accepted for an oral presentation at the annual BMES meeting (virtual meeting due to COVID), 10/2020.
101. Lindberg E, Jamali A, Alliston T, **O'Connell GD**. Growth Factor Priming of Chondrocytes During Expansion Culture Inhibits Pro-inflammatory Cytokine Signaling. Abstract accepted for virtual presentation at the annual ORS meeting, 03/2021.
102. Zhou M, **O'Connell GD**. Novel Multiscale Structure-Based Model of the Bovine Caudal Disc Motion Segment. Abstract accepted as finalist for the PhD Competition at the annual SB3C meeting (virtual), 06/2021.
103. Darling AJ, Earl CC, Damen FW, Chen N, Mendoza T, Yu D, **O'Connell GD**, Harris Adamson C, Goergen CJ. Evaluating Flexor Digitorum Superficialis Tendon Fatigue Using High-Frequency Ultrasound Based Strain Algorithms. Accepted as an undergraduate student poster presentation to the annual SB3C meeting (virtual), 06/2021.
104. Alleyne F, Vides R, **O'Connell GD**. Combining Forces: Putting Equity to Work. Annual CoNECD Conference, 03/2022, New Orleans, LA.
105. López-Marcial GR, **O'Connell GD**. Addition of collagen type I in agarose creates a dose-dependent effect on matrix production in engineered cartilage. Abstract accepted for a poster presentation at the annual ORS meeting, *02/2022*.
106. Lindberg ED, *Wu T*, Cotner K, Sohn L, **O'Connell GD**. Priming chondrocytes during expansion culture alters cytoskeletal configuration and matrix production. Abstract accepted for poster presentation at the annual ORS meeting, 02/2022.
107. Zhou M, *Abubakr Y*, **O'Connell GD**. Torque- and muscle-driven flexion induces disparate behavior in disc mechanics. Abstract accepted for poster presentation at the annual ORS meeting, *02/2022*.
108. Zhou M, Huff RD, Abubakr Y, **O'Connell GD**. Torque- and muscle-driven flexion provoke disparate risk of herniation. Abstract accepted for oral presentation at the annual ISSLS meeting, *05/2022*.
109. Arevalo S*, Montes A*, **O'Connell GD**. Measuring the impact of research talks for mechanical engineering undergraduate students: improving accessibility to research opportunities and building confidence to engage in technical discussions. Abstract accepted for presentation at the annual ASEE

Mechanical Engineering Division Conference, *06/2022 (Minneapolis, MN). *These authors contributed equally to the study.*

110. Ghajar-Rahimi E, Lim S, Earl CC, Huff RD, **O'Connell GD**, Georgen CJ. Quantification of intervertebral disc strain from high-resolution ultrasound imaging during dynamic loading. Abstract accepted for poster presentation to the Annual Summer Bioengineering (SB3C) Conference, *06/2022*.
111. Lim S, Huff RD, *Veres JE*, Satish D, **O'Connell GD**. Disc geometry measurement methods alter reported compressive mechanics by up to 65%. MS Paper Finalist. Abstract submitted for presentation to the Annual Summer Bioengineering (SB3C) Conference, *06/2022*.
112. Zhou M, Huff RD, *Abubakr Y*, **O'Connell GD**. Torque- and muscle-driven flexion provoke disparate risk of herniation. Invited presentation at the 9th World Congress of Biomechanics, *07/2022*.

PUBLICATIONS IN REVIEW OR PREPARATION

JOURNAL ARTICLES

1. Glazer AK, Luo H, Devgon S, Yao X, Siwei S, McQuarrie F, Li Z, Palma A, Wan Q, Gu W, Sen A, Wang Z, **O'Connell GD**, Stark PB. Look Who's Talking: Gender Bias in Academic Job Talks. *PLOS – In review, 01/2022*.
2. Abed MR, Archibeck ES, Isied RS, *Feteih Y*, **O'Connell GD**, Gu GX. Influence of Radial Stiffness Gradients on Porous Composite Bulk Mechanics. *Advanced Engineering Materials – In review, 11/2022*.

CONFERENCE PROCEEDINGS

1. Zhou M, Archibeck E, *Feteih Y, Abubakr Y*, **O'Connell GD**. Non-enzymatic glycation strengthens annulus fibrosus through crosslinks aligned with primary collagen fibers. Submitted for presentation to the annual SB3C Conference (Vail, CO, 06/2023).
2. Huff RD, Houghton FC, Earl CC, Ghajar-Rahimi E, Dogra I, Darling SAJ, Damen FW, Zhou G, Yu D, Goergen CJ, Harris-Adamson C, **O'Connell GD**. Deep learning enables accurate estimation of tissue deformation *in vivo*. Submitted for presentation to the annual SB3C Conference (Vail, CO, 06/2023).
3. Lim S, *Veres JF*, Almeida E, **O'Connell GD**. Bulk Properties of the Murine Spine are Maintained During 30-Days of Microgravity on the International Space Station. Submitted for presentation to the annual SB3C Conference (Vail, CO, 06/2023).

BOOK CHAPTERS

1. **O'Connell GD**, Lima EK, Bian L, Chahine NO, Albro MB, Cook JL Ateshian GA, Hung CT. *Chapter 15: Toward Engineering a Biological Joint Replacement.* Articular Cartilage Injury of the Knee, 162-74, 2013.

INVITED TALKS & KEYNOTE PRESENTATIONS

April 2011	Orthopaedic Research Day, University of Missouri, MO; *Title – Noninvasive Assessment Of Intervertebral Disc Biomechanics*
Dec. 2011	Mechanical Engineering Seminar Series, University of Connecticut, Storrs, CT; *Title - Soft Tissue Biomechanics and Functional Tissue Engineering*
Feb. 2012	Mechanical Engineering Seminar Series, Washington University, St. Louis, MO; *Title - Soft Tissue Biomechanics and Functional Tissue Engineering*
Mar. 2012	Bioengineering Seminar Series, Yale University, New Haven, CT; *Title - Soft Tissue Biomechanics and Functional Tissue Engineering*
Mar. 2012	Mechanical Engineering Seminar Series, Georgia Technological Institute, Atlanta, GA; *Title - Soft Tissue Biomechanics and Functional Tissue Engineering*
Sept. 2012	Mechanical Engineering Seminar Series, Eindhoven University of Technology, Eindhoven, Netherlands; *Title - Soft Tissue Biomechanics and Functional Tissue Engineering*
Feb. 2013	Biomedical Engineering Seminar Series, City College of New York, NY; *Title - Soft Tissue Biomechanics and Functional Tissue Engineering*

Nov. 2013	Bioengineering Seminar Series, University of California, Davis, CA; *Title - Soft Tissue Biomechanics and Functional Tissue Engineering*
Mar. 2014	UC Berkeley Nanosciences and Nanoengineering Institute (BNNI) Seminar Series, Berkeley, CA; *Title - Engineering Biological Tissues for Relieving Back Pain*
Apr. 2014	Mechanical Engineering Seminar Series, Stanford University, Palo Alto, CA; *Title - Engineering Biological Tissues for Relieving Back Pain*
May 2014	Orthopaedic Surgery and Radiology Departments UCSF, San Francisco, CA; *Title - Towards Developing Personalized Cartilage Repair*
Apr. 2015	Keynote Address, Society of Women Engineers, University of California, Berkeley
May 2015	Biomechanics Seminar Series, Department of Mechanical Engineering, UC San Diego, CA; *Title - Towards Developing Personalized Cartilage Repair*
Oct. 2015	Biomaterials Seminar, IBM Almaden Research Center, San Jose, CA; *Title - Developing Patient-Specific Engineered Cartilage Using Soft Biomaterial Scaffolds*
Jan. 2016	MedTech Frontiers Seminar Series, Triple Ring Technologies, Newark, CA; *Title - Developing Personalized Cartilage Repair*
July 2016	Institute of Orthopaedic Research and Biomechanics, University Hospital Ulm, Ulm, Germany; *Intervertebral Disc Biomechanics*
Sept. 2016	Biomedical Engineering Seminar, Tulane University, New Orleans, LA; *Intervertebral Disc Biomechanics with Swelling and Injury*
Oct. 2016	Keynote, Blue & Gold Leadership Dinner, UC Berkeley (College of Engineering & Engineering Student Council)
Feb. 2017	Lawrence-Berkeley National Laboratory, Berkeley, CA; *Intervertebral Disc Biomechanics with Swelling and Injury*
Mar. 2017	The Buck Institute for Research on Aging, Novato, CA; *Intervertebral Disc Biomechanics with Swelling and Injury*
Apr. 2017	253rd American Chemical Society Annual Meeting, Polymer Materials and Science Engineering Division Young Investigator Symposium, San Francisco; *Cartilage tissue engineering: using soft material scaffolds*
June 2017	European Chapter Meeting of the Tissue Engineering and Regenerative Medicine International Society 2017, Davos, Switzerland; *Design Considerations for Repairing the Annulus Fibrosus (Not given due to weather impacted travel)*
Sept. 2017	Mechanical Engineering Seminar, Johns Hopkins University, Baltimore, MD; *Intervertebral Disc Biomechanics with Swelling and Injury*
Sept. 2017	Bioengineering Seminar, University of Delaware, Newark, DE; *Intervertebral Disc Biomechanics with Swelling and Injury*
Sept. 2017	Mechanical Engineering Seminar, Cornell University, Ithaca, NY; *Intervertebral Disc Biomechanics with Swelling and Injury*
Sept. 2017	Mechanical Engineering Seminar, Michigan State University, East Lansing, MI; *Intervertebral Disc Biomechanics with Swelling and Injury*
Nov. 2017	Society of Women Engineers (SWE) Mini-University, University of California – Berkeley
Jan. 2018	UC Berkeley – Autodesk Symposium, Berkeley, CA; *Towards Patient Specific Planning for Spine Surgery*
Sept. 2018	Research Seminar, UC Berkeley Campus Shared Services, *Pain in the Back*
Sept. 2018	Panelist, NextProf Workshop, "Building a Research Program"
Jan. 2019	Biomedical Engineering Seminar, University of Texas – Austin, Austin, TX; *Intervertebral Disc Biomechanics with Swelling and Injury*
Feb. 2019	Presenter, "In vitro/ in vivo Spine Biomechanics" at the 2019 Spine Section Meeting, Austin, TX
Apr. 2019	UCSF CCMBM & Orthopaedic Surgery Retreat, *Intervertebral Disc Biomechanics – what we've learned in the laboratory.*

May 2019 Presenter, 40th Anniversary of the McKay Orthopaedic Research Laboratory at the University of Pennsylvania, Philadelphia, PA

May 2019 Faculty Panelist, *Critique as a Way of Learning* in the Showcase of Teaching Innovation and Reinvention (STIR) series at the Academic Innovation Studio

Jun 2019 Presenter, National Academy of Sciences/USNCTAM/AmeriMech Conference at the University of California – Berkeley, Berkeley, CA, *"3D Bioinks for Soft Tissue Engineering"*

July 2019 Presenter, 3rd International Workshop on Spine Biomechanics, Berlin, Germany

Nov. 2019 Presenter, Biomechanical Interaction of Disc Substructures, 5th annual ORS PSRS Meeting, Skytop, PA

Aug. 2020 Virtual Presenter, ORS Spine Section Virtual Scientific Session, Spine Biomechanics Consensus Paper on Testing Methods.

April 2021 Presenter, Musculoskeletal Seminar Series at UCLA

July 2021 Presenter, USNCCM Symposium, Quantification and Modeling of Spatially Heterogeneous Phenomena in Biological Materials.

Oct 2021 Presenter, Purdue Bioengineering Seminar Series, "*Structure-based multiscale model of the intervertebral disc to study risk of mechanical failure.*"

April 2022 Presenter, Euromech Conference on 'Current Challenges in Soft Tissue Mechanics', Frankfurt, Germany, "*3D modeling of the intervertebral disc: direct relationship between tissue composition and model parameters*"

April 2022 Keynote Speaker, International Conference on Computational Bioengineering 2022 (ICCB2022), Lisbon, Portugal, "*3D modeling of the intervertebral disc: direct relationship between tissue composition and model parameters*"

Feb. 2022 Panelist, ORS 2022 Meeting on DEI efforts

Apr. 2022 Presenter, University of Minnesota Mechanical Engineering Seminar Series, "*Structure-based multiscale model of the intervertebral disc to study risk of mechanical failure*."

July 2022 Presenter, University of Colorado – Boulder, Mechanical Engineering Seminar Series, *"3D Modeling of the Intervertebral Disc: Direct relationships between tissue composition and model parameters"*

Dec. 2022 Presenter, University of Florida Biomedical Engineering Seminar Series, *"3D Modeling of the Intervertebral Disc: Direct relationships between tissue composition and model parameters"*

Feb. 2023 Keynote Speaker, ORS 2023 Meeting, *"Multi-scale modeling of the intervertebral disc: Opportunities to create better tools for planning spine surgery"*

Apr. 2023 Presenter, Notre Dame, Mechanical Engineering Seminar Series, *"3D Modeling of the Intervertebral Disc: Direct relationships between tissue composition and model parameters"*

July 2023 Keynote Speaker, European Society of Biomechanics, Maastricht, Netherlands, "*3D Modeling of the Intervertebral Disc: Direct relationships between tissue composition and model parameters"*

Sept. 2023 Keynote, International Conference of the Polish Society of Biomechanics (Wroclaw, Poland)

PATENTS

Apr. 2016 Tissue Culture Method for Producing Cartilage Using Trimethylamine N-Oxide and Chondroitinase (Inventors: Clark T. Hung, PhD and Grace D. O'Connell, PhD; Columbia University; Patent no. 9321993)

Oct. 2021 Geometrically Defined Actuation for a Mechanically Active Organ-on-a-chip (Inventors: Jonathan McKinley, PhD and Grace D. O'Connell, PhD; UC Berkeley - B21-049 - Application)

Feb. 2022 An Interface or Robotic Gripper for an Assistive Medical Device (Inventors: Todd Roberts, Bianca Riello, Owen Kent, Pablo David Amor Lacaba, Grace O'Connell; Application #: 63/313,713)

Feb. 2022 Biomechanical Alignment Verification System for an Assistive Medical Device (Inventors: Todd Roberts, Bianca Riello, Owen Kent, Pablo David Amor Lacaba, Grace O'Connell; Application #: 63/313,717)

ADVISEES

CURRENT RESEARCH GROUP MEMBERS

Postdoctoral Fellows

2022 - Mr. Minhao Zhou, PhD Mechanical Engineering

Graduate Students

2017 - Mr. Emily Lindberg, Mechanical Engineering PhD Candidate, NSF Graduate Fellow
2019 - Mr. Jonathan McKinley, PhD Candidate, Mechanical Engineering Graduate Student
2019 - Ms. Shiyin Lim, Mechanical Engineering, Graduate Student
2019 - Ms. Yishu Yan, Mechanical Engineering, Graduate Student (co-advised by Professor Carisa Harris)
2021 - Mr. Reece Huff, Mechanical Engineering, Graduate Student, NSF Graduate Fellow
2021 - Ms. Erin Archibeck, Mechanical Engineering, Graduate Student, NSF Graduate Fellow
2021 - Ms. Melissa Abed, Mechanical Engineering, Graduate Student
2021 - Ms. Amber Young, Mechanical Engineering, Graduate Student (co-advised by Professor Carisa Harris)

Undergraduate Students

1. 09/2020 - Ms. Joanna Veres, Bioengineering
2. 01/2021 - Mr. Yousuf Abubakr, Mechanical Engineering
3. 05/2022 - Ms. Yarah Feteih, Mechanical Engineering
4. 05/2022 - Ms. Xi (Phoebe) Liu, Bioengineering, minor in Mechanical Engineering

POSTDOC ALUMNI

1. 2018 - 2019 Ms. Mona Eskandari, *Position after lab: Assistant Professor UC Riverside*

GRADUATE STUDENT ALUMNI

1. 2014 - 2015 Ms. Audrey Ford, MS, Mechanical Engineering; *Position after lab: PhD candidate under Prof. Lisa Pruitt (Polymer Mechanics)*
2. 2014 - 2018 Ms. Megan Pendleton, PhD Mechanical Engineering, NASA Space Technology Research Fellow; *Position after lab: UCSF Medical School*
3. 2015 - 2018 Ms. Shannon Emerzian, Mechanical Engineering PhD Graduate Student, UC Berkeley Graduate Fellow, NSF Graduate Fellow, *Position after lab: PhD candidate under Prof. Tony Keaveny (Bone Biomechanics)*
4. 2014 - 2019 Mr. Bo Yang, Mechanical Engineering PhD Mechanical Engineering, J.K. Lee Fellow; *Position after lab: Engineer at LinkedIn*
5. 2015 - 2019 Mr. Semih Bezci, Mechanical Engineering PhD Candidate, William C. Webster Graduate Fellow, *Position after lab: Data Scientist for Ebay*
6. 2018 – 2020 Ms. Nicole McMindes, Mechanical Engineering MS Graduate Student, *Position after lab: Mechanical Engineer at Gore Biomedical, AZ*
7. 2019 – 2020 Ms. Annie LaBine, Mechanical Engineering Graduate Student
8. 2015 - 2021 Mr. Benjamin Werbner, Mechanical Engineering PhD Candidate, *Position after lab: Postdoctoral Fellow at University of Utah*
9. 2015 – 2021 Mr. Minhao Zhou, Mechanical Engineering PhD Candidate, Finnie Fellow, *Position after lab: Postdoctoral Fellow at University of California, Berkeley*

10. 2020-2022 Mr. Frederick Houghton, MS, Mechanical Engineering, UCB Undergraduate & 5th Year MS Student
11. 2016 - 2022 Mr. Gabriel Lopez, Mechanical Engineering PhD Candidate, NSF Graduate Fellow, *Position after lab: Biomechanics Expert at Exponent, Philadelphia, PA*

UNDERGRADUATE STUDENT ALUMNI

1. 2007 – 2009 Mr. Sounok Sen, Bioengineering, University of Pennsylvania
2. 2009 – 2012 Ms. Alba Luengo, Biomedical Engineering, Columbia University
3. 2009 – 2011 Mr. Man-Yu Moy, Biomedical Engineering, Columbia University
4. 2010 – 2012 Mr. Michael Carapezza, Biomedical Engineering, Columbia University
5. 2010 – 2011 Ms. Isabella Newman, Biomedical Engineering, Columbia University
6. 2011 – 2013 Ms. Victoria Cui, Biomedical Engineering, Columbia University
7. 2011 – 2012 Ms. Kelly Lin, Biomedical Engineering, Columbia University
8. 2013 – 2015 Mr. Semih Bezci, Mechanical Engineering
9. 2013 – 2015 Mr. Joseph Felipe, Mechanical Engineering (*Position after lab:* Engineer, Velo3D, Campbell, CA)
10. 2014 – 2015 Mr. Aditya Nandy, Chemical Engineering
11. 2014 Mr. David Zarrin, Mechanical Engineering
12. 2014 Mr. Zhengtang Yang, Mechanical Engineering
13. 2014 Mr. Grant Albert-Waldman, Mechanical Engineering
14. 2014 - 2016 Ms. Naomi Kibrya, Mechanical Engineering Undergraduate Student (*Position after lab:* Engineer, Stryker, Dallas, TX)
15. 2014 - 2017 Ms. Anne Zeng, Bioengineering Undergraduate Student
16. 2015 Ms. Catherine Choi, Bioengineering Undergraduate Student
17. 2015 - 2016 Mr. Gerald Santos, Mechanical Engineering Undergraduate Student (*Position after lab:* Mechanical Engineer, Gilead Sciences, San Dimas, CA)
18. 2016 – 2016 Mr. Minhao Zhou, Mechanical Engineering Undergraduate Student (*Position after lab:* PhD graduate student at UC Berkeley – Mechanical Engineering)
19. 2015 - 2017 Mr. Aran Bahl, Bioengineering Undergraduate Student (*Position after lab:* Engineering Consultant, Accenture, San Francisco, CA)
20. 2015 - 2017 Ms. Yeabsra Habtegebriel, Mechanical Engineering
21. 2015 - 2017 Mr. Wan Fung Chui, Electrical Engineering and Computer Science (*Position after lab:* Medical Student at Harvard/MIT)
22. 2016 Ms. Hannah Tang, Bioengineering Undergraduate Student
23. 2016 Mr. Zachary Chou, Bioengineering Undergraduate Student, QB3 Lab Fundamentals Bootcamp Scholar
24. 2016 Mr. Arbaaz Shakir, Mechanical Engineering Undergraduate Student
25. 2016 - 2017 Mr. Samuel Pliska, Mechanical Engineering Student
26. 2016 - 2017 Ms. Rachel Perez Thomasson, Bioengineering
27. 2016 - 2017 Mr. Gary Hoang, Electrical Engineering and Computer Science
28. 2016 – 2017 Ms. Yu Ma, Mathematics
29. 2017 - 2018 Ms. Katherine Spack, Bioengineering; *Position after lab:* PhD student in Bioengineering at Columbia University
30. 2017 - 2018 Mr. Dominic Chiavacci, Bioengineering
31. 09/2016 – 05/2018 Mr. Albert Wang, Bioengineering Undergraduate Student
32. 09/2016 – 05/2018 Mr. Colin Um, Mechanical Engineering Undergraduate Student
33. 01/2017 – 05/2018 Mr. Aditya Goel, Molecular Cell & Biology
34. 08/2017 – 05/2018 Ms. Christina Laura Borroni-Bird, Mechanical Engineering
35. 08/2017 – 05/2018 Mr. Max Sigerman, Mechanical Engineering
36. 08/2017 – 05/2018 Mr. Chase Swerdlick, Molecular Cell & Biology

37. 08/2017 – 05/2019 Mr. Matthew Sie, Bioengineering & EECS; *Position after lab:* Engineer, National Biomechanics Institute, Los Angeles, CA
38. 05/2018 – 05/2020 Ms. Keerthana Elango, Bioengineering; *Position after lab:* Systems engineer at Illumina (biotech), San Diego, CA
39. 05/2019 – 05/2020 Ms. Gissell Jimenez, Bioengineering (BioESP Program, McNair Scholar)
40. 05/2019 – 05/2020 Mr. Anthony Quinnert, Bioengineering; *Position after lab:* Postgraduate Research Associate or PGRA at Yale with Professor Moitrayee Bhattacharyya
41. 05/2019 – 12/2019 Mr. Eric Neubauer Vickers, Molecular Cell & Biology
42. 08/2019 – 12/2019 Mr. Adrian Van, Mechanical Engineering
43. 08/2019 – 12/2019 Ms. Xiomara Gonzalez, Mechanical Engineering; *Position after lab:* PhD student at UT Austin EECS
44. 08/2019 – 05/2020 Mr. Noah Bussell, Mechanical Engineering
45. 08/2019 – 05/2020 Mr. Brian Huo, Bioengineering, Electrical Engineering & Computer Science; *Position after lab:* PhD Student at UC Davis
46. 08/2019 – 12/2020 Mr. Christian Leycam, Mechanical Engineering; *Position after lab:* Graduate student at San Jose State University (MS, Biomedical Engineering)
47. 08/2019 – 12/2020 Ms. Linda Yang, Bioengineering
48. 08/2019 – 05/2021 Mr. Allan Lee, Bioengineering
49. 08/2019 – 05/2021 Mr. Matthew Lee, Mechanical Engineering
50. 01/2020 – 05/2020 Mr. Jay Huber, Mechanical Engineering (ME178 continuation); *Position after lab:* Graduate student (MS) at Washington University
51. 01/2020 – 05/2020 Ms. Tiana Johnson Kidd, Mechanical Engineering (ME178 continuation)
52. 01/2020 – 05/2020 Mr. Keitaro Murakami, Mechanical Engineering (ME178 continuation)
53. 01/2020 – 05/2020 Mr. Kei Takanami, Architecture (ME178 continuation)
54. 01/2020 – 05/2020 Ms. Revati Thatte, Mechanical Engineering (ME178 continuation); *Position after lab:* Technical writer at Google
55. 01/2020 – 05/2020 Ms. Kristin Yamane, Mechanical Engineering (ME178 continuation); *Position after lab:* Undergraduate research assistant, Embodied Dexterity Group (UCB)
56. 01/2020 – 05/2020 Mr. Joshua Ott, Mechanical Engineering (COVID19 PREVENT); *Position after lab:* PhD student at Stanford (Aerospace Engineering)
57. 01/2020- 12/2021 Ms. X Sun, Mechanical Engineering (COVID19 PREVENT & lab); *Position after lab:* PhD student at UC Berkeley (Hayden Taylor's lab)
58. 08/2020 – 12/2020 Mr. David Gomez Siu, Bioengineering
59. 08/2020 – 12/2021 Ms. Tiffany Wu, Bioengineering
60. 01/2021 – 05/2021 Mr. Freddie Houghton, Mechanical Engineering; *Position after lab:* 5th Years MS student, graduate student researcher
61. 05/2021 – 12/2021 Ms. Anuya Kamath, Bioengineering
62. 05/2021 – 12/2021 Mr. Siddharth Marathe, Bioengineering
63. 08/2021 – 12/2021 Ms. Maple Wang, Bioengineering
64. 08/2021 – 12/2021 Ms. India Ott, Bioengineering

VISITORS TO RESEARCH GROUP

Graduate Researchers

2014 Mr. Andrew Burg, Mechanical Engineering Master's Student, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland

08/2017 – 02/2018 Ms. Ellen van Rooji, Mechanical Engineering Master's Student, Eindhoven Technical University, Eindhoven, The Netherlands (Advisor: Prof. Keita Ito)

Undergraduate Researchers

1. 2014 Mr. Wenhao Deng, Chemical Engineering Undergraduate Student, Ohio State University

2. 2016 Mr. Jason Chang, Biomedical Engineering Undergraduate Student, University of Texas – Dallas (Amgen Scholar)
3. 2016 Mr. Massimo Terreri, Mechanical Engineering Undergraduate Student, Marche Polytechnic University, Ancona, Italy
4. 2017 Ms. Kai Littlejohn, Chemical Engineering Undergraduate Student, Tuskegee University (Amgen Scholar)
5. 2017 Mr. Carlos Osuna, Nanoengineering Undergraduate Student, UC San Diego (UC LEADS Program, Advisor: Professor Robert Sah)
6. 2021 Ms. Cameryn Brunette, Civil Engineering, Howard University (UCOP HBCU Initiative)

Graduate Research Assistants (rotation term): Ms. Sonal Sampat (2009-2010), Mr. Adam Nover (2010-2012), Mr. Sathish Ponnurangam (2010 – 2014), Nikhil Joshi (2010), Ms. Katelyn Cabral (F2014, BioE), Ms. Kayla Wolf (F2014, BioE), Yasmin Graham (F2019, BioE), Karim Khattab (S2020, BioE)

DISSERTATION COMMITTEE MEMBERSHIP *(*indicates committee chair, ^indicates co-chair)*

1. 2014 - 2017 Ms. Ann Ouyang, UC Berkeley Bioengineering, *"Effects of Design Factors and Microenvironment on Mesenchymal Stem Cells and Nucleus Pulposus Cells for Intervertebral Disc Tissue Engineering"*
2. 2014 -2017 Ms. Britta Berg-Johansen, UC Berkeley Bioengineering, *"Characterization of the Spinal Disc-Vertebra Interface and its Relation to Back Pain and Injury"*
3. 2014^ -2018 Ms. Megan Pendleton, UC Berkeley Mechanical Engineering, co-chair with Prof. Tony Keaveny, *"Effects of Ionizing Radiation on Bone Mechanics for Spaceflight & Clinical Applications"*
4. 2016 - 2018 Mr. Junghyun Kim, UC Berkeley Mechanical Engineering, *"Mechano-NPS and Visco-NPS: Microfluidic Approaches to Single-Cell Mechanics"*
5. 2016 - 2019 Mr. Jiacheng Wu, UC Berkeley Mechanical Engineering, *"Modeling Vascular Homeostasis and Improving Data Filtering Methods in Model Calibration"*
6. 2016 - 2018 Mr. Adam Updegrove, UC Berkeley Mechanical Engineering, *"Patient-Specific Vascular Model Construction and Modification for Blood Flow Simulation and Analysis"*
7. 2016* - 2019 Mr. Bo Yang, UC Berkeley Mechanical Engineering, *"Simulating Intervertebral Disc Mechanics Using Finite Element Method"*
8. 2017 - 2019 Ms. Courtney Mazur, UC Berkeley Bioengineering
9. 2017 - 2018 Mr. Logan Van Engelhoven, UC Berkeley Mechanical Engineering, "*Design and Evaluation of a Shoulder Supporting Exoskeleton for Occupational Use"*
10. 2018* - 2019 Mr. Semih Bezci, UC Berkeley Mechanical Engineering, *"Time-dependent Characterization of Fluid Flow Behavior into the Intervertebral Disc"*
11. 2018 - 2020 Mr. Noah Bonnheim, UC Berkeley Mechanical Engineering, *"Fundamental Mechanisms of Load Transfer in the Human Vertebral Body Following Lumbar Total Disc Arthroplasty"*
12. 2018 - 2020 Mr. Devante Horne, UC Berkeley Bioengineering, *"Development of Novel Energy-based Musculoskeletal Therapies"*
13. 2018 – 2019 Mr. Nathan Poon, UC Berkeley Mechanical Engineering
14. 2018 - 2021 Ms. Claudia Iriondo, UC Berkeley Bioengineering, *"Characterizing Phenotypes of Musculoskeletal Degeneration Using Medical Imaging and Deep Learning"*
15. 2019* - 2021 Mr. Minhao Zhou, UC Berkeley Mechanical Engineering, *"A Novel Multiscale Multiphasic Structure Based Modeling Framework for the Intervertebral Disc"*
16. 2019* - 2021 Mr. Benjamin Werbner, UC Berkeley Mechanical Engineering, *"Structure-function relations in the intervertebral disc: Age- and disease-mediated changes alter the tensile failure mechanics of the annulus fibrosus"*
17. 2019* - 2022 Mr. Gabriel López-Marcial, UC Berkeley Mechanical Engineering, *"On the Mechanics of Hydrogels for Tissue Engineering Applications"*

18. 2020* - Ms. Emily Lindberg, UC Berkeley Mechanical Engineering
19. 2020 - Ms. Kelsey Gray DeFrates, UC Berkeley Bioengineering
20. 2021 - 2022 Ms. Sofia Arevalo, UC Berkeley Mechanical Engineering, *"Nano-mechanical Testing of Medical Grade Polymeric Materials: Evaluating and Understanding Surface Properties"*
21. 2021 - 2022 Ms. Allison Gleason, UC Berkeley Mechanical Engineering, *"Development of Video Tracking Techniques to Study the Mechanics of Head Injuries and Their Motor Effects"*
22. 2021* - Mr. Jonathan McKinley, UC Berkeley Mechanical Engineering
23. 2021 - Mr. Kenneth Gao, UC Berkeley Bioengineering
24. 2022 - Mr. Karim Khattab, UC Berkeley Bioengineering
25. 2022* - Ms. Shiyin Lim, UC Berkeley Mechanical Engineering
26. 2022 - Mr. Zilan Zhang, UC Berkeley Mechanical Engineering

QUALIFYING EXAM COMMITTEE MEMBERSHIP *(*indicates committee chair)*

1. 2014 Ms. Ann Ouyang, UC Berkeley Bioengineering (Advisor: Jeffery Lotz, UCSF), *outside committee member*
2. 2014 Ms. Britta Berg-Johansen, UC Berkeley Bioengineering (Advisor: Jeffery Lotz, UCSF)
3. 2015 Mr. Andrew Bremer, UC Berkeley Bioengineering
4. 2015 Mr. Colin Zamecnik, UC Berkeley Bioengineering
5. 2015 Mr. Douglas Kelkhoff, UC Berkeley Bioengineering
6. 2016 Mr. Brett Kelly, UC Berkeley Mechanical Engineering
7. 2016* Mr. Jiacheng Wu, UC Berkeley Mechanical Engineering (Advisor: Shawn Shadden)
8. 2016 Mr. Adam Updegrove, UC Berkeley Mechanical Engineering (Advisor: Shawn Shadden)
9. 2016 Ms. Olivia Scheideler, UC Berkeley Bioengineering
10. 2016 Ms. Shang-Li Wu, UC Berkeley Mechanical Engineering (Advisor: Homayoon Kazerooni)
11. 2016* Mr. Junghyun Kim, UC Berkeley Mechanical Engineering (Advisor: Lydia Sohn)
12. 2016 Ms. Nahyun Cho, UC Berkeley Chemical and Biomolecular Engineering (Advisor: Lydia Sohn), *outside committee member*
13. 2016 Ms. Saghi Sadoughi, UC Berkeley Mechanical Engineering (Advisor: Tony Keaveny)
14. 2016 Mr. Nicholas Errico, UC Berkeley Mechanical Engineering (Advisor: Homayoon Kazerooni)
15. 2016 Ms. Courtney Mazur, UC Berkeley Bioengineering (Advisor: Tamara Alliston, UCSF)
16. 2017 Mr. Logan Van Engelhoven, UC Berkeley Mechanical Engineering (Advisor: Homayoon Kazerooni)
17. 2017 Mr. Seyed Mirramezani, UC Berkeley Bioengineering (Advisor: Shawn Shadden)
18. 2017* Mr. Devante Horne, UC Berkeley Bioengineering (Advisor: Jeffery Lotz, UCSF)
19. 2017* Ms. Sarah Frank, UC Berkeley Mechanical Engineering (Advisor: Shawn Shadden)
20. 2017* Mr. Noah Bonnheim, UC Berkeley Mech. Eng. (Advisor: Lisa Pruitt & Tony Keaveny)
21. 2017 Mr. Hossein Heidari, UC Berkeley Mech. Eng. (Advisor: Shawn Shadden)
22. 2017 Mr. Jeffery Pyne, UC Berkeley Mechanical Engineering (Advisor: Shawn Shadden)
23. 2018 Mr. Nathan Poon, UC Berkeley Mech. Eng. (Advisor: Homayoon Kazerooni)
24. 2018 Mr. Miguel Rodriquez, UC Berkeley Mech. Eng. (Advisor: Shawn Shadden)
25. 2018 Mr. Shengxi Wang, UC Berkeley Mech. Eng. (Advisor: Kyriakos Komvopoulos)
26. 2018 Ms. Katerina Malollari, UC Berkeley Mechanical Engineering (Advisor: Kyriakos Komvopoulos)
27. 2018 Ms. Claudia Iriondo, UC Berkeley Bioengineering (Advisor: Sharmila Majundar)
28. 2018 Mr. Thomas Georgiou, UC Berkeley Mech. Eng. (Advisor: Alice Agogino)

29. 2019 Ms. Fanwei Kong, UC Berkeley Mech. Eng. (Advisor: Shawn Shadden)
30. 2019 Ms. Allison Gleason, UC Berkeley Mech. Eng. (Advisor: Lisa Pruitt)
31. 06/2020 Mr. Aniket Tolpadi, UC Berkeley/UCSF Bioengineering (Advisor: Sharmila Majumdar)
32. 08/2020 Ms. Kelsey Gray DeFrates, UC Berkeley Bioengineering (Advisor: Phil Messersmith)
33. 08/2020 Ms. Amanda Glazer, UC Berkeley Statistics (Advisor: Philip Stark)
34. 10/2020 Mr. Kenneth Gao, UC Berkeley Bioengineering (Advisor: Sharmila Majumdar)
35. 05/2021 Mr. Bowen Zheng, UC Berkeley Mechanical Engineering (Advisor: Grace Gu)
36. 05/2021 Mr. Atsushi Matsuda, UC Berkeley Mechanical Engineering (Advisor: Mohammad Mofrad)
37. 01/2022 Mr. Karim Khattab, UC Berkeley Bioengineering (Advisors: Jeff Lotz & Jeannine Bailey)
38. 03/2022# Ms. Bethany Smith, UC Berkeley Mechanical Engineering (Advisors: Lisa Pruitt & Robert Ritchie)
39. 04/2022 Ms. Celina Gilmore, UC Berkeley Integrative Biology (Advisor: Jack Tseng)
40. 08/2022* Mr. Numi Sveinsson, UC Berkeley Mechanical Engineering (Advisor: Shawn Shadden)
41. 08/2022* Mr. Arung Roy, UC Berkeley Mechanical Engineering (Advisor: Lisa Pruitt)
42. 08/2022* Mr. Zilan Zhang, UC Berkeley Mechanical Engineering (Advisor: David Steigmann)
43. 08/2022 Mr. Efran Ghazimirsaeed, UC Berkeley Mechanical Engineering (Advisor: Mohammad Mofrad)
44. 11/2022 Mr. Jungpyo Lee, UC Berkeley Mechanical Engineering (Advisor: Hannah Stuart)
45. 02/2023* Ms. Linnea Warburton, UC Berkeley Mechanical Engineering (Advisor: Boris Rubinsky)

MASTER'S THESIS ADVISOR *(* indicates committee chair)*

1. 2013 Ms. Cynthia Cruz, Mechanical Engineering, "Compression Testing of Ultra-High Molecular Weight Polyethylene Blended and Diffused with Vitamin E"
2. 2013 Ms. Rebecca Usoff, Mechanical Engineering, "The Importance of Retrievals in Implant Design: Case Study of a Broken Intramedullary Nail"
3. 2014 Mr. Alexander Baker, Mechanical Engineering, "Finite Element Analysis of an Individual Trabecula in Bending: a Parameter Study"
4. 2014 Ms. Megan Pendleton, Mechanical Engineering, "Design of Three Point Bending Experimental System for Individual Trabecula"
5. 2014 Mr. Louis Malito, Mechanical Engineering, "Bearing Surface Damage Analysis of Total Shoulder Replacement Retrievals With Varying Fixation Designs"
6. 2014 Mr. Andrew Berg, Mechanical Engineering, ETH Zurich, "Development of an Intervertebral Disc Bioreactor"
7. 2015 Mr. Jacob Wolf, Mechanical Engineering, "Validation and Improvements to Ultrasound-Based Flow Diagnostics for the Human Left Ventricle"
8. 2015 Mr. Adam Updegrove, Mechanical Engineering, "Integration of Open Source Meshing and Solid Model Techniques into Simvascular 2.0"
9. 2015* Ms. Audrey Ford, Mechanical Engineering, UC Berkeley Graduate Fellow, "Development of Modular Engineered Tissue Surfaces for Cartilage Repair"
10. 2016 Ms. Sarah Frank, Mechanical Engineering, "Color Doppler Ultrasound Velocity Field Reconstruction: Accounting for Through-Plane Divergence"
11. 2016 Mr. Joseph Marquis, Mechanical Engineering 5th Year Master's Program
12. 2016 Mr. Miguel Rodriguez, Mechanical Engineering, "A Pythonic Computational Tool for Continuum Mechanics Problems"

13. 2016 Mr. Ryan O'Sullivan, Mechanical Engineering, "The Effect Of Seatback Angle And Seatbelt Position On Safety Metrics In A Frontal Crash"
14. 2016 Mr. Aaron Jameson, Mechanical Engineering, "Effect of Muscle Activation on Neck Kinematics During a Rear Impact"
15. 2017* Mr. Minhao Zhou, Mechanical Engineering 5th Year Master's Program
16. 2017 Mr. Erwin Sutino, Mechanical Engineering 5th Year Master's Program
17. 2017 Ms. Aimee Goncalves, Mechanical Engineering, "Modular Stewart Platform for Surgical Simulation Testbed", Plan II, 05/2017.
18. 2017* Mr. Thomas Georgiou, Mechanical Engineering, "Soft-Tissue Mechanical Tester", Plan II, 05/2017.
19. 2017* Mr. Semih Bezci, Mechanical Engineering, "Effects of Axial Compression and Rotation Angle on Intervertebral Disc Mechanics in Torsion", Plan II, 12/2017.
20. 2017* Ms. Shannon Emerzian, Mechanical Engineering, (co-chair with Professor Tony Keaveny), "Effect of *ex vivo* Ionizing Radiation on Bone Quality", Plan II, 12/2017.
21. 2018* Mr. Benjamin Werbner, Mechanical Engineering, "Role of Proteoglycans in the Rate-Dependent Failure Mechanisms of the Annulus Fibrosus", Plan II, 12/2017.
22. 2018 Ms. Xiaolin (Angela) Zhu, Mechanical Engineering, "Computational modeling of contact pressure on orthopedic polymers using Abaqus", Plan II, 05/2018.
23. 2018* Mr. Gabriel Lopez, Mechanical Engineering, "Agarose-alginate hydrogels as suitable bioprinting materials", Plan II, 05/2018.
24. 2018 Ms. Sofia Arevalo, Mechanical Engineering, "A Relationship Between the Nano and Macro-Mechanical Properties of Clinical Relevant Ultra High Molecular Weight Polyethylene (UHMWPE) Formulations", Plan II, 5/2018.
25. 2018 Ms. Ellen A.M. van Rooji, Biomedical Engineering, University of Technology, Eindhoven, "The effect of passaging and priming on CD166 expression and mechanical properties of chondrocytes" (external examiner, co-advisor), 8/2018.
26. 2018 Ms. Aikaterini Gensila Malollari, Mechanical Engineering, "Direct evidence for the polymeric nature of polydopamine", 12/2018
27. 2019 Mr. Weiyu Hu, Mechanical Engineering 5th Year Master's Program
28. 2019* Ms. Emily Lindberg, Mechanical Engineering, "Effect of chemical stimuli and passaging during 2D culture and 3D matrix production"
29. 2020* Ms. Nicole McMindes, Mechanical Engineering, "Fatigue Testing of the Annulus Fibrosus"
30. 2020 Ms. Giuliana Davis, Mechanical Engineering, "Surface deformation on retrieved prosthetic polyethylene shoulder components"
31. 2021 Mr. Andre Montes, Mechanical Engineering, "Structural Finite Element Analysis of a Deformable Micro-Physiological Testing Platform to study Cell Mechanobiology"
32. 2022* Ms. Shiyin Lim, Mechanical Engineering, "Disc Geometry Measurement Methods Affect Reported Compressive Mechanics by up to 65%"

ME192 - MASTER'S CAPSTONE PROJECTS

2016-2017 (6 projects, 14 students)

Brilk (industry collaborator) – Prevention of breast-feeding cessation.

Ms. Nicci Cazares, Mechanical Engineering (*Position after lab:* Mechanical Engineer at PCH Lab, San Francisco, CA)

Ms. Haohan Gong, Bioengineering (*Position after lab:* Chief Operating Officer at BunBao.com, San Francisco, CA)

Ms. Maya Mason, Bioengineering (*Position after lab:* Associate Consultant at Beghou Consulting, Emeryville, CA)

Cenoflex – Treatment for lymphodema

Mr. Jacob Rubrecht, Bioengineering (*Position after lab:* R&D Engineer at VytronUS, Sunnyvale, CA)

Clean Ear Bottle – Improving ear canal drug delivery
Mr. Chai Chur Err, Mechanical Engineering (*Position after lab:* Civil Aviation Authority in Singapore)
Mr. Michael Lee, Mechanical Engineering (*Position after lab:* Mechanical Engineer at Alloy Product Development, San Francisco, CA)
Mr. Michael Singer, Mechanical Engineering

TheraNova – Improved egg retrieval.
Ms. Nupur Kaku, Bioengineering
Ms. Brooke Lohman, Bioengineering
Mr. Jorge Ruiz, Mechanical Engineering (*Position after lab:* Design Release Engineer at General Motors)

Penumbra/UCSF – Developing MRI safe catheters.
Ms. Vyshaali Jagadeesan, Bioengineering
Mr. Srivishnu Koganti, Bioengineering
Mr. Taylor Shen, Bioengineering

Zenflow – Developing better treatment options for an enlarged prostate.
Ms. Viola Quach, Bioengineering

MEng 2nd faculty reader

Cryoprinting for Tissue Engineering (1st Reader: Prof. Boris Rubinsky)
Mr. Nuocheng (Bobo) Xia, Mechanical Engineering
Mr. Tanner Barnes, Mechanical Engineering
Mr. Ben Laures, Mechanical Engineering
Ms. Ariel Ya Wen, Mechanical Engineering

2017-2018 (3 projects, 14 students)

Biological Hip Replacement – External Mentor: Dr. Amir Jamali
Mr. Stephen Muller, Bioengineering
Mr. Karl Engel, Bioengineering
Ms. Vija Veinbergs, Bioengineering
Ms. Alejandra Pacheco, Bioengineering

Device for Early Onset Scoliosis – Industry Mentor: Matthew Thompson, Green Sun Medical
Ms. Caitlin Dorff, Bioengineering
Mr. Joseph Felipe, Mechanical Engineering
Mr. Kexin Xu, Mechanical Engineering (*Position after lab:* Design Engineer at Apple)
Ms. Erin Gudger, Bioengineering

Million Hands – co-Faculty Advisor: Prof. Alice Agogino
Mr. Aashish Bhardwaj, Bioengineering
Mr. Sina Dabiri, Bioengineering
Ms. Meng-Hsuan (Annie) Lee, Mechanical Engineering
Ms. Jacqueline Nguyen, Mechanical Engineering

Mr. Jose Ramirez, Bioengineering
Mr. Aastha Shah, Bioengineering

MEng 2nd faculty reader

3D Cryoprinting – Faculty Advisor: Prof. Boris Rubinsky
Mr. Joseph Sahyoun, Mechanical Engineering
Mr. Robert Stuart, Mechanical Engineering
Mr. Xiangyu Wang, Mechanical Engineering
Mr. Zichen Xiao, Mechanical Engineering

2018-2019 (1 mentored project, 4 students)

Biological Hip Replacement – Chair, External Mentor: Dr. Alfred Kuo
Ms. Jennifer Golden, Mechanical Engineering, *Position after lab:* Mechanical Engineer at Intuitive Surgical
Ms. Zihui Xu, Bioengineering
Mr. Jyeuk Lee, Mechanical Engineering, *Position after lab:* LG Electronics (Korea)
Mr. (Richard) Leke Raji, Bioengineering

2019-2020 (1 mentored project, 4 students)

Biological Hip Replacement – Chair, External Mentor: Dr. Alfred Kuo
Ms. Wenqi Fan, Material Science Engineering
Ms. Moriah Garcia, Bioengineering, *Position after lab:* Abbott Medical (Diabetes Care)
Ms. Bianca Riello, Bioengineering
Mr. Jeremy Wan, Bioengineering

3D Printing Manufacturing, Co-Chair (Primary Advisor, Hayden Taylor)
Title: A Sustainable and Affordable Cooling and Dehumidification Solution for Public Schools in the Tropics
Ms. Hazelynn Khoo, Mechanical Engineering
Ms. Satomi Murayama, Mechanical Engineering
Ms. Meijun Liu, Mechanical Engineering

Preventing Workplace Injury with a Zero Motion-Resistance Exoskeleton, Co-Chair (Primary Advisor, Homayoon Kazerooni)
Mr. Todd Roberts, Mechanical Engineering
Mr. Mudit Aggarwal, Mechanical Engineering
Mr. Leo Tao, Mechanical Engineering
Mr. Daniel Wang, Mechanical Engineering
Mr. Aiden Wolfe, Mechanical Engineering

2020-2021 (3 mentored projects, 10 students)

Upper Limb Assisted Device for Remote Rehabilitation – Chair, External Mentors: AT DEV, Todd Roberts (MEng '2020)
Mr. Sami Lama, Bioengineering, *Position after lab:* Meditrina Pharmaceuticals
Ms. Himani Patel, Mechanical Engineering, *Position after lab:* Thermo Fisher Scientific

Finite element modeling of an osteointegrated implant – Chair, External mentor: Robert Matthew, PhD, UCSF (EECS '2016)
Ms. Charlotte Lao, Bioengineering
Mr. Saahil Patel, Bioengineering, *Position after lab:* Iota Biosciences

Blum Center Big Ideas Team: Limb-O2 (role: advisor/mentor) – Graduate student team focused on addressing need for developing cost-effective emergency medical devices/breathing support in Africa. For under $800—using standard components and one novel, manufactured part—the product allows medical facilities in developing nations to serve their populations by simply plugging into an existing ventilator.
Mr. Abhi Ghavalkar, MDes Program at UC Berkeley
Ms. Mercedes Saldana, MDes Program at UC Berkeley
Ms. Peipei Lin, MDes Program at UC Berkeley
Ms. Athena Lopez, Bioengineering undergraduate student at UC Berkeley
Mr. Zach Mudge, Visiting Scholar - ME Product Design (Loughborough University, UK)
Mr. Aiden Ward, Visiting Scholar – MSc Design Student (Loughborough University, UK)

2021-2022 (3 mentored projects, 11 students)

Upper Limb Assisted Device for Remote Rehabilitation – Chair, External Mentors: AT DEV, Todd Roberts (MEng '2020)
Mr. Cornelius Hart, Mechanical Engineering
Ms. Lauren Jacob, Mechanical Engineering
Ms. Diana Lu, Mechanical Engineering
Mr. Aamil Shah, Bioengineering

Finite element modeling of an osteointegrated implant – Chair, External mentor: Robert Matthew, PhD, UCSF (EECS '2016)
Mr. Zachary Lima, Mechanical Engineering *(Position after Lab:* SI Bone*)*
Ms. Dowell Mbanu-Jackson, Bioengineering *(Position after Lab:* Applied Medical*)*

Re-thinking nasal delivery devices – Chair, External mentor: Gordon Lee
Ms. Yue Feng, Mechanical Engineering
Ms. Yilin He, Bioengineering
Mr. Lezhou Ma, Mechanical Engineering *(Position after Lab:* Rivian*)*
Ms. Sabina Sarinzhipova, Bioengineering *(Position after Lab:* Penumbra*)*
Mr. Pranav Vanjani, Mechanical Engineering

Dual hand mirroring exoskeleton to regain hand function post stroke – 2nd faculty reader, Chair: Hannah Stuart
Ms. Anida Len, Mechanical Engineering
Ms. Brittany Powell, Mechanical Engineering

UNDERGRADUATE CAPSTONE/URAP ADVISOR

2016

UCSF (industry collaborator) – Redesigning PCA devices to treat pain with music in addition to pain medication.
Mr. Jiayang Cao, Senior - Mechanical Engineering
Ms. Tatiana Jansen, Junior - Bioengineering
Ms. Joyce Huang, Senior – Mechanical Engineering
Mr. Rohan Konnur, Sophomore – Electrical Engineering and Computer Science

2017 - 2018

SWE National Team Tech Program (role: advisor, *sponsored by Boeing*) – CAL SWE Team Tech is tasked with (1) determining what could be done to reduce the incidence of bone implant failures from a mechanical design standpoint (implant geometry, materials, etc.) and

(2) determining how to monitor real-time biological response or implant performance during the healing time frame.

Spring 2022

URAP
Ms. Gina Choi, Computer Science & Data Science
Ms. Jasmine Chan, Chemical Engineering, R&C Scholar

PROFESSIONAL ACTIVITIES

2009 – 2011 **Math Tutor**, Top Honors; Math tutoring for 6th – 9th graders in New York City
May 2010 Invited Participant at the NIBIB Training Grantees Meeting (NIH Bethesda, MD)
Sept 2011 Invited Participant at an NSF Advance Workshop
2011 – 2012 **STEM Mentor**, New York Academy of Science (NYAS), New York City, NY
2011-2014 Co-chair at the annual meeting of the Biomedical Engineering Society (Section: Mechanotransduction & Mechanobiology, Hartford, CT 2012; Musculoskeletal Tissue Engineering I - Biomechanics and Tissue Repair, Seattle, WA 2013; Translational Research Relevant to Common Orthopaedic Injuries, San Antonio, TX 2014)
2014 - present Biomechanics consultant, Cellider Biotech, Zaragoza, Spain
Apr. 2014 Ad-hoc reviewer of research proposals for the Technology Foundation STW (a Dutch funding agency for academic research in the field of applied sciences)
2014 - present Ad-hoc Panelist for National Science Foundation - Biomechanics and Mechanobiology (NSF - BMMB) Program
July 2014 Panelist for Life in Academia program at the 7th World Biomechanics Congress (ASME Summer Bioengineering Conference, Boston, MA 2014)
2015 - Panelist for NSF Graduate Researcher Fellowship Program (GRFP served 2015, 2018, 2019)
2015 – 2016 **Faculty Mentor**, Society of Women Engineers (SWE) – UC Berkeley Collegiate Section
2015 – 2019 **Faculty Mentor**, Black Engineers and Scientists Student Association (BESSA), UC Berkeley
Jan. 2015 Selected Participant in 2015 National Effective Teaching Institute (NETI, Austin, TX)
Sept. 2015 Selected Participant in 2015 US Frontiers of Engineering Symposium by the National Academy of Engineering of the National Academies (Irvine, CA)
2015 Tissue engineering and biomechanics consultant, Aleeva Medical, San Jose, CA
Apr. 2016 Invited Participant in 2016 National Academies of Science (NAS), Engineering and Medicine's symposium (Keck Center, Washington DC)
May 2016 Co-Organizer of Women in ISSLS (International Society for the Study of the Lumbar Spine) workshop at the Spine Week meeting (Singapore).
June 2016 Selected Participant (by Dean Sastry of UCB COE) for the 2016 Denise Denton Emerging Leaders Workshop (Madison, WI).
June 2016 Reviewer for National Institutes of Health Study Section
July 2016 Participant in 7th Annual Summer School on Biomechanics of Soft Tissues (Graz, Austria)
Sept. 2016 Invited Faculty Participant at 2016 Symposium: 21st Century Mindsets & Strategies for Career Advancement, part of NSF Minority Faculty Development Workshop (MFDW) (Berkeley, CA)
2017 – Present **Member, Advisory Review Board Member**, Journal of Orthopaedic Surgery – Spine, Wiley Publishing
2017 – 2020 **Vice Chair,** Tissue and Cellular Engineering Committee for SB3C (3 years as vice chair, then 3 years as chair of committee)
Feb 2017 Invited Participant, UC Berkeley – World Economic Forum conference for Science, Technology, and Health (Berkeley, CA)
Feb 2017 Invited Panelist, Level Playing Field Institute & Upward Bound Math and Science Program (Kapor Center for Social Impact, Oakland, CA)

June 2017 Co-Organizer of scientific workshop at the Annual Summer Biomechanics, Bioengineering, and Biotransport (SB3C) titled "Additive Manufacturing and Biofabrication in Mechanobiology" (Tucson, AZ)

June 2017 Co-Chair at the annual Summer Bioengineering, Biomechanics, and Biotransport (SB3C) Conference (Tucson, AZ)

Sept. 2017 Invited Faculty Participant at 2017 Symposium: Engineering a World of Difference: Academic-Industry Connections, part of NSF Minority Faculty Development Workshop (MFDW) (Houston, TX)

Sept. 2017 Invited Faculty Panelist for NextProf Workshop, University of Michigan, Ann Arbor, MI

Oct. 2017 Reviewer for Stryker ORS Women's Fellowship

Mar. 2018 Reviewer for ORS Spine Section Poster Award

June 2018 Co-Chair at the 8th World Congress of Biomechanics, Dublin, Ireland

06/2018 – Present ASME's representative on ISCT Cell & Gene Therapy Committee

2018 – 2021 Member, Editorial Review Board, PLOS ONE

2018 – 2020 **ORS Spine Section Secretary**

10/2018 – 08/2019 Session organizer of soft tissue biomechanics track for 2019 CMBBE meeting (16th International Symposium on Computer Methods on Biomechanics and Biomedical Engineering, and 4th Conference on Imaging and Visualization), New York City, NY

2018 – 2019 Track Chair for the Orthopaedic and Rehabilitation Engineering Track for the 2019 BMES meeting, Philadelphia, PA.

2019 – 2021 Co-Chair of the Spine Topic Committee for the Orthopaedic Research Society

2019 – Present Member, Fellowship Committee for the International Society for the Study of the Lumbar Spine (ISSLS)

2019 – 2020 Member, Selection Committee for ASME YC Fung Young Investigator Award

2019 – 2020 Co-chair, ORS Spine Section Award Committee

2019 – Present **Member,** MDes Affiliated Faculty Group, UC Berkeley

2019 – Present **Full Member,** Core Center for Musculoskeletal Biology and Medicine (CCMBM), Department of Orthopaedic Surgery, UC San Francisco

2019 – Present **Faculty Mentor**, Black Graduate Engineers and Scientists Students (BGESS), UC Berkeley

2019 – 2022 **Associate Editor**, Journal of Biomechanical Engineering (Journal for the ASME – Bioengineering Division)

2020 Topic Editor for Special Issue Spine Biomechanics, "*Frontiers in Bioengineering and Biotechnology (Biomechanics)*"

2020 – 2022 **ORS Spine Section Research co-Chair**

2020 – 2022 **Chair**, Selection Committee for ASME YC Fung Young Investigator Award

2020 - 2023 **Chair,** Tissue and Cellular Engineering (TCE) Committee for SB3C

2020 – Present **Member,** Design Innovation Graduate Group at the Blum Center, UC Berkeley

Nov 2020 Reviewer for National Institutes of Health Study Section

2020 - Present **Faculty Advisor** for Future Leaders of Mechanical and Aerospace Engineering: Celebrating Diversity and Innovation – a nationwide seminar series to highlight rising stars in Mechanical and Aerospace Engineering

2021 Grant reviewer for NSF BRITE program

2022 **Participant**, Connecting Efforts to Support Minorities in Engineering Education Workshop from the National Academy of Engineering

2023 **Publications Chair,** 2023 Annual SB3C Meeting

<u>Memberships</u>

2010 – 2013 New York Academy of Sciences (NYAS)

2010 – 2014 American Association for the Advancement of Science (AAAS)

2010 – Present Orthopaedic Research Society (ORS)

2010 – Present	American Society of Mechanical Engineers (ASME)
2011 – Present	Biomedical Engineering Society (BMES),
2013 – Present	Society of Women Engineers – Professional division (SWE; 2013-2014: UC Berkeley Liaison, 2015-present: Scholarship Chair)
2013 – Present	National Society of Black Engineers (NSBE; Professional Member)
2016 – Present	International Society for the Study of the Lumbar Spine (ISSLS)

REVIEWER

Journals

Journal of Orthopaedic Research; Tissue Engineering: Part A and B; ASME Journal of Biomechanical Engineering; European Spine Journal; Biomechanics and Modeling in Mechanobiology; Journal of Biomechanics; Acta Biomaterialia; Journal of Mechanical Behavior of Biomedical Materials; Annals of Biomedical Engineering; Transactions on Biomedical Engineering; Journal of Cellular Physiology; Spine; Journal of Tissue Engineering and Regenerative Medicine; PLoS One Journal

Funding Agencies (ad-hoc)

National Science Foundation Graduate Research Fellowship Program (2015 - Present); National Science Foundation Biomechanics and Mechanobiology (BMMB) Program (2014 – Present); National Science Foundation East Asia Pacific Summer Institutes (NSF-EAPSI; 2007-2015); Health Research Council of New Zealand (HRC; 2019)

Conferences

Annual Summer Biomechanics, Bioengineering, and Biotransport (SB3C) Conference (abstract reviewer, session co-chair, workshop organizer, vice chair of Cell & Tissue Engineering Committee; 2014 – present); BioMedical Engineering Society (BMES) Annual Meeting (abstract reviewer and session co-chair; 2013 – present); Society for Biomaterials Annual Meeting (abstract reviewer; 2012 – 2013); Annual Orthopaedic Research Society Meeting (abstract reviewer and session co-chair; 2012 – present); Annual Summer Bioengineering American Society of Mechanical Engineers (ASME) Conference (abstract reviewer; 2011 – 2014);

External PhD Thesis Reviewer

Dhara Amin, "Analysis of internal strains and mechanics during simulated repetitive lifting in human lumbar spinal segments", Mechanical Engineering, Finders University, Adelaide, Australia

Other

Springer Science - Book Chapter Review – Structural Interfaces and Attachments in Biology (2012); Technology Foundation STW – Dutch Funding Agency Ad-hoc grant reviewer (2014-2015)

DEPARTMENTAL, COLLEGE, & UNIVERSITY SERVICE

Departmental

07/2013 – 12/2015	Member, Committee on Safety
07/2014 – 06/2016	Member, Committee on Student Prizes
07/2014 – 12/2016	Member, Committee on Undergraduate Admissions
07/2014 – 06/2019	Member, Committee on Equity, Diversity & Inclusion
07/2014 – 12/2016	Member, Committee on Courses
07/2017 – 06/2018	Member, Committee on Undergraduate Admissions
03/2017 – present	Member, Conflict of Interest Committee for Lydia Sohn
07/2017 – 06/2021	Member, Committee on ABET & Undergraduate Study
10/2017 – 05/2018	Member, ME search committee for tenure-track faculty position

07/2018 – 06/2019 Member, Committee on Master of Engineering
08/2018 – 12/2018 MEng Academic advisor for Master of Engineering Program (Biomechanics Track)
07/2018 – 06/2019 Member, Department Standing Search Committee
07/2019 – 12/2020 Chair, Task Force on ME Rising Stars Workshop
07/2019 – 06/2021 Member, Chair's Advisory Committee
07/2019 – 06/2021 Member, Committee on Graduate Study
07/2019 – 06/2021 Member, Committee on Undergraduate Admissions
07/2019 – 06/2021 Member, Committee on Graduate Fellowship
07/2019 – 06/2021 Chair, Committee on Equity, Diversity & Inclusion
07/2020 – 06/2021 Member, Committee on Development/MEIA
10/2019 – 04/2022 Equity Advisor, Faculty Search Committee (2 separate searches: AY2019-20 and AY2021-22)
08/2022 – 05/2023 Member, Faculty Search Committee

College
07/2014 – 2015 Member, Computing and Computer Science Education Committee
11/2017 – 06/2020 Reviewer & Interviewer, Berkeley Management, Entrepreneurship & Technology (MET) Program
02/2018 – 09/2018 Member, Advancing Faculty Diversity in Berkeley Engineering Steering Committee
08/2018 – Present Member, Jacobs Institute Director's Council
04/2019 – 12/2019 Member, Faculty Focus Group for Implicit Bias Training
07/2019 – 06/2021 Member, Equity and Inclusion Council
01/2020 – 06/2020 Member, Working Group on Sexual Harassment and Sexual Violence
07/2021 – Present Chair, Equity & Inclusion Council

University (UC Berkeley)
07/2013 – present Mentor, Faculty Mentor to Regents' and Chancellor's (RC) and Cal Opportunity (CalOp) Scholars
03/2014 – 04/2016 Member, Committee for the Summer Undergraduate Research Fellows (SURF) program
07/2015 – present Member, Hitchcock Committee
12/2016 – present Faculty Interviewer, Regents' and Chancellor's Scholarship, Academic Senate Committee on Undergraduate Scholarships, Honors, and Financial Aid
2018 Member, Tel Aviv-Berkeley-Sackler Committee
07/2019 Reviewer, campus applications for the 2020 Searle Scholars Program
2019 – present Member, Chancellor's Advisory Committee on Life Sciences (CACLS)
2020 – present Member, Steering Committee SEED Scholars Program
2020 Reviewer, SEED Scholars Program
07/2020 – 12/2020 Member, Search Committee for Director of the Stem Cell Center

UCSF
06/2019 Member, Basic Science Task Force, Orthopaedic Surgery

UC System
04/2019 – 06/2019 Member, UC MEXUS-CONACYT Committee

TEACHING AND INSTRUCTION

2013 Developer, ME210/BioE209 "Advanced Orthopaedic Biomechanics'
2013 Instructor, ME176/BioE119 "Orthopaedic Biomechanics" (27 student)

2014 – 2015 Instructor, E7 "Introduction to Computer Programming for Scientist and Engineers" (200-230 students)
2015 – 2018 Instructor, ME214/BioE214 "Advanced Tissue Mechanics" (10-25 students)
2016 – present Faculty Advisor, ME199 QB3 Independent Research Project (with UCSF and industry)
2016 – present Instructor & Developer, ME178/BioE137 "Designing for the Human Body" (40 students)
2016 – present Instructor, ME108 "Mechanical Behavior of Engineering Materials" (125 students)
2017 – present Instructor & Developer, ME278/BioE237 "Designing for the Human Body" (5-10 students, room share with ME178/BioE137)
2018 Instructor & co-Developer (with Professor Lydia Sohn, Mechanical Engineering), ME192 "industry-Associate Capstones in Mechanical Engineering" (~10 students)

Independent Research Projects

Spring 2016 Texas Innovation Challenge: North America Design Contest 2016 (Faculty Advisor)
Spring 2016 *Clean Ear Bottle* (Faculty Advisors: Grace O'Connell (primary) and Sara Beckman; Industry mentors: Marymoore Patterson; Clinical sponsor: Jill Davis and Andrew Goldberg) – *continued as a MEng Capstone Project for the 2016-2017 academic year.*
Spring 2016 *Patient-Controlled Analgesia (PCA) Project* (Faculty Advisors: Grace O'Connell (primary) and Sara Beckman; Industry mentors: Marymoore Patterson; Clinical sponsor: Ben Alter and Walter German) – *continued as a MEng Capstone Project for the 2016-2017 academic year.*
Spring 2017 NASA Challenge: 3D printing for space applications (Faculty Advisor)

EXTERNAL ACTIVITIES AND OUTREACH

Mentor/Tutor

2008 – 2009 Volunteer, Big Brothers Big Sisters Program
2009 – 2011 Tutor, Top Honors – Math tutoring to 6-9th graders in New York City
2011 – 2013 Mentor, New York Academy of Sciences (NYAS) STEM Program (Credentialed New York Academy of Sciences Education Fellows)
2011 Invited Postdoc Panelist, Career Development at Columbia University
2013 – present Faculty Advising, Undergraduate Curriculum advising in the Mechanical Engineering Department (Drop-in day and one-on-one advising)
2014 Invited Faculty Panelist, Career Development workshop at the 7th World Congress of Biomechanics, Boston, MA USA
2014 - present Organizer, Engineering in Medicine Module, Girls in Engineering (College of Engineering at UC Berkeley)
2014 – 2015 UC Berkeley Liaison for Society of Women Engineers – Golden Gate Section
2014 Faculty AMA Participant for Equity, Inclusion and Diversity in the Department of Mechanical Engineering
2015 – 2018 Scholarship Committee Chair, Society of Women Engineers – Golden Gate Section
2015 – present Mentor, East Bay College Fund, Oakland, CA
2016 – present Faculty Advisor, UC Berkeley Black Engineering and Science Student Association (BESSA)
2016 – 2017 Acting Faculty Advisor, UC Berkeley Society of Women Engineers
03/2016 Faculty Panelist, Career Panel in First Annual Berkeley Engineering Stars in Technology (BEST) Symposium (sponsored by EECS at UC Berkeley)
04/2016 Faculty Panelist for Graduate Women of Engineering at UC Berkeley Life After Graduate School Panel (hosted by Sandia, Berkeley, CA)
04/2016 Invited Participant in 2016 UCB Society of Women Engineers New Admit Overnight Host Program Banquet (Berkeley, CA)
06/2016 Faculty Lead, Girls in Engineering Program (College of Engineering at UC Berkeley)

CURRENT AND PAST FUNDING

Current Support

UCSF Orthopaedic Surgery Department 07/2022 – 06/2023
Thus, the purpose of this study is to determine sex-based differences at the 1) transcriptome- and 2) tissue-level in ruptured ACLs.
Role: Co-PI, $20,000

Berkeley Stem Cell Center 01/2022 – 06/2022
Seed funding from the Siebel Stem Cell Institute are delighted to offer co-funding for your proposed project at the QB3-High Throughput Screening Facility (HTSF).
Role: PI, $8,000

Gift from Berkeley Alum 07/2018 – present
A generous donation from Dennis Chan, UC Berkeley Alum, was provided in support of project-based courses (ME178).
Role: Faculty Facilitator, $90,000

NSF BMMI 07/2018 – 06/2023
CAREER: Modeling the Intervertebral Disc Using Quantitative MR Imaging
Objective: To elucidate the role of tissue hydration and swelling on load distributions throughout subcomponents of the intervertebral disc. We will use quantitative MR to noninvasively determine tissue composition and correlate MR parameters with tissue- and joint-level mechanics. Then, we will evaluate time-dependent changes in tissue composition and mechanics using a compression-based bioreactor.
Role: PI, $516,000

UCOP/COE – Faculty Engagement Fund 10/2020 – present
Diversity, Equity, and Inclusion Faculty Engagement Fund Application
Objective: To 1) establish a working collaboration with high school science teachers in California to develop hands-on projects to teach mechanical engineering curriculum, and 2) support summer research experiences for UC Berkeley undergraduates in design.
Role: PI, $259,500

NIH-NIAMS 01/2020-12/2022
Noninvasive Measurement of Intradiscal Strains under Dynamic Loading
Objective: The goal of this proposal is to integrate advanced high-resolution ultrasound imaging and texture correlation to quantify intradiscal strain profiles in the intervertebral disc under dynamic loading conditions (in collaboration with Prof. Craig Goergen at Purdue University, R21AR075127).
Role: PI, $377,769

NSF AISL 09/2019 – 02/2022
Investigating Measurement of STEM Engagement and Advocacy in Older Adults
Objective: During the 18-month pilot study, the team will: (a) develop and test methods for measuring engagement in informal STEM learning and STEM advocacy in adults 50+ years of age; and (b) explore factors that lead to the engagement of this population in ISL and that moderate the outcome of enhanced STEM advocacy (#1906720).
Role: Key Personnel - Lead Faculty, $298,098

NSF BMMI 07/2018 – 06/2022
Role of fiber-matrix interactions during failure in fiber reinforced tissues
Objective: To evaluate the role of the extrafibrillar matrix composition and fiber composition and network on time-dependent and -independent failure behavior. We will combine computational and experimental

techniques to study failure mechanisms of fiber-reinforced materials, such as stress distributions between fibers and the extrafibrillar matrix.
Role: PI, $362,859

Previous Support

NIH NIAMS F31 Predoctoral Fellowship (PI: O'Connell) 06/2008 – 10/2009
Structural and Tissue Mechanics of Normal and Degenerate Intervertebral Disc
Objective: To noninvasively determine intradiscal deformations of healthy and degenerated intervertebral discs. Following joint level mechanics, tissue-level mechanics were determined through biaxial testing of the annulus fibrosus, which was used to develop and validate a constitutive relationship of healthy and degenerated disc tissue.
Role: PI; Mentor: Dr. Dawn M. Elliott, PhD

UC Berkeley, Junior Faculty Research Award 04/2014 – 08/2015
Effect of injury on joint mechanical function with diurnal loading conditions
Objective: This objective of this equipment research grant was to develop a bioreactor for full bone-disc-bone motion segments. The developed bioreactor can maintain intervertebral disc organ culture.
Role: PI, $7,500

Rose Hill Innovator Award 05/2014 – 12/2017
Personalized Healthcare: Developing large-scale engineered cartilage surfaces
Objective: To use a novel technique for developing large-scale engineered cartilage surfaces. Fractal fabrication and high-resolution imaging techniques will be used to develop patient specific surface contours.
Role: PI, $135,000

Hellman Fellows Fund 07/2015 – 06/2016
Effect of disc herniation repair on tissue remodeling and joint function
Objective: To use tissue engineering and regenerative medicine techniques to develop engineered nucleus pulposus tissues with swelling capabilities and mechanical properties of healthy nondegenerated tissues.
Role: PI, $50,000

France-Berkeley Fund 07/2016 – 06/2018
Modular Tissue Engineering for Tracheal Reconstruction
Objective: To use modular tissue engineering developed for articular cartilage regeneration for tracheal reconstruction. This seed project is a collaborative effort between Drs. Frédéric Kolb at the Institut Gustave Roussy in France and Grace O'Connell at the University of California, Berkeley.
Role: PI, $12,000

Grainger Foundation Frontiers of Engineering Grants 07/2016 – 06/2018
Biocompatibility and bioprinting of soft materials for tissue engineering
Objective: To evaluate soft polymers with shear thinning properties for three-dimensional (3D) printing and mechanical and swelling properties comparable to native intervertebral disc tissues for tissue engineering. This project is a collaborative effort between Drs. Jeannette Garcia at IBM and Grace O'Connell at the University of California, Berkeley.
Role: PI, $30,000

UC Berkeley Chancellor's Community Partnership Fund 07/2017 – 06/2018
Tutoring Support for Low Income, Students of Color

Objective: to develop tutoring support for low income students of color through the Black Engineers and Scientist Student Association (BESSA).
Role: Faculty Sponsor, $10,000

Arthritis National Research Foundation 07/2017 – 06/2018
Predicting tissue growth potential using high-throughput screening for cell mechanics
Objective: to develop a novel high-throughput approach for determining tissue-growth potential of cell populations for cartilage tissue engineering.
Role: PI, $90,411

CITRIS Seed Funding Program 07/2017 – 06/2018
Million Hands: Prosthetic Hands for Children through an Open Source Platform, 3D Printers and Sensors
Objective: In this collaborative proposal between researchers from UC Berkeley and UC Davis, we will develop a modular platform that is 1) customizable to the many hand shapes that are possible as a result of the above conditions, 2) capable of natural movement, and 3) strong enough to perform most daily tasks.
Role: PI, $30,000

Gift from Berkeley Alum 07/2017 – 06/2018
A generous donation from Dennis Chan, UC Berkeley Alum, was provided in support of project-based courses (ME178) and for the Million Hands project in collaboration with Prof. Alice Agogino.
Role: Faculty Facilitator, $25,000

Signatures Innovator Award 07/2017 – 06/2019
Innovating diagnostics and treatment planning for lower back pain
Objective: To transform software written for research purposes into stand-alone software with commercialization potential for lower back pain treatment or diagnostics.
Role: PI, $150,000

NIH-NIAMS 07/2018-06/2021
High-throughput screening of cell mechanics to direct 3D tissue culture
Objective: To develop a novel high-throughput approach for determining tissue-growth potential of cell populations for cartilage tissue engineering and regeneration. We will determine elastic and viscoelastic cell mechanics using a low-cost microfluidic device designed in Dr. Lydia Sohn's laboratory (co-I on proposal).
Role: PI, $379,940

Powley Fund 11/2019 – 10/2020
Design of tough bio-inspired composite armor using computational and experimental approaches
Support for collaborative research with Dr. Grace Gu (Mechanical Engineering at UC Berkeley) to test bioinspired 3D printed composite structures.
Role: Co-PI, $30,000

UCOP HBCU Initiative 07/2020 – 12/2021
Howard-Berkeley: Mechanical Engineering Summer Research Program
Objective: To create a summer research experience at UC Berkeley for four engineering students from Howard University.
Role: PI, $73,533