

MATTHEW B. A. MCCULLOUGH

Department of Chemical, Biological, and Bioengineering, McNair 327
North Carolina Agricultural and Technical State University
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(336) 285-3660

EDUCATION

- Ph.D. Biomedical Engineering, July 2006, University of Iowa, Iowa City, IA
Thesis: *Clinical and Biomechanical Evaluation of Total Wrist Arthroplasty Devices* Advisor: Nicole M. Grosland, Department of Biomedical Engineering and Orthopaedic Surgery and Rehabilitation
- B.S. Industrial Engineering, 2001, North Carolina A&T State University
Summa cum Laude

EMPLOYMENT HISTORY

- August 2016-Present Associate Professor, Department of Chemical, Biological and Bioengineering
North Carolina A&T State University, Greensboro, NC
- Summer 2010-July 2016 Assistant Professor, Department of Chemical, Biological and Bioengineering
North Carolina A&T State University, Greensboro, NC
- Spring 2010-Summer 2010 Post Doctoral Research Fellow, Department of Physiology and Biomedical Engineering
Mayo Clinic, Rochester, MN
- Summer 2006-Spring 2010 Post Doctoral Research Fellow, Biomechanics Laboratory
Mayo Clinic, Rochester, MN
- Fall 2001-Summer 2006 Graduate Research Assistant, Departments of Biomedical Engineering and Orthopaedic Surgery and Rehabilitation,
University of Iowa, Iowa City, IA
- Fall 2002, 2004 Teaching Assistant, Department of Biomedical Engineering, University of Iowa, Iowa City, IA

HONORS AND AWARDS

Teaching

- 2016-2017 NC A&T State University *Center for Entrepreneurship and Innovation*, Faculty Fellow
- 2014-2015 NC A&T State University *Thank a Teacher Honoree* Academy of Teaching and Learning
- 2014-2015 NC A&T State University *Junior Faculty Teaching Excellence Award Nominee*, Department of Chemical, Biological, and Bioengineering
- 2012-2013 NC A&T State University *Junior Faculty Teaching Excellence Award Nominee*, Department of Chemical, Biological, and Bioengineering and College of Engineering
- 2012 Triad BioNight Excellence Awards – Academic Development Excellence *Nominee*

Research

- 2015 American Society of Biomechanics Diversity Travel Fellowship Award
- 2015 Catawba College Big Idea Business Competition – 1st Place
- 2014 Catawba College Big Idea Business Competition – 2nd Place
- 2014 NSF ERC-RMB Summer Best Poster Award
- 2012 NSF ERC-RMB Summer Best Poster Award

Service

- 2015 Computers in Biology and Medicine Outstanding Reviewer Status
- 2012 Pearson One Professor Honoree

LIST OF FUNDED RESEARCH

Virginia Tech Institute for Critical Technology and Applied Science Diversity and Inclusion Seed Grant

Role: Co PI Date: 08/01/2017 – 07/31/2018 Total \$5,000

National Science Foundation “*IUSE/PFE:RED: A Revolution in Engineering Education Motivated by Needs and Designs*”

Role: Investigator Date: 08/01/2017-07/31/2022 Total: \$1,999,995

National Science Foundation “*SBIR Phase II: A Medical Device to Treat Gallstone Disease*”

Role: Investigator Date: 01/19/2017-12/31/2017 Total: \$50,000

National Institutes of Health: “*Clinical and entrepreneurial immersion to enhance bioengineering senior design at North Carolina A&T State University*”

Role: PI Date: 09/01/2016-05/31/2021 Total: \$212,105.52

Venture Well Faculty Grants: “*Clinical immersion and translation in bioengineering senior design at North Carolina A&T State University and UNC Chapel Hill*”

Role: PI Date: 06/01/2016-05/31/2017 Total: \$30,000

Department of Education Minority Science and Engineering Improvement Program:
“*ENGAGE 2Become Engineers: College-level initiatives Engaging the Next Generation of African-American Graduates in Engineering*”

Role: Co-PI Date: 10/01/2015-09/30/2018 Total: \$749,047.12

Department of Defense Research and Education Program for Historically Black Colleges and Universities and Minority-Serving Institutions (HBCU/MI)
Equipment/Instrumentation

“*LA-ICP-MS: Impact on Broad Based Understanding of Military Environment to Solider Protection leading to Materials Innovation and Translation*”

Role: Co-PI Date: 02/01/2014-01/31/2015 Total: \$490,000.00

Department of Education Minority Science and Engineering Improvement Program:
“*ENGAGE 2Become Engineers: College-level initiatives Engaging the Next Generation of African-American Graduates in Engineering*”

Role: Co-PI Date: 02/01/2012-01/31/2015 Total: \$729,810.00

National Science Foundation Nanotechnology Undergraduate Education in Engineering
“*NUE: Enhancing Undergraduate Students' Learning and Research Experiences through Hands on Experiments on Bio-nanoengineering*”

Role: Investigator Date: 09/30/2012-08/31/2014 Total: \$199,515.97

UNC General Administration

“*Drug Discovery and Delivery Research at new-established Bioengineering Program*”

Role: Co-PI Date: September 2010 Total: \$401,320.00

REFEREED JOURNAL PUBLICATIONS

1. **McCullough MBA.**, Gomes M., Sankar J., and Bhattarai N. Development of Chitosan Based Scaffolds for Bone Regeneration: A Preliminary Report. *EC Orthopaedics* 8.1, pp. 15-25, 2017
2. Wesley, Robert and **McCullough, Matthew BA.** In Silico Modelling of Human Energy Metabolism. *EC Microbiology* 7.1, pp. 26-36, 2017
3. Williams, Adrienne FO and **McCullough, Matthew BA.** Micro-Computed Tomography to Finite Element Analysis of In Vivo Biodegradable Magnesium-Alloy Screw and Surrounding Bone in Rabbit Femurs. *ASME 2015 International Mechanical Engineering Congress and Exposition*. American Society of Mechanical Engineers, 2015.
4. Hawkins KM, Gibbs D, **McCullough MBA.** Magnesium modeling using SolidWorks. *Gratis Journal of Bone Biology and Osteoporosis*. (2015) 1(2). <http://dx.doi.org/10.18314/jbo.v1i2.41>

5. Jackson, A, **McCullough MBA**. Biomechanics: A promising Frontier in microbial biotechnology. *Journal of Microbial and Biochemical Technology*. 7(5), p. 257.
6. Luster-Teasley, S, **McCullough M**, Davis G, Bailey R, Gloster C, Williams M, Parrish L. Using a Strengths-based approach to Retain and Mentor Underrepresented Students, Students with Children, and Students with Disabilities pursuing undergraduate Degrees in Engineering. *Journal of Women and Minorities in Science and Engineering*. *Submitted*
7. Mahoney C, **McCullough MB**, Sankar J, Bhattarai N. Nanofibrous Structure of Chitosan for Biomedical Applications. *Accepted for Publication*. *Journal of Nanomedicine & Biotherapeutic Discovery*
8. **McCullough MBA**, Lambeth C., and Bhattarai N. Use of Interactive Teaching Methods to Introduce Ethical Considerations in Bionanoengineering Technology. *Journal of Nano Education*, (2015) 7(1), 80-82.
9. Wesley R and **McCullough M**. Review of Medial Tibial Stress Syndrome: A Comparison of In Vivo and Computational Methods. *Austin J Biomed Eng*. 2014;1(5): 7.
10. **McCullough M**. The Need for Advanced Orthopaedic Device Design: Considering Race and Ethnicity. *Austin J Biomed Eng*. 2014;1(5): 2.
11. Ferraro KF, Kim KE, Woo SLY, Flowers JR, **McCullough MB**. Revolutionizing orthopaedic biomaterials: The potential of biodegradable and bioresorbable magnesium-based materials for functional tissue engineering. *Journal of Biomechanics*. 47(9), 2014 pp1979-1986
12. Hawkins KM, Flowers JR, and **McCullough MB**. Finite Element Analyses of ACL Interference Screws: A Review. *International Journal of Engineering* Volume 2 Issue 9, September 2013.
13. **McCullough MB**, Adams BD, and Grosland NM. The Effect of Articular Surface Shape and Tendon Forces of Total Wrist Arthroplasty Systems: A Finite Element Study. *Journal of Musculoskeletal Research* Volume 15(4), 2012.
14. **McCullough MB**, Adams BD, and Grosland NM. Post-Operative Analysis of Patients of the Universal 2 Total Wrist Implant System. *Journal of Applied Biomechanics* Volume 28, 2012 pp466-472.
15. **McCullough MB**, Ringleb SI, Arai K, Kitaoka HB, Kaufman KR. Moment Arms of the Ankle Complex Throughout the Range of Motion. *Foot and Ankle International* Volume 32(3), March 2011, pp. 300-306

16. **McCullough MB**, Domire Z, Reed A, Amin S, Ytterberg S, Chen, Q, An KN. Evaluation of Muscles Affected by Myositis Using Magnetic Resonance Elastography. *Muscle & Nerve* Volume 43(4), 2011, pp. 585-590
17. Shin SH, Jeon IH, Kim HJ, **McCullough MB**, Yi JH, Cho HS, Park IH. Articular Surface Area of the Coronoid Process and Radial Head in Elbow Extension: Surface Ratio in Cadavers and a Computed Tomography Study in Vivo. *Journal of Hand Surgery-American* Volume 35(7), 2010, pp1120-1125
18. Muraki T, Domire ZJ, **McCullough MB**, Chen Q, and An KN. Measurement of Stiffness Changes in Immobilized Muscle Using Magnetic Resonance Elastography. *Journal of Clinical Biomechanics* 25(5), 2010, pp499-503. <http://dx.doi.org/10.1016/j.clinbiomech.2010.02.006>
19. Rowe J, Chen Q, Domire ZJ, **McCullough MB**, Zhan W, An KN. Effect of Collagen Digestion on the Passive Elastic Properties of Diaphragm Muscle in Rat. *Medical Engineering and Physics* 32:1, 2009, pp90-94
20. Hirano T, **McCullough M**, Kitaoka H, Ikoma K, Kaufman K. Effect of a Prefabricated Foot Orthosis Upon Posterior Tibial Tendon Work of Friction in a Simulated Flatfoot Model. *Clinical Biomechanics* 24:9, 2009, pp776-80
21. Domire ZJ, **McCullough MB**, Chen Q, and An KN. Wave attenuation as a measure of muscle quality as measured by magnetic resonance elastography. *Journal of Biomechanics* 42:4, 2009, pp537-40
22. Domire ZJ, **McCullough MB**, Chen Q, and An KN. Feasibility of Using Magnetic Resonance Elastography to Study the Effect of Aging on Shear Modulus of Skeletal Muscle. *Journal of Applied Biomechanics* 25:1, 2009: pp93-97
23. Woodworth JA, **McCullough MB**, Grosland NM, and Adams BD. Impact of Restricted PIP Joints on MCP Joint Motion. *Journal of Hand Surgery – American* Volume 31:6, 2006; pp940-946
24. Adams BD, Grosland NM, Murphy DM, **McCullough M**. Impact of impaired wrist motion on hand and upper-extremity performance. *Journal of Hand Surgery-American* Volume 28:6, 2003; pp 898-903

In Preparation

- Wesley RA and **McCullough MBA**. Medial Tibial Stress Syndrome FEA Model Development. *Journal of Applied Biomechanics*.
- Hawkins KM, Flowers JR, **McCullough MBA**. Parametric Finite Element Analysis of Magnesium Based Anterior Cruciate Ligament Interference Screws for the Purpose of Optimizing Screw Purchase. *Journal of Applied Biomechanics*

- Flowers JR, Hawkins KM, Woo SLY, **McCullough MBA**. Finite Element Analysis of a Magnesium Based ACL Screws Drives. *Journal of Biomechanics*

PRESENTATIONS:

- **McCullough MBA**. “Musculoskeletal Biomechanics at North Carolina A&T” Department of Biology, North Carolina A&T State University September 3, 2015
- **McCullough MBA**. “Analysis of Mechanical Behavior of Magnesium Based Orthopaedic Applications” *International Orthopedic Research Symposium - In Recognition of Dr. Kai-Nan An*, Mayo Clinic, Rochester, MN August 3, 2015
- Sweeper D, **McCullough M**. Biomaterial Innovation. Materials Education national Resource Center 2014 National Educator’s Workshop, November 2-4, 2014, Seattle, WA
- **McCullough MB**, Luster-Teasley S, Gloster C, Parrish L, Williams M, Bailey RS. ENGAGE 2BE Engineers Mentoring Program for Minority Students. Annual Meeting of the American Society of Engineering Education June 15-18, 2014, Indianapolis, IN
- Gravely T, **McCullough M**. Biomaterial Innovation. Materials Education national Resource Center 2011 National Educator’s Workshop, October 16-18, 2011, Greensboro, NC
- Rajan V, **McCullough M**. Material or Mechanical Testing Using Compression and Tension. Materials Education national Resource Center 2011 National Educator’s Workshop, October 16-18, 2011, Greensboro, NC
- Bhattarai N, **McCullough M**, Mahoney C. Functional Polyblend Nanofibers for Biomedical Application. Nanofibers for the 3rd Millenium 2011 August 29-31, 2011, Raleigh, NC <http://www.nano3millennium.com/program.cfm>
- Choisine J, Ringleb SI, **McCullough MB**, Kaufman KR, Kitaoka HB. How Flatfoot Deformity Affects Moment Arms. American Society of Biomechanics 2011 Annual Conference August 10-13, 2011, Long Beach, CA
- **McCullough MB**, Arai K, Ringleb SI, Zhao KD, Berglund LJ, Kitaoka HB, Kaufman KR. Moment Arms of the Ankle Complex Throughout the Range of Motion. 55th Annual Meeting of the Orthopaedic Research Society February 22-25, 2009, Las Vegas, NV
- Hirano T, **McCullough MB**, Bohne WH, Ikoma K, Zhao, KD, Kitaoka HB, Kaufman KR. Effect of Medial Displacement Calcaneal Osteotomy on Dynamic Ankle Joint Contact Characteristics. 55th Annual Meeting of the Orthopaedic Research Society February 22-25, 2009, Las Vegas, NV
- Muraki, T., Domire, Z.J., **McCullough, MB**, Chen, Q., and An, K.N. Assessment of the Immobilized Muscle Using MRE. Fourth North American Congress of Biomechanics August 5-9, 2008, University of Michigan, Ann Arbor, MI
- Domire Z, **McCullough M**, An KN. Effect of Age on Shear Modulus of Skeletal Muscle. American Society of Biomechanics 2007 Annual Conference August 22-25, 2007, Stanford University, Palo Alto, CA

- **McCullough M.** The characterization of current wrist prosthetic devices using finite element analysis. Seventh Annual James F. Jakobsen Graduate Forum. April 29-30, 2005, University of Iowa, Iowa City, IA
- **McCullough M,** Adams BD, Grosland NM. Finite element analysis of the Universal 2 total wrist prosthesis. Fifth Triennial International Hand and Wrist Biomechanics Symposium. September 7, 2004, Syracuse, NY

LIST OF PAPERS IN CONFERENCE PROCEEDINGS

- Lambeth C, **McCullough MBA,** Aschenbrenner HR: Creating a Pipeline into Biomedical Engineering. Annual Meeting of the American Society of Engineering Education June 14-17, 2015, Seattle, WA
- Bhattarai N, Lambeth C, Kumar D, Waters C, Pai DM, **McCullough MB,** Booth CS. Enhancing Undergraduate Students' Learning and Research Experiences through Hands on Experiments in Bio-nanoengineering. Annual Meeting of the American Society of Engineering Education June 14-17, 2015, Seattle, WA
- Sweeper D, **McCullough M.** Biomaterial Innovation. Materials Education national Resource Center 2014 National Educator's Workshop, November 2-4, 2014, Seattle, WA
- **McCullough MB,** Lambeth C, Dunn DO, Pai DM, Sankar J. Work in Progress: Coordination of Pre-College Summer Programs to Create a Pipeline into Biomedical Engineering. Annual Meeting of the American Society of Engineering Education June 15-18, 2014, Indianapolis, IN
- **McCullough MB,** Luster-Teasley S, Gloster C, Parrish L, Williams M, Bailey RS. ENGAGE 2BE Engineers Mentoring Program for Minority Students. Annual Meeting of the American Society of Engineering Education June 15-18, 2014, Indianapolis, IN
- Rajan V, **McCullough M.** Material or Mechanical Testing Using Compression and Tension. Materials Education national Resource Center 2011 National Educator's Workshop, October 16-18, 2011, Greensboro, NC
- Choisine J, Ringleb SI, **McCullough MB,** Kaufman KR, Kitaoka HB. How Flatfoot Deformity Affects Moment Arms. American Society of Biomechanics 2011 Annual Conference August 10-13, 2011, Long Beach, CA

LIST OF INVITED PRESENTATIONS

- "Improving degradable orthopaedic devices using finite element analysis" Department of Biomedical Engineering and Mechanics, Virginia Tech University, March 15, 2018
- "Analysis of Mechanical Behavior of Magnesium Based Orthopaedic Applications" East Carolina University October 2016
- "Analysis of Mechanical Behavior of Magnesium Based Orthopaedic Applications" Department of Biomedical Engineering, Graduate Seminar, University of Iowa, Iowa City Iowa, April 25, 2014
- "Biomechanics at North Carolina A&T State University." Applied Neuromechanics Research Laboratory, University of North Carolina Greensboro, March 24, 2011, Greensboro, North Carolina.

- “Soft Tissues, Carpal Bones, and Ankles: The foundation of a Biomechanics Department” *Department of Chemical Engineering Graduate Seminar* North Carolina A&T State University

LIST OF UNPUBLISHED CONFERENCE PRESENTATIONS

- Gravely T, **McCullough M.** Biomaterial Innovation. Materials Education national Resource Center 2011 National Educator’s Workshop, October 16-18, 2011, Greensboro, NC

Posters:

- Cox, K and **McCullough MB.** Persona Development Through Motion Captures and Motion Profiles for Identity and Home Security. 6th Annual Graduate Student Poster Competition 2017, College of Engineering, North Carolina A&T State
- Nelson, T. and **McCullough MB.** Analysis of Digital Fixation After Replantation: A Literature Review 6th Annual Graduate Student Poster Competition 2017, College of Engineering, North Carolina A&T State
- Tanner, D and **McCullough MB.** Home Monitoring Systems that can Detect Precursors that Lead to Epileptic Seizures. 6th Annual Graduate Student Poster Competition 2017, College of Engineering, North Carolina A&T State
- Tetteh, E and **McCullough MB.** Impact of Screw Thread Shape on Stress Distribution in Cancellous Bone: A Finite Element Study. 6th Annual Graduate Student Poster Competition 2017, College of Engineering, North Carolina A&T State
- White, S. and **McCullough MB.** The Statistical Significance of Prevention Programs on Incidence of ACL Injuries. 6th Annual Graduate Student Poster Competition 2017, College of Engineering, North Carolina A&T State University, Greensboro, NC
- Frantz N, Jackson A, and **McCullough MB.** Heterogeneous Material Mapping of Magnesium Implants. Biomedical Engineering Society 2015 Annual Meeting October 7-10, 2015, Tampa Convention Center, Tampa, FL
- **McCullough MB,** Lambeth C, Dunn DO, Pai DM, Sankar J. Work in Progress: Coordination of Pre-College Summer Programs to Create a Pipeline into Biomedical Engineering. Annual Meeting of the American Society of Engineering Education June 15-18, 2014, Indianapolis, IN
- Jones SJ, **McCullough MB,** Bhattarai N, and Onger EM. Role of the Protein Kinase A Pathway in extracellular matrix Protein Deposition by Renal Mesangial Cells treated with Glucose. Annual Biomedical Research Conference for Minority Students November 7-10, 2012, San Jose, CA
- Flowers JF and **McCullough MB.** Comparison of Stress Distribution Patterns Within Trigonal, Quadrangle, and Hexagonal Screw Drive Designs of an ACL Interference Screw Using Finite Element Analysis. Biomedical Engineering Society 2012 Annual Meeting October 24-27, 2012, Georgia World Congress Center, Atlanta, GA
- Hawkins KM and **McCullough MB.** Evaluation of ACL Interference Screw Threads for Pullout Performance. Biomedical Engineering Society 2012

Annual Meeting October 24-27, 2012, Georgia World Congress Center, Atlanta, GA

- Jones SJ, **McCullough MB**, Bhattarai N, and Ongeri EM. Role of the Protein Kinase A Pathway in extracellular matrix Protein Deposition by Renal Mesangial Cells treated with Glucose. Biomedical Engineering Society 2012 Annual Meeting October 24-27, 2012, Georgia World Congress Center, Atlanta, GA
- Howell SH (*Undergraduate*), **McCullough MB**. Finite Element Analysis of Bone Callus Tissues using Computer-Aided Engineering Simulation Software. 2012 NC LSAMP Annual Research Conference. North Carolina A&T State University, Greensboro, NC
- Flowers JF and **McCullough MB**. Comparison of Stress Distribution Patterns Within Trigonal, Quadrangle, and Hexagonal Screw Drive Designs of an ACL Interference Screw Using Finite Element Analysis. 1st Annual Graduate Student Poster Competition April 26, 2012, College of Engineering, North Carolina A&T State University, Greensboro, NC
- Hawkins KM and **McCullough MB**. Evaluation of ACL Interference Screw Threads for Pullout Performance. 1st Annual Graduate Student Poster Competition April 26, 2012, College of Engineering, North Carolina A&T State University, Greensboro, NC
- Jones SJ, **McCullough MB**, Bhattarai N, and Ongeri EM. Role of the Protein Kinase A Pathway in extracellular matrix Protein Deposition by Renal Mesangial Cells treated with Glucose. 1st Annual Graduate Student Poster Competition April 26, 2012, College of Engineering, North Carolina A&T State University, Greensboro, NC
- McCray C, Mohan R and **McCullough MB**. Understanding the link between stress and bone using finite element analysis: A review. 1st Annual Graduate Student Poster Competition April 26, 2012, College of Engineering, North Carolina A&T State University, Greensboro, NC

LIST OF COURSES TAUGHT

Musculoskeletal Biomechanics (Graduate), Department of Chemical, Biological and Bioengineering, North Carolina A&T State University – Fall 2011; Spring 2013, 2014, 2015, 2016, 2018

Bioengineering Senior Capstone Design I, Department of Chemical, Biological and Bioengineering, North Carolina A&T State University – Fall 2012, 2016, 2017

Bioengineering Senior Capstone Design II, Department of Chemical, Biological and Bioengineering, North Carolina A&T State University – Spring 2013, 2017, 2018

Introduction to Biomechanics, Department of Chemical, Biological and Bioengineering, North Carolina A&T State University – Fall 2012; Spring 2012, 2013, 2014, 2015, 2016, 2017, 2018

Introduction to Biomedical Engineering, Department of Chemical, Biological and Bioengineering, North Carolina A&T State University – Fall 2012, 2013, 2014, 2015, 2016, 2017; Spring 2011, 2012

Introduction to Engineering Design and Ethics General Engineering, North Carolina A&T State University – Fall 2010

Fracture Mechanics: A Tutorial Department of Physiology and Biomedical Engineering, Mayo Clinic – Spring 2010

LIST OF GRADUATE STUDENTS ADVISED

Ph.D. Advisor

- Amanda Reams, North Carolina Agricultural and Technical State University, Department of Computational Science and Engineering

Ph.D. Committee Member

- Leon White, NCA&T, Mechanical Engineering
- Kwan Kim, University of Pittsburgh, Bioengineering
- Jonquil Mau, University of Pittsburgh, Bioengineering
- Kassu Gebresellasie, NCA&T, Mechanical Engineering
- Giri Venkataraman, NCA&T, Mechanical Engineering
- Erica A. Bell, Eastern Carolina University, Kinesiology
- Paul McGhee, NCA&T, Mechanical Engineering
- Jin Shin, NCA&T, Mechanical Engineering

M.S. Thesis Advisor

1. Jonquil R. Flowers “Finite Element Analysis of a Magnesium Based ACL Interference Screw Drive to Improve Insertion Success”– December 2012
2. Kevin Hawkins “Parametric Finite Element Analysis of Magnesium Based Anterior Cruciate Ligament Interference Screws For the Purpose of Optimizing Screw Purchase” – May 2013
3. Shakiri Jones “The Creation of Chitosan-Based Scaffolds and Cellular Response Using Kidney Cells – May 2013
4. Mark Gomes “Chitosin Based Composite Scaffolds for Bone Regeneration” - December 2013
5. Jubril Ogunbunmi
6. Robert Wesley “Investigation of Biomechanical Risk Factors of Medial Tibial Stress Syndrome through Finite Element Analysis” - May 2015
7. Adrienne Williams (Daley) “Micro-Computed Tomography-based Finite Element Analysis of the mechanical integrity of bone around in vivo biodegradable Magnesium anchors” – May 2015
8. Ashley Jackson –“The physiological basis of bone remodeling: a computational simulation” - May 2016
9. Keri Cox “Persona Quantification Through Motion Profiles” – July 2017
10. Emmanuel Tetteh “Impact of Magnesium Screw Thread Design on Stress Distribution in Cancellous Bone: A Finite Element Study” – July 2017
11. Shunafrica White – *Expected May 2018*
12. Jazmin McCorkle – *Expected May 2019*

13. Mollie Sewell – *Expected May 2019*
14. Katelyn Williams – *Expected May 2019*

M.S. Project Advisor

1. Trevon Nelson “A finite element analysis of wire diameter, material, and applied force interaction in k-wire fixation stress” – December 2018
2. Dominique Tanner “Using radio frequency identification and the internet of things intelligent homes to determine precursors of epileptic seizures” – December 2018

M.S. Committee Member

- Taratenecha McDougal, Industrial and Systems Engineering
- Roman Blount, Bioengineering
- Zanshe Thompson, Bioengineering
- Lauren Douglas-Byrd, Bioengineering
- Nan Zhao, Bioengineering
- Angela Edwards , Bioengineering
- Maame Boakye, Bioengineering
- Princeton Carter, Bioengineering
- Rasha Mohamad, Bioengineering
- Shek Rahman, Bioengineering
- Latecia Anderson-Jackson, Bioengineering
- M. Paulette Foster, Bioengineering
- ShaTara Tarte, Industrial and Systems Engineering
- Erika Johnson, Bioengineering
- Cherice Hughs-Oliver, Virginia Polytechnic Institute, Industrial and Systems Engineering
- Christopher Payten, Bioengineering
- Sunghyun Jun, Bioengineering

LIST OF PROFESSIONAL SOCIETY AFFILIATIONS

- American Society of Biomechanics
- American Society of Engineering Education
- Biomedical Engineering Society

LIST OF CONSULTING

- *None*

OTHER RELEVANT INFORMATION

Professional Development

May 2017

PKAL North Carolina Regional Meeting
“Research Bootcamp” Sponsored by the ADVANCE team,
North Carolina A&T State University

March 2016	Interactive NIH Grant Writing Seminar, University of Kentucky, Lexington, KY
February 2016	NSF IMPACT Kickoff, Georgia Polytechnic Institute, Atlanta, GA
October 2015	Grant Training Center, Grant Writing, UNC Chapel Hill, Chapel Hill, NC
May 2015	“Increasing writing productivity” Academy of Teaching and Learning, North Carolina A&T State University, Greensboro, NC
May 2015	“Grant Writing with Dr. Porter” High Point University, High Point, NC
April 2015	“Demystifying the DOD: Grant Writing to the Department of Defense” NC Biotechnology Center Durham, NC
April 2015	“Developing an Effective Mentoring Relationships” Academy of Teaching and Learning, North Carolina A&T State University, Greensboro, NC
March/April 2015	Instron Electropulse Static and Dynamic Test Training, North Carolina A&T State University, Greensboro, NC
March 2015	“Advising Excellence” Academy of Teaching and Learning, North Carolina A&T State University, Greensboro, NC
Spring 2014	One on one coaching with Dr. Lesia Crumpton-Young
July 2013	“COMSOL Multiphysics Workshop”, Greensboro, NC
May 2013	“Flipping the Classroom” by Dr. Julie Schnell, Academy for Teaching and Learning Summer Teaching Institute, North Carolina A&T State University
	“Writing Bootcamp” Sponsored by the ADVANCE team, North Carolina A&T State University
April 2013	“Building the NSF Proposal Grant” Workshop presented by the Division of Research and Economic Development, North Carolina A&T State University

- November 2012 “Faculty Planning Workshop” by Dr. Lesia Crumpton-Young Sponsored by the College of Engineering North Carolina A&T State University
- June 2012 “Grant Writing and Advanced Statistical Analysis Workshop” sponsored by the National Institute of Disabilities and Rehabilitation Research, Houston, TX
- March 2012 “Minority Faculty Development Workshop” sponsored by the National Institute for Faculty Equity, Atlanta, GA
- November 2011 “New Faculty Workshop on Working With Students With Disabilities” Academy of Teaching and Learning North Carolina A&T State University
- May 2011 “HBCU Proposal Development Workshop” Sponsored by the Council on Undergraduate Research, Charlotte, NC
- March 2011 “Transforming Your Students into Self-Regulated Learners” By Linda Nilson, Ph.D. Academy of Teaching and Learning North Carolina A&T State University
- February 2011 “Writing from the Reader’s Perspective” North Carolina Central University, by Dr. George Gopen, sponsored by the Division of Graduate Education and Research and Office of Sponsored Research Programs, North Carolina Central University, Durham, NC
- “Social and Behavioral Sciences Research Workshop” sponsored by the Division of Research and Economic Development North Carolina A&T State University
- January 2011 “Every Semester Needs a Plan” National Center for Faculty Development and Diversity by Dr. Kerry Ann Rockquemore
- “Junior Faculty Planning Workshop” by Dr. Lesia Crumpton-Young sponsored by the College of Engineering North Carolina A&T State University
- September 2010 “Integrated Course Design for Significant Learning” and “Introduction to Ruberics” by Dr. Stewart Ross sponsored by the Academy for Teaching and Learning, North Carolina A&T State University

Professional Service

- Member, Diversity Committee, American Society of Biomechanics 2015 - Present
- Member, National Biomechanics Day Planning Committee, American Society of Biomechanics, 2016-Present
- Faculty Adviser, North Carolina A&T State University Undergraduate Chapter of BMES
- Editorial Board Member Journal of Bone Biology and Osteoporosis Spring 2015 – Present
- Editorial Board Member SM Journal of Biomedical Engineering Spring 2015 – Present
- Editorial Board Member Austin Journal of Biomedical Engineering Spring 2013 - Present
- North Carolina A&T State University College of Engineering Internship/Coop First Round Selection Committee 2015-2016
- North Carolina A&T State University, College of Engineering, Bioengineering Website Development Committee 2010 - Present
- North Carolina A&T State University College of Engineering NAMASKAR (Engineering Student of the Year) Award Selection Committee 2013-2014, 2014-2015, 2016-2017
- North Carolina A&T State University College of Engineering Senior Capstone Expo Committee, 2013-2014, *Chair*
- North Carolina A&T State University Graduate Student Recruiting Committee Member, Department of Chemical, Biological and Bioengineering, 2013
- NSF ERC-RMB Summer Bioengineering Institute Coordinator, Summer 2012 and 2013
- North Carolina A&T State University College of Engineering Graduate Student Poster Competition Judge Spring 2012, 2015, 2017
- North Carolina A&T State University Staff Search Committee Member, Department of Chemical, Biological and Bioengineering, 2013
- North Carolina A&T State University, Institutional Biosafety Committee, 2011-Present
- North Carolina A&T State University Freshman Academic Advisor, Bioengineering, 2011 - 2013
- North Carolina A&T State University, Undergraduate Academic Advisor, Bioengineering 2010-2011
- NSF Engineering Research Center for Revolutionizing Metallic Biomaterials Education and Outreach Committee 2010 - Present
- North Carolina A&T State University, College of Engineering, Bioengineering Curriculum Development Committee 2010 - Present
- Ad Hoc Reviewer: *Journal of Applied Physiology* 2008, *Computer Methods and Programs in Biomedicine* 2008, *Journal of Biomechanical Engineering* 2009, *Journal of Musculoskeletal Research* 2010, 2012, 2013, *PLoS ONE* 2012, *Journal of Biomechanical Engineering* 2014

Undergraduate Research Advising

1. Sanchit Anand – UNC Charlotte (ERC-RMB REU)
2. Jazmine Brown – North Carolina A&T (Bioengineering)
3. David Clarke - North Carolina A&T (Biology)
4. Lidia De Barros – Boston University (ERC-RMB REU, 1st Place REU Final Presentation Competition, 1st Place Literature Review Competition)
5. Malique Brunner - North Carolina A&T (Bioengineering)
6. Eric Carmichael - North Carolina A&T (Industrial and Systems Engineering)
7. Max Deleon - North Carolina A&T (Bioengineering)
8. Joyrie Dickerson – Hampton (EMCoR REU)
9. Nicole Frantz – Illinois Institute of Technology (ERC-RMB REU, 1st Place REU Final Presentation Competition)
10. Yasmine Giddens - North Carolina A&T (Bioengineering)
11. Zoe Hardaway- North Carolina A&T (Bioengineering)
12. Darius Hightower- North Carolina A&T (Mechanical Engineering)
13. Shenne Howell - North Carolina A&T (Bioengineering)
14. Akosua Johnson - North Carolina A&T (Bioengineering)
15. Selvin Jones - North Carolina A&T (Electrical and Computer Engineering)
16. Krysten Lane - North Carolina A&T (Bioengineering)
17. Elyssa Lawrence – Cal State LA (NSF ERC-RMB REU)
18. Jonathan Lunsford - North Carolina A&T (EMCoR REU)
19. Bria Macklin - North Carolina A&T (Bioengineering)
20. Amber McCreary - North Carolina A&T (Bioengineering)
21. Victor Modomoro – University of South Carolina (Biomedical Engineering)
22. Mary Omotoso - North Carolina A&T (Bioengineering)
23. Janeé Phillips - North Carolina A&T (Bioengineering)
24. Danesha Poteat - North Carolina A&T (Bioengineering)
25. Sydnye Rae Morris - North Carolina A&T (Chemical Engineering)
26. Denzel Ross - North Carolina A&T (Mechanical Engineering)
27. Myles Ross - North Carolina A&T (Mechanical Engineering)
28. Dominique Saddler - North Carolina A&T (Bioengineering)
29. Thomas J. Slaydon - North Carolina A&T (Bioengineering)
30. Trevor Surratt - North Carolina A&T (Bioengineering)
31. Jazmine Towns - North Carolina A&T (Bioengineering)
32. Devana Turner - North Carolina A&T (Bioengineering)

High School Research Advising

1. Folasade Adekanle, STEM Early College, North Carolina A&T State University
2. Nabeel Abedlmajid, STEM Early College, North Carolina A&T State University
3. Khari Baker, Summer 2011 ERC-RMB Young Scholars Program
4. John Bigelow, STEM Early College, North Carolina A&T State University
5. Hunter Brown, Summer 2016 ERC-RMB Young Scholars Program
6. Marshall Brown, Summer 2011 ERC-RMB Young Scholars Program
7. Shira Chandler, Summer 2012 ERC-RMB Young Scholars Program
8. Ereka Debnam, Summer 2014, 2015 ERC-RMB Young Scholars Program

9. Olga Fialkova, Summer 2017, 2015 ERC-RMB Young Scholars Program
10. Andrew Gerald, STEM Early College, North Carolina A&T State University
11. Areej Hussein, STEM Early College, North Carolina A&T State University
12. Joshua Keku, STEM Early College, North Carolina A&T State University
13. Deondre McCaskill, Summer 2012 ERC-RMB Young Scholars Program
14. Darick Morris, STEM Early College, North Carolina A&T State University
15. Zakia Moton, STEM Early College, North Carolina A&T State University
16. Yacob Yusef, STEM Early College, North Carolina A&T State University

Community Service

- 2016 to Present Assistant Superintendent and Youth Sunday School Teacher, First Calvary Baptist Church, Salisbury, NC
- 2016 to present Planning Committee and Volunteer: Community Day; STEAMinG Day; Men's Day First Calvary Baptist Church, Salisbury, NC
- 2015 Back 2 School Celebration chaperone, First Calvary Baptist Church, Salisbury, NC
- 2015 Speaker, Martin Luther King, Jr. Memorial Service, First Calvary Baptist Church, Salisbury, NC
- 2014 Christmas Program coordinator, First Calvary Baptist Church, Salisbury, NC
- 2013 Science and Everyday Experiences Presenter for the Durham Alumnae Chapter of Delta Sigma Theta
- 2012 NC Opt-Ed Day Panelist on Graduate School
- 2012, 2013 NCAT ERC-RMB Summer Bioengineering Institute Camp Coordinator
- 2012 Alpha Leadership Institute Guest Speaker "Engineering as a Career"
- 2011 Research Exhibitor College of Engineering
- 2011 First Lego League North Carolina Regional Competition Judge Advisor
- 2011 First Tech Challenge North Carolina Aggieldand Championship Judge
- 2011 NC Opt-Ed Day Panelist on Graduate School
- 2010 First Lego League North Carolina State Competition Project Judge