BOARD OF TRUSTEES
UNIVERSITY OF THE DISTRICT OF COLUMBIA
UDC RESOLUTION NO. 2017 -

SUBJECT: TENURE APPROVAL FOR DR. LARA THOMPSON, SCHOOL OF ENGINEERING & APPLIED SCIENCES

WHEREAS, pursuant to 8B DCMR §1467, the University of the District of Columbia (the "University") School of Engineering & Applied Sciences (SEAS) Promotion Committee has determined that Dr. Lara Thompson is qualified for the position of Associate Professor of Mechanical Engineering; and

WHEREAS, pursuant to 8B DCMR §1462, Dr. Lara Thompson has served as Assistant Professor at UDC since 2013 and, as further evidenced on Appendix A attached hereto, is recognized by her students, faculty members, administrators, and other experts in her field for her excellent teaching and track record of strong research, and contributions to undergraduate research involving students; has secured grants (currently totaling over $1.3M) from agencies such as the National Science Foundation (NSF), Department of Defense (DoD), for research in areas of Biomedical Engineering, primarily for developing new techniques for balance rehabilitation, developing engineering metrics to quantify balance and gait control, for creating a faculty-student team for investigating new generation of devices for balance rehabilitation, and for developing state of the art facilities such as the Center for Biomechanical and Rehabilitation Engineering; has authored more 33 peer-reviewed journal papers and conference proceedings, and has received five research excellence and scholarship award from SEAS; and

WHEREAS, pursuant to 8B DCMR §§ 1468 and 1470, the Dean of SEAS, the Chief Academic Officer (CAO) and President have affirmed the recommendation of tenure for Dr. Thompson, and the President has forwarded the recommendation for tenure to the Board of Trustees (the "Board") of the University; and

WHEREAS, pursuant to 8B DCMR § 1470, the Board desires to approves the award of tenure to Dr. Thompson to SEAS based on the recommendation of the Dean of SEAS, the CAO and the President.

NOW, THEREFORE, BE IT RESOLVED that the Board approves the award of tenure to Dr. Thompson.

Submitted by the Academic &
Student Affairs Committee: August 24, 2017

Approved by the Board of Trustees:

_____ September 19, 2017
Christopher Bell
Chairperson of the Board

APPENDIX A

LARA A. THOMPSON

EDUCATIONAL & INDUSTRIAL EXPERIENCE

Massachusetts Institute of Technology (MIT) Cambridge, MA
Ph. D., Biomedical Engineering, Harvard-MIT Division of Health Sciences and Technology, HST (Aug. 2013).
Thesis: A Study of the Effects of Sensory State on Rhesus Monkey Postural Control

Charles Stark Draper Laboratory Cambridge, MA
Mechanical Engineer (May 2005 – Aug. 2007)

Stanford University Palo Alto, CA
M.S., Aeronautical and Astronautical Engineering, Chancellor's List (March 2005).

University of Massachusetts Lowell, MA
B.S., Mechanical Engineering, Summa Cum Laude (June 2003).

AWARDS & ACADEMIC HONORS

- Diverse: Issues in Higher Education *Emerging Scholar 2017*
- University of the District of Columbia Faculty Recognition Award for Outstanding University Scholarship & Research (2016)
- University of the District of Columbia Faculty Recognition Award for Outstanding University Service (2015)
- University of the District of Columbia Myrtilla Miner Faculty Fellow (2015)
- National Institutes of Health (NIH) Training Grant Fellowship (2007-2013)
- Ford Fellowship Honorable Mention (2009)
- Stanford University Chancellor's List (2005)
- Stanford College of Engineering Fellowship (2003)
- Ford Fellowship Honorable Mention (2003)
- Finalist for the AT&T Bell Laboratories and Lucent Technologies Cooperative Research Fellowship Program, CRFP, and the Graduate Research Fellowship Program for Women, GRPW (2003)
- Graduated Summa Cum Laude (2003)
- Dean's List all terms (1999-2003)
- National Athlete Student Day Award (2002)
- Inducted into Tau Beta Pi Honor Society (2001)
- Member of Pi Tau Sigma (2001)

RESEARCH EXPERIENCE

University of the District of Columbia (UDC) Washington, DC
School of Engineering and Applied Sciences (SEAS)
Assistant Professor of Mechanical Engineering Sept. 2013 - Present

Director of the Center for Biomechanical and Rehabilitation Engineering (CBRE) Laboratory

- Principal Investigator of $400,000 of National Science Foundation (NSF), 3-year NSF HBCU-UP Targeted Infusion Project: *Integration, Cultivation, and Exposure to Biomedical Engineering at the University of the District of Columbia* awarded on July 15, 2015
- Initiated novel research within the newly-renovated UDC CBRE lab (opened Summer 2015) aimed towards postural investigations and rehabilitation interventions for impaired (e.g., fall-prone elderly and stroke survivors) and un-impaired (e.g., athletes and non-athletes)
- The UDC CBRE lab is an abundant lab-space (30 ft x 40 ft) currently equipped with the following: *A Tekscan Walkway System* used to measure individual's ground reaction forces needed to assess standing balance and gait; A *Vicon Motion Capture System*, used to measure subject's body movements; *surface electromyography (or sEMG)* used to measure muscle activity/response to determine postural strategies/muscle synergies; *NaviGAITOR* system for subject partial body-weight support and safety from falls; *Open Bionics* robotic prosthetic hand; 5 Dell computers

Harvard-MIT Health Sciences and Technology, Cambridge, MA
Graduate Research Fellow June 2009 – Aug. 2013
Research Supervisor: Dr. Richard F. Lewis

- *Motivation:* Over 8-million American adults have chronic balance impairments due to damage in the peripheral vestibular system. When vestibulospinal inputs are impaired or absent, patients suffer from imbalance and have an increased risk of falls. While the brain may partially compensate for a relatively mild loss of peripheral vestibular function, many patients with severely impaired vestibular function will remain permanently debilitated (i.e., suffer from oscillopsia (blurred vision), vertigo, and imbalance).
- *Thesis Research:* Investigated postural responses, for tasks of increasing difficulty (i.e., standing balance, head-turns, and balancing on a rotating platform), in two rhesus monkeys under four vestibular (equilibrium) states: normal, mild bilateral vestibular hypofunction, severe bilateral vestibular hypofunction and severe bilateral vestibular hypofunction aided by a prototype invasive vestibular prosthesis

Charles Stark Draper Laboratory Cambridge, MA
Mechanical Engineer June 2005 – Aug. 2007
Supervisor: Philip Hipol

- Created MATLAB and Simulink models for various applications
- Participated in MEMS thermal accelerometer gyro concept preliminary research
- Performed modal and harmonic analysis using ANSYS and ANSYS Workbench 10.0
- Designed vibrational test fixture using ProEngineer
- Conducted ANSYS thermal modeling and stress analysis

Stanford University Palo Alto, CA
Graduate Research Assistant Jan. 2005 – Mar. 2005
Supervisor: Robert MacCormack

- Researched magneto-fluid dynamics for aero applications
- Wrote computer code to display regions of acceleration and deceleration of compressible flows under a magnetic field through a 1-D channel

University of Massachusetts Lowell, MA
Engineering Capstone Designer Sept. 2002 – June 2003

Supervisor: John Duffy

- Capstone project included design and implementation (on-site build) of water delivery and purification system for the remote town of Huayash, Peru
- Determined project cost and time estimates, as well as scheduling of tasks, compiled in a 100-page technical report
- Constructed and tested prototype to validate effectiveness of slow-sand filtration and participated in on-site installation of full-scale filters in Peru

Mentis Sciences Manchester, NH
Junior Engineer May 2001 – Aug. 2003
Supervisor: John J. Dignam

- Utilized various layout procedures to fabricate composite plates and radomes from Kevlar and quartz
- Performed tensile and flexural experiments and tests on composite samples and established a data-base

AWARDED AND PENDING GRANT PROPOSALS & FUNDING

Thompson LA (PI) ($299,996). *RESEARCH INITIATION AWARD (RIA): Investigating a new Generation of Assistive, Innovative Technologies (GAIT) for balance rehabilitation.* Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), National Science Foundation (Submitted October 2016, Favorably reviewed and under recommendation)

Thompson LA (PI), Zhang N **($99,997).** *EAGER: Nurturing Women's Innovativeness and Strength in Engineering through experiential learning in biomedical engineering (WISE).* Division of Undergraduate Education (DUE), National Science Foundation (Submitted July 2016, Favorably reviewed and under recommendation)

Thompson LA (PI), Haghani S, Zhang N **($399,991).** *Targeted Infusion Project: Integration, Cultivation, and Exposure to Biomedical Engineering at the University of the District of Columbia.* Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), National Science Foundation (July 15, 2015- June 30, 2018, **Awarded)**

Xu J (PI), Tyagi P, **Thompson LA (Co-PI)**, Klein K, Shetty D **($496,442).** *Acquisition of a Laser Rapid Manufacturing System, BEAM: Broadening Education through Advanced Manufacturing at UDC.* HBCU/MI Instrumentation Grant Application, Department of Defense (June 2016, **Awarded)**

Thompson LA (PI) ($7,500). *Investigating Forceplate-based Measures in Non-Athlete and Athlete Populations.* University of the District of Columbia Faculty Incentive Research Grant (June 2016, **Awarded)**

Thompson LA. University of the District of Columbia Myrtilla Miner Faculty Fellow Recipient **($1,500).** (May 2015, **Awarded)**

Thompson LA. Annual Biomedical Research Conference for Minority Students (ABRCMS) **($1,850).** (Oct. 2014, **Awarded)**

SUBMITTED GRANT PROPOSALS

Zhang N, **Thompson LA (Co-PI) ($244,856).** *Deep Supervised and Unsupervised Learning to Explore Feature Selection and Classification in Mobile Health Data,* National Science Foundation/National Institutes of Health (Sept. 2016)

Thompson LA (PI) ($299,998). *HBCU: EAGER: Investigating a Frontier Aid using Light touch Leading to Stability (FALLS).* Historically Black Colleges and Universities Undergraduate Program (NSF 16-1), National Science Foundation (June 13, 2016)

Fleming L (PI, Howard University), *5-Institute Wide Grant,* **Thompson LA** (Project Knowledge Transfer and Outreach Lead). *Broadening Participation Research Centers (BPRC)* **($9,000,000).** Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), National Science Foundation (Jan. 2016)

Thompson LA (PI) ($499,994). *CAREER: FALLS- Investigating a Frontier Aid using Light touch Leading to Stability.* Faculty Early Career Development Program (NSF 15-555), National Science Foundation (July 22, 2015)

Thompson LA (PI), Haghani S., Xu J **($60,000).** *"Devices-to-Aid-Mobility" Engineering.* University of the District of Columbia Land Grant RFP. (March 2015).

Thompson LA (PI) ($10,000). *The Development and Research of a Low-cost, Lower Limb Exoskeleton.* Ralph E. Powe Junior Faculty Enhancement Award: Engineering and Applied Science. Oak Ridge Associated Universities (ORAU). (Jan. 2015).

Thompson LA (PI), Haghani S., Xu J **($125,000).** *"Devices-to-Aid-Mobility" Engineering (DAME): Capstone Designs to Aid Balance-Impaired Individuals.* General & Age-Related Disabilities Engineering (GARDE). National Science Foundation (Nov. 2014 *—returned without review).*

Thompson LA (PI) ($200,000). *Research Initiation – Compact Rehabilitation Aids for Balance (CRAB): Research of portable aids for balance- impaired individuals.* Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), National Science Foundation (Oct. 2014).

Chandra K, Thompson C, Levasseur K, Weinstein Y, **Thompson LA (Co-PI) ($550,506).** *Collaborative Research: BPEC Computing in Action: A Vibes and Waves Partnership for STEM Education.* CNS - Computing Ed for 21st Century (NSF 14-523), National Science Foundation (March 2014)

Zhang N, **Thompson LA (Co-PI),** Ososanya E, Mahmoud WH, Wellman BL, Robinson-Richards D **($350,000).** *Integration of Women and Minority Undergraduate Students in STEM via Research, Co-Design, and Build of Novel Lead Body Surface Mapping System (LBSMS).* Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), National Science Foundation (Feb. 2014 *—returned without review*).

Kumar N, Haghani S, **Thompson LA (Co-PI),** Shetty D. *Affordable Exoskeleton device for Gait Rehabilitation of Gait Disorders of Children.* Indo-US Collaboration, National Science Foundation (Jan. 2014)

Thompson LA(PI), Shetty D, Haghani S, Nichols D, Lewis,R (**$399,210**). *The Development of a Home-Based Rehabilitative Device to Aid Fall-Prone Elderly and Balance-Impaired Patients.* Department of Education, National Institute on Disability and Rehabilitation Research (Jan. 2014).

PUBLICATIONS

Thompson LA, Baker C, Wilson C, Xu J. *Additive Manufacturing for Economical, User-accessible Upper-limb Prosthetics.* (Submitted to the Prosthetics and Orthotics Open Journal in Jan. 2017).

Zhang NA, **Thompson LA.** An Enhanced K-Nearest Neighbor Classification Method Based on Maximal Coherence and Validity Ratings (Paper submitted to International Symposium of Neural Networks (ISNN) in Jan. 2017).

Thompson LA, Haburcakova C, Goodworth AD, Lewis RF. *An Engineering Model to Test for Sensory Reweighting in Non-Human Primate Posture.* (Submitted to the Journal of Biomechanical Engineering in Dec. 2016)

Kumar N, Haghani S, **Thompson LA**, Shetty D. *Wearable Wireless Inertial Sensors for Estimation of Gait Parameters and its Integration with Portable Ambulatory System for Rehabilitation.* (In preparation Jan. 2017)

Zhang N, **Thompson LA.** *An Intelligent Clustering Algorithm for High Dimensional and Highly Overlapped Photo-Thermal Infrared Imaging Data*, Proc. of 2016 Mid- Atlantic ASEE Conference, Hempstead, NY Oct. 21st – 22nd, 2016.

Thompson LA, Haburcakova C, Lewis RF. *Vestibular ablation and a semicircular canal prosthesis affect postural stability during head turns*. Experimental brain research (2016): 1-13.

Thompson LA, Haburcakova C, Lewis R. *Postural compensation strategy depends on the severity of vestibular damage.* (Journal paper under review 2016).

Thompson LA, Badache M. *Investigating Center-of-Pressure Parameters to Quantify Athlete and Non-Athlete Balance*. Technical Paper Publication (IMECE 2016-65642), American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition, IMECE (Nov. 2016).

Thompson LA, Adebayo AS, Zhang N, Haghani S, Dowell K, Shetty D. *Building a More Diverse Biomedical Engineering Workforce: Biomedical Engineering at the University of the District of Columbia, a Historically Black College & University*. Technical Paper, Engineering in Medicine and Biology Society, EMBC, 2016 Annual International Conference of the IEEE.

Thompson LA, Haburcakova C, Lewis R. *A platform-system to study the effects of vestibular dysfunction on rhesus monkey posture* (Journal paper under review 2016).

Adebayo A, Ososanya E, Mahmoud W, **Thompson LA**, Haghani S, et. al, *The Design of Lower Limb Exoskeleton Device as an Accessory to Portable Harness Ambulatory System for Assisted Mobility*, Proc. of 2015 Mideastern ASEE Conference, Boston, MA, April 30-May 2, 2015, pp. 1-10.

Thompson LA. *A Study of the Effects of Sensory State on Rhesus Monkey Postural Control.* Massachusetts Institute of Technology (2013).

Thompson LA, Haburcakova C, Gong W, Lee D, Merfeld D, Lewis R. *Responses evoked by a vestibular implant providing chronic stimulation.* Journal of Vestibular Research Vol 22 (1), 2012.

Lewis R, Haburcakova C, Gong W, Lee D, Wall C, **Thompson LA**, Merfeld D. *Vestibular Prosthesis Tested in Rhesus Monkeys.* Engineering in Medicine and Biology Society, EMBC, 2011 Annual International Conference of the IEEE, Aug. 30, 2011-Sept. 3, 2011, 2277 – 2279.

ABSTRACTS AND PROCEEDINGS *(selected)*

Haburcakova C, Merfeld D, Gong W, Guinand N, Perez Fornos A, **Thompson LA**, Guyot JP, Lewis RF. *Sensory prosthetics - clinical and scientific utility of a vestibular implant.* 69th Annual American Academy of Neurology (AAN) Annual Meeting (April 2017).

Behera L, **Thompson LA**. *Exploring Force-Exertion of a Robotic, Prosthetic Hand for Common Hand Gestures.* NSF Emerging Researchers National Conference (ERN) in STEM. (Accepted for March 2017).

Johnson P, **Thompson LA**. *An Investigation on the Control of a Robotic, Prosthetic Hand.* 2016 Annual Biomedical Research Conference for Minority Students (ABRCMS), Tampa, FL (Accepted 2016).

Cale S, Jacques B, Lockerman S, Wilson C, **Thompson LA**. *Studying the effects of athletic training on postural control.* NSF Emerging Researchers National Conference (ERN) in STEM. (Feb. 2016).

Jacques B, **Thompson LA**. *Differences between mechanical and non-mechanically supportive balance aids.* 2015 Annual Biomedical Research Conference for Minority Students (ABRCMS), Seattle, WA (Accepted 2015).

Haburcakova C, **Thompson LA**, Wall C, Lewis RF. *Postural control strategy in normal and vestibular-ablated states studied in an animal model.* International Posture Symposium. Bratislava, Slovakia (Sept. 2015).

Jacques B, **Thompson LA**. *The Development of a Home-based Postural Rehabilitative Device: the Analysis of Gait Using Portable Harness Ambulatory System (PHAS) Prototype.* 2014 Annual Biomedical Research Conference for Minority Students (ABRCMS), San Antonio, TX. (November 13, 2014).

Thompson LA, Haburcakova C, Lewis RF. *Postural sway evoked by head-turns in a severely vestibular-impaired and prosthesis-assisted rhesus monkey.* The International Society of Gait and Posture Research (ISPGR) Conference. Vancouver, Canada (July 2014).

Thompson LA, Haburcakova C, Goodworth AD, Lewis RF. *Sensorimotor integration used for rhesus monkey postural control.* The International Society of Gait and Posture Research (ISPGR) Conference. Vancouver, Canada (July 2014).

Thompson LA. *A Study of the Effects of Sensory State on Rhesus Monkey Postural Control.* Massachusetts Eye and Ear Infirmary (MEEI) (May 2013).

Thompson LA, Balkwill D, Wall C, Lewis R.. *A Quiet Stance Study of Rhesus Posture.* Harvard University and MIT, Health Sciences and Technology Forum (April 2011).

Thompson LA, Balkwill D, Wall C, Lewis R. *A Quiet Stance Study of Rhesus Posture.* Harvard University, Longwood Medical Center, New England Science Symposium (April 2011).

Thompson LA, Balkwill, D, Wall, C, Lewis,R. *A Quiet Stance Study of Rhesus Posture.* Association for Research in Otolaryngology (ARO) Midwinter Meeting (Feb. 2011).

Thompson LA, Balkwill, D, Lewis,R, Wall, C. *A Simple Inverted Pendulum Feedback Control Model for Human Posture.* Association for Research in Otolaryngology (ARO) Midwinter Meeting (Feb. 2010).

Thompson LA. *Study of Posture in Vestibulopathic Rhesus Monkeys aided by an Invasive Vestibular Prosthesis.* Harvard Medical School, Massachusetts Eye and Ear Infirmary (MEEI) (May 2009).

Thompson LA. *A Simple Inverted Pendulum Feedback Control Model for Human Posture.* Harvard Medical School, Massachusetts Eye and Ear Infirmary (MEEI), (Dec. 2009).

Thompson LA, Balkwill, D, Weinberg, M, Wall, C. *Implementation of Extended Kalman Filter for Non Invasive Balance Prostheses.* Harvard University and MIT, Health Sciences and Technology Forum (April 2009)

Thompson LA, Balkwill, D, Weinberg, M, Wall, C. *Implementation of Extended Kalman Filter for Non Invasive Balance Prostheses.* Association for Research in Otolaryngology Midwinter Meeting (Feb. 2009).

INVITED TALKS

Thompson LA. *Biomedical Engineering at the University of the District of Columbia.* George Mason University, Department of Bioengineering. Fairfax, VA (Sept. 2016).

Thompson LA. Biomedical Outreach Seminar: *Biomedical Engineering at the University of the District of Columbia.* United States Food and Drug Administration (US FDA). White Oak, MD (Sept. 2016).

Thompson LA. Rehabilitation And Plasticity (RAP) Seminar Speaker: *Postural Control and Rehabilitation Strategies.* MedStar National Rehabilitation Hospital (NRH). Washington, DC (Sept. 2014).

Thompson LA. Symposium Speaker- Implants and wearable aids for balance and gait dysfunction: *Responses Evoked by a Vestibular Implant.* The International Society of Gait and Posture Research (ISPGR) Conference. Vancouver, Canada (July 2014).

Thompson LA. Oral Presenter- Vestibular Function & Disorders: *The severity of vestibular dysfunction effects postural compensation.* The International Society of Gait and Posture

Research (ISPGR) Conference. Vancouver, Canada (July 2014).

Thompson LA. *The Effects of Sensory State on Rhesus Monkey Postural Control.* The Johns Hopkins Hospital – Laboratory of Vestibular Neurophysiology (Nov. 2013).

Thompson LA. *A Study of the Effects of Sensory State on Rhesus Monkey Postural Control.* National Institutes of Health (NIH), Clinical Movement Analysis (CMA) Laboratory (Sept. 2013).

Thompson LA. *Intellectual Property and Patents.* Washington State University, Department of Mechanical Engineering (June 2013).

Thompson LA. *Physiological Systems Analysis and the Study of the Effects of Sensory State on Rhesus Monkey Postural Control.* University of the District of Columbia, Department of Engineering and Applied Sciences (April 2013).

Thompson LA. *A Study of the Effects of Sensory State on Rhesus Monkey Posture.* Worcester Polytechnic University (WPI), Department of Biomedical Engineering (Jan. 2013).

Thompson LA. *A Study of the Effects of Sensory State on Rhesus Monkey Posture.* Oklahoma State University, Department of Mechanical and Aeronautical Engineering (June 2012).

Thompson LA. *An Introduction to Physiological Systems Analysis.* Columbia University, Fu Foundation School of Engineering and Applied Sciences, Department of Mechanical Engineering (May 2012).

Thompson LA. *Normal and Vestibular Loss Rhesus Monkey Posture.* University of Hartford, Department of Physical Therapy (Feb. 2012).

Thompson LA. *Normal and Vestibular Loss Rhesus Monkey Posture.* IEEE Engineering in Medicine and Biology Society (Feb. 2012).

Thompson LA. *A Parallel Study of Humans and Rhesus Monkeys Under Different Sensory States.* Stanford University, Department of Mechanical Engineering, BioMotion Laboratory (Feb. 2010).

TEACHING EXPERIENCE

University of the District of Columbia (UDC) Washington, DC
School of Engineering and Applied Sciences (SEAS)
Assistant Professor of Mechanical Engineering Sept. 2013 - Present
Director of the Biomedical Engineering Program

- Wrote proposal for and was proactive in approval and initiation of new, Biomedical Engineering program (full-board approved Fall 2014) housed within the Department of Mechanical Engineering at the University of the District of Columbia
- Of approximately 100 Historically Black Colleges and Universities (HBCUs) nationwide, UDC is 1 of 4 HBCUs to offer a Bachelor's of Science (BS) in Bio-related Engineering and 1 of 2 that specifically offers a BS in Biomedical Engineering (or "BME")
- Initiated and coordinated new activities (e.g., BME Journal Club & Guest Lecture Series) and

teaching new BME courses, never before offered at UDC

Advisor: Senior Capstone Design Project

- Design of a 3D printed upper limb prosthetic

Course Instructor: Bioinstrumentation

- Designed and initiated a new course (never before taught at UDC) on biomedical instrumentation as part of the newly-minted Biomedical Engineering Program

Course Instructor: Biomedical Engineering Seminar

- Designing and offering a new course, as part of the newly-minted Biomedical Engineering Program, which covers medical ethics, exposure to various topics in biomedical engineering (e.g., rehabilitation engineering, advanced manufacturing in biomedical engineering, nanotechnology in biomedical engineering, and others), invited guest speakers, student professional development, as well as oral and technical communication.

Course Instructor: Engineering Mechanics I

- Taught undergraduate engineering students (class sizes ranged from 20 – 40 students) in technical problem solving methodology
- Prepared lecture notes and encouraged student involvement during interactive class sessions
- Designed problem sets, practice exams, to expand on the in-class learned concepts
- Held open-door office hours and advised, as well as mentored, students
- Created practice exams, wrote detailed solutions, and held interactive exam review sessions
- Wrote exam problems to challenge students' application of learned concepts and then graded, as well as provided detailed feedback on, exam problems

Course Developer and Instructor: Introduction to Engineering

- Taught 20 undergraduate engineering students
- Assigned thought projects (e.g., egg-drop design) in which students worked in small groups to design devices given specific deliverables and constraints
- Taught and advised students on technical writing skills
- Organized *Introduction to Engineering Guest Lecture Series*, to expose the incoming engineering students to experienced engineers in industrial and academic professions, as well as engineering clubs and organizations

Course Instructor: Engineering Mechanics II

- Taught undergraduate engineering students (class sizes ranged from 15 – 25 students) in technical problem solving methodology
- Prepared lecture notes and encouraged student involvement during interactive class sessions
- Designed problem sets, practice exams, to expand on the in-class learned concepts
- Held open-door office hours and advised, as well as mentored, students
- Created practice exams, wrote detailed solutions, and held exam review sessions
- Wrote exam problems to challenge students' application of learned concepts and then graded, as well as provided detailed feedback on, exam problems

Course Instructor: Applied Numerical Methods for Engineers

- Taught undergraduate engineering students (class sizes ranged from 10 – 20 students) in technical problem solving methodology
- Created labs and tutorials to teach students engineering problem solving using computer software (such as MATLAB)
- Designed problem sets, practice exams, to expand on the in-class learned concepts
- Held open-door office hours and advised, as well as mentored, students
- Wrote exam problems to challenge students' application of learned concepts

Harvard University, Department of Engineering and Applied Sciences Cambridge, MA
Teaching Fellow: *Introduction to Physiological Systems Analysis* Sept. 2010 – Jan. 2011

- Taught 30 undergraduate/graduate students in problem solving
- Prepared recitation lectures, and lecture notes, to expand on the in-class, learned concepts
- Provided interactive recitation sessions for students
- Prepared and gave course lecture on postural control
- Held office hours and counseled students
- Wrote exam problems to challenge students' application of learned concepts and then graded, as well as provided detailed feedback on, exam problems

Massachusetts Institute of Technology, Department of Electrical Engineering, Cambridge, MA
Grader: *Acoustics of Speech and Hearing* Sept. 2009 – Jan. 2010

- Solved problem sets and wrote up step-by-step solution sets for students to learn technical methodology in problem solving
- Corrected and gave technical feedback on problem sets for a class of 20 graduate students

Stanford University, Department of Mechanical Engineering, Palo Alto, CA
Teaching Fellow *Thermodynamics* Sept. 2004 – Jan. 2005

- Taught methods of technical problem solving as well as provided mentoring to class of over 50 undergraduate students
- Wrote recitation lecture notes to integrate, as well as to expand on, course concepts and organized interactive problem solving sessions for students
- Held office hours in which students could inquire clarification on course material and concepts
- Wrote, administered, graded, and provided technical feedback on midterm exams

University of Massachusetts, Centers for Learning, Lowell, MA
Tutor: *Calculus I, Physics, and Statics* May 2000 – May 2001

- Explained methods for technical problem solving to numerous students of various backgrounds (~ 10 hrs/week)

SCHOLARLY ACTIVITIES AND MENTORING

University of the District of Columbia (UDC) Washington, DC
School of Engineering and Applied Sciences (SEAS)
Assistant Professor of Mechanical Engineering Sept. 2013 - Present

- **Creator, Initiator and Lead of the UDC Summer Biomedical Engineering Workshop** (Summer 2016)

  The University of the District of Columbia's School of Engineering and Applied Sciences recently concluded their first-ever, *Summer Biomedical Engineering Workshop* that took place

July 25th through Aug. 4th, 2016. This activity was funded in-part by a National Science Foundation (NSF) grant (Award Abstract #1533479) entitled: *Targeted Infusion Project: Integration, Cultivation, and Exposure to Biomedical Engineering at the University of the District of Columbia*, led by Dr. Lara Thompson (Principal Investigator) and facilitated by Drs. Nian Zhang and Sasan Haghani (Co-Investigators).

The 2-week workshop spearheaded by Dr. Thompson and colleagues was aimed at exposure and professional development of adults considering pursuing a career in Biomedical Engineering. The 25 workshop participants were from UDC Community College, Howard Community College, Montgomery Community College, UDC (electrical engineering, biomedical/mechanical engineering, computer science, psychology, and biology), Clark Atlanta University, and other institutions. Activities included: 1) Training & Professional Development (i.e., a Bioimpedance and Circuits Lab, using MATLAB software to process sensor data, an interactive resume and cover letter session, and exposure to state-of-the-art UDC Center for Biomechanical & Rehabilitation (Biomedical Engineering lab) equipment) and 2) Hands-on Exposure and Making (i.e., Robotics for Rehabilitation kits, hands-on dissections, and a field trip to the National Museum of Health and Medicine).

- **Initiator and Creator of the UDC SEAS Workforce Professional Development Series** (Fall 2015 & Fall 2016):
  - *Session I: Developing & Promoting Qualifications - Internships, Cover Letters & Resumes*
  - *Session II: Developing & Promoting Qualifications - Pursuing an Advanced Degree in STEM*

- **Creator, Initiator and Lead of the Biomedical Engineering Journal Club** (Fall 2015 - present):
  - *Biomedical Engineering Research at the University of the District of Columbia,* Dr. Lara Thompson (UDC SEAS faculty) Nov. 10, 2016.
  - *Overview & Applications of Brain-to-Machine Interface (BMI)*, Charles Wilson (UDC SEAS, Mechanical Engineering student presenter) Feb. 17, 2016.
  - *Dance Intervention Enhances Postural, Sensorimotor, and Cognitive Performance in Elderly Subjects,* Steven Cale (UDC SEAS, Mechanical Engineering student presenter) Dec. 3, 2015
  - *Bioimaging Using Quantum Dots,* Beachrhell Jacques (UDC SEAS, Mechanical Engineering student presenter) Nov. 18, 2015
  - *Weighted Extreme Learning Machine for Imbalance Learning,* Tilaye Alemayehu (UDC SEAS, Electrical & Computer Engineering student presenter), Nov. 3, 2015

- **Initiator and Coordinator or the UDC Biomedical Engineering Guest Lecture Series** (Fall 2015 - present):
  - *Eye movements and sensorimotor integration research.* Dr. Wilsaan Joiner, Ph.D. (Department of Bioengineering, George Mason University), Nov. 29, 2016
  - *Medical Imaging Research at the FDA,* Dr. Daniel X. Hammer, Ph.D., (Division of Biomedical

Physics Deputy Director) & Dr. Nicholas A. Petrick, Ph.D., (Division of Imaging Diagnosis and Software Reliability Director), Nov. 1, 2016

- *Acoustic Radiation Force Techniques for Clinical Health Assessment: A "Push" in the Advancement of Medical Ultrasound Diagnostic.* Dr. Max Denis, Ph.D. (Mayo Clinic/Army Research Laboratory), Oct. 28, 2016.

- *An Overview of the Division of Biomedical Physics at the US FDA.* Dr. Victor Krauthamer, Ph.D. (Division of Biomedical Physics), Sept. 27, 2016.

- United States Food and Drug Administration (FDA), Division of Biomedical Physics Director and colleagues visited the UDC CBRE Lab on June 9, 2016

- *Cerebellar Processing of Vestibular Signals: evidence from aging & agenesis,* Dr. Richard F. Lewis, M.D. (Associate Professor Harvard Medical School, Director of the Jenks Vestibular Laboratory), April 25, 2016

- National Institutes of Health (NIH), National Institute of General Medical Sciences (NIGMS), 4 Program Directors' meeting with UDC SEAS faculty and visited UDC CBRE Lab on Feb. 3, 2016

- *Developing and Manufacturing Innovative Therapies for those suffering from Neurological, Autoimmune and Hematologic Disorders,* Danielle T. Reynolds (Biogenidec Corporation, Manufacturing Manager), Nov. 17, 2015

- *Researching a Pediatric Heart Pump,* Dr. Arielle Drummond, Ph.D. in Biomedical Engineering, Carnegie Mellon University (U.S. Food and Drug Administration (FDA), Division of Cardiovascular Devices), Oct.13, 2015

- *An Introduction to Nuclear Magnetic Resonance (NMR) Spectroscopy for Biological Applications*, Dr. Song (UDC, Chemistry), Sept. 28, 2015

- *Neurocom Systems used for Assessing Human Balance,* Patrick Olivo (Natus Medical Incorporated), Sept. 9, 2015

• **Creator, Initiator and Lead of the UDC SEAS Alumni Guest Lecture Series** (Fall 2015 - present):

- *From UDC Engineering to a NASA Goddard Career*, Thomas Emmett (NASA Goddard Mechanism Engineer and UDC SEAS Alumni) & Dr. Joanne Hill, Ph.D. (X-ray Lab Associate Branch Chief, Sciences and Exploration Directorate at NASA Goddard Space Flight Center), Oct. 19, 2016

- *From UDC Engineering to Director of the Office of Defects Investigation at the Department of Transportation*, Frank Borris (Director of the Office of Defects Investigation, NHTSA, Department of Transportation, UDC SEAS Mechanical Engineering Alumni), Feb. 11, 2016

- *From UDC Engineering to a Northrop Grumman Career,* Phillip Lovell (Northrop Grumman

Corporation, Fellow Mechanical Engineer, Hardware Engineering Mechanical Technology, UDC SEAS Alumni), Nov. 10, 2015

- *From UDC Engineering to a NASA Goddard Career*, Thomas Emmett (NASA Goddard Mechanism Engineer and UDC SEAS Alumni) & Dr. Evelina Félicité-Maurice (NASA Educator Professional Development and STEM Engagement Education Specialist, Sept. 29, 2015

- **Session Chair** (Feb. 2016): 2016 IEEE Computational Intelligence Society (CIS) Winter School on Big Data in Computational Intelligence: From Fundamental Principles to Complex Applications

- **Initiator and Coordinator for the UDC SEAS Black History Month Distinguished Lectures I & II** (Spring 2016):
  - *Distinguished Lecture II:* Professor James West (Professor of Electrical and Computer Engineering, Johns Hopkins University). February 22, 2016
  - *Distinguished Lecture I:* Mozelle Thompson (CEO Thompson Strategic Consulting), February 10, 2016

- **Initiator and Coordinator for UDC SEAS Women's History Month Events** (Spring 2016):
  - *Lead Coordinator for UDC SEAS International Women's Day Distinguished Speaker:* Dr. Mercedes Rubio (National Institutes of Health, NIGMS), March 8, 2016
  - *Co-Coordinator for two "Accomplished Women in STEM and Health (A WISH)" Panels* for UDC Flagship (March 24, 2016) and UDC Community College (March 22, 2016)

- **Invited Panel Speaker:**
  - *Accomplished Women in STEM and Health (A WISH)" Panel* participant (March 2016)
  - *Women's History Month STEM Forum:* An open forum to discuss careers in Science, Technology, Engineering, and Math (March 2015)
  - *Let's talk about graduate school:* aimed at encouraging undergraduate students to pursue graduate studies (November 2013)

- **Introduction to Engineering Guest Lecture Series** (Fall 2013): Organized seminar series to expose engineering students to experienced engineers in industrial and academic professions, as well as engineering clubs and organizations

- **Mentoring Activities:**
  - *Research Mentor:* Mentored 3 undergraduate UDC CBRE Lab research assistants via the NASA DC Spacegrant Consortium and UDC Faculty Incentive Research Grant (Summer 2016)
  - *Research Mentor:* Mentored 4 undergraduate, senior engineering student researchers within the new UDC CBRE lab (Fall 2015 – Spring 2016)
  - *Louis Stokes Alliances for Minority Participation (LSAMP) Research Mentor:* Supervised two

research projects with 4 undergraduate students (Summer 2015)

– *Xerox Fellowship Research Mentor:* Supervising research projects for 2 student awardees (2016 – 2017); Supervised research projects for 2 student awardees (2015-2016) Supervised research projects with 2 student awardees (2014 - 2015); Supervised research project with 3 student awardees and two associates (2013 - 2014)

MENTEE AWARDS

- Boston Scientific Internship Awardee, Beachrhell Jacques (2015)
- Boston Scientific Internship Awardee, Mehdi Badache (2016 & 2017)
- Mentee, Charles Wilson accepted to University of Maryland, Robotics Graduate Program and George Mason University Bioengineering Graduate Program (2016)
- Mentee, Steven Cale accepted to NASA Goddard Spaceflight Center Summer Internship (2016)
- Mentee, Steven Cale accepted to University of Maryland, Aeronautical Engineering Graduate Program (2016)
- Mentee, Beachrhell Jacques selected as the University of District of Columbia Advancing Minorities Interest in Engineering (AMIE) Ambassador (2016).
- Mentee, Beachrhell Jacques (out of + 450 applicants, was selected to serve as HBCU All-Star student ambassador to on the White House Initiative on HBCUs); 1 of 83 student ambassadors nationwide. Ambassador duties include tasks relevant to advance President Barack Obama's Executive Order 13532, *Promoting Excellence, Innovation, and Sustainability at Historically Black Colleges and Universities* (2015-2016).

MENTEE ABSTRACTS, PRESENTATIONS AND REPORTS

Behera L, **Thompson LA.** *Exploring Force-Exertion of a Robotic, Prosthetic Hand for Common Hand Gestures.* NSF Emerging Researchers National Conference (ERN) in STEM. (March 2017).

Johnson P, **Thompson LA.** *An Investigation on the Control of a Robotic, Prosthetic Hand.* 2016 Annual Biomedical Research Conference for Minority Students (ABRCMS), Tampa, FL (Accepted 2016).

Badache M, **Thompson LA.** *Investigating Student Athlete Balance.* Xerox Fellowship Final Report. (May 2016).

Wilson C. **Thompson LA.** *Exploring State-of-the-Art: from Brain-Machine Interface (BMI) to Motion Capture.* Xerox Fellowship Final Report. (May 2016).

Brent D, Wilson C, Baker C. *Design of a 3D printed upper limb prosthetic.* UDC SEAS Mechanical Engineering Senior Capstone Design Project Report. (May 2016).

Cale S, Jacques B, Lockerman S, Wilson C, **Thompson LA.** *Studying the effects of athletic training on postural control.* NSF Emerging Researchers National Conference (ERN) in STEM. (Feb. 2016).

Jacques B, **Thompson LA.** *Differences between mechanical and non-mechanically supportive balance aids.* 2015 Annual Biomedical Research Conference for Minority Students (ABRCMS),

Seattle, WA (November 13, 2015).

Jacques B, **Thompson LA.** *Protocol Development for the Portable Harness Ambulatory System (PHAS)* Xerox Fellowship Final Report. (May 2015)

Rojas L, **Thompson LA.** *The development of a light touch prototype device.* Xerox Fellowship Final Report. (May 2015)

Jacques B, **Thompson LA.** *The Development of a Home-based Postural Rehabilitative Device: the Analysis of Gait Using Portable Harness Ambulatory System (PHAS) Prototype.* 2014 Annual Biomedical Research Conference for Minority Students (ABRCMS), San Antonio, TX. (November 13, 2014).

Khanal N, Jacques B, Aguinaga L, Baker C, Kinnard M, Poudel N, **Thompson LA.** *Gait rehabilitation for fall-prone elderly and stroke survivors via use of home-based devices.* Xerox Fellowship Final Report. (May 2014).

Khanal N, Jacques B, Aguinaga L, Baker C, Kinnard M, Poudel N, **Thompson LA.** *Gait rehabilitation for fall-prone elderly and stroke survivors via use of home-based devices.* Massachusetts Eye and Ear Infirmary (MEEI), Jenks Vestibular Physiology Laboratory. (April 2014).

Khanal N, Jacques B, Aguinaga L, Baker C, Kinnard M, Poudel N, **Thompson LA.** *Gait rehabilitation for fall-prone elderly and stroke survivors via use of home-based devices.* University of Massachusetts Lowell, Centers for Advanced Computation and Telecommunication. (April 2014).

Khanal N (presenting author), Aguinaga L, Jacques B, Baker C, Kinnard M, **Thompson LA.** *The Analysis of gait using a portable ambulatory harness system (PHAS) propotype.* University of the District of Columbia Undergraduate Research Day. (April 2014).

Khanal N, Jacques B, Aguinaga L, Baker C, Kinnard M, Poudel N, **Thompson LA.** *The Development of a Home-Based Postural Rehabilitative Device.* University of the District of Columbia Innovation Day. (February 2014).

PROFESSIONAL SERVICE: REVIEWING ACTIVITIES

Journal of STEM Education: Peer Reviewer (Sept. 2016)

U.S. Department of Health and Human Services, Administration for Community Living, National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR): Grant Panel Reviewer (April 2016)

Journal of Gait & Posture: Peer Reviewer (March & May 2016; July 2014 & Sept. 2014)

Annual Biomedical Research Conference for Minority Students (ABRCMS): Abstract Reviewer (Sept. 2015)

District of Columbia Council of Engineering and Architectural Societies (DCCEAS) Student Paper Competition: Peer Reviewer and Judge (Feb. 2015)

Journal of Neurophysiology: Peer Reviewer (Jan. 2015)

Annual Biomedical Research Conference for Minority Students (ABRCMS): Abstract Reviewer (Sept. 2014)

Annual Biomedical Research Conference for Minority Students (ABRCMS): Judge of Posters and Presentations (Nov. 2014)

DEPARTMENTAL, UNIVERSITY, AND COMMUNITY SERVICE

- **Appointed to the UDC Institutional Review Board (IRB)** (Dec. 2016)
- **Appointed by UDC President to the UDC Chief Academic Officer Search Committee** (Spring-Fall 2016)
- **UDC CAUSES Search Committee Member** for Project Specialist, Sustainability Innovation + Urban Resilience (Oct. 2016)
- **National Maker Faire Exhibitor and Presenter**, Washington, DC (June 2016)
- **Participant of the "Solutions for STEM Diversity: Lessons from HBCUs and other Leaders in Diversifying the Pipeline"**, National Academies of Sciences, Engineering, and Medicine, Washington, DC (Feb. 2016)
- **Invited Guest Scientist for the AAAS "Breakfast with Scientists" Event**, American University (Feb. 2016)
- **Invited Guest to the "International Celebration of Martin Luther King Day" Event**, Washington, DC (Feb. 2016)
- **Advisory board member for McKinley Technical High School 3D printed prosthetic design project**, Washington, DC (Spring 2016)
- **Appointed by UDC President to serve in the DC STEM Network** (Fall 2015)
- **Chair of the Mechanical Engineering Departmental Evaluation Promotion Committee** (Spring 2016)
- **Mechanical Engineering Curriculum Committee** (2013-present)
- **Community College and High School Outreach:**
  - UDC Taste of College Night (Dec. 2016)
  - UDC Summer Biomedical Engineering Workshop (Summer 2016)
  - Advisory board member for McKinley Technical High School design team project for 3D printed prosthetic project (Fall 2015 – Spring 2016)
  - UDC College Bound Career Night (Spring 2015 & March 2016)
  - Montgomery Community College (Rockville Campus: Fall 2015)
  - Ballou High School (Fall 2015)
  - McKinley Technology Education Campus (Spring 2015)
  - Northern Virginia Community College (NOVA) Annandale Campus (2 visits in Spring 2015)
  - Northern Virginia Community College (NOVA) Loudoun Campus (Spring 2015)
  - Montgomery Community College (Silver Spring Campus: Spring 2015)
  - Montgomery Community College (Rockville Campus: Spring 2014)
  - National Association for College Admission Counseling (NACAC) in Washington, DC (Fall 2014)
- **Creator and Developer of the UDC BME Facebook Page** (June 2016 - present):
- **Creator and Developer of the UDC ME Facebook Page** (Spring 2014 - present):
  - Created and developed all postings/materials and announcements to publicize activities in UDC Mechanical Engineering & UDC Biomedical Engineering (e.g., to current & prospective students)
- **Lead in creating documents and materials for ABET Accreditation visit and evaluation** (Fall 2013 – Fall 2014):
  - Aided in compiling the Mechanical and Civil Engineering ABET written reports (e.g., master syllabi, course syllabi, course outcome tables, and student outcome indirect and direct

assessment charts)
  - Developed procedure and scoring for assessment of course outcomes that was then implemented by all engineering faculty
  - Evaluated students' knowledge, skills, and assessment (KSA) and made course observations and suggestions
- **Civil Engineering Faculty Search Committee Member** (Spring/Summer 2014):
  - Worked alongside committee chair and members to develop a short-list of candidates from 100 applicants
  - Interviewed and evaluated the 6 candidates on the short-list; Was involved with onsite interview visits (i.e., met with the 2 candidates that were brought in for an onsite visit)

SOCIETAL MEMBERSHIPS

American Association of University Women (AAUW) – Member
American Society of Mechanical Engineers (ASME) – Member
Institute of Electrical and Electronics Engineers (IEEE) – Member
Society of Women Engineers (SWE) – Professional Member
National Society of Black Engineers (NSBE) — Professional Member

EXTRACURRICULAR ACTIVIES

10th out of 35 Women's Rowing Club 1x Head of the Charles (2009)
2nd place Women's Rowing Club 1x Textile Regatta (2009)
7th out of 31 Women's Rowing Club 1x Head of the Charles (2008)
1st place Women's Rowing Open 1x Textile Regatta (2008)
2nd place lightweight 4- Rowing Royal Canadian Henley (2007)
1st place Women's Senior lightweight 4+ US Club Nationals (2007)
Riverside Boatclub Women's Sweep Rowing Team Captain (2006)
3rd place Women's lightweight 8+ Rowing Head of the Charles (2006)
2nd place Women's lightweight 8+ Rowing Head of the Charles (2005)
1st place Women's Open 8+ Rowing Textile Regatta (2005)
1st place Women's Intermediate lightweight 4 US Rowing Club Nationals (2005)
1st place Women's Senior lightweight 4+ US Rowing Club Nationals (2005)
Stanford Women's Varsity lightweight 8+ Pacific Coast Rowing Champions (2004)
Intercollegiate Rowing Association (IRA) Competitor: Stanford Women's Varsity lightweight 8+ (2004)
Spartans Drum and Bugle Corps Two-time Division II Drum Corps World Champions (1997 &1998) and one time silver medalist (1999)

UNIVERSITY OF THE DISTRICT OF COLUMBIA
1851

FISCAL IMPACT STATEMENT

TO: The Board of Trustees

FROM: Managing Director of Finance David L. Franklin

DATE: August 2, 2017

SUBJECT: Tenure Approval for Dr. Lara Thompson

Conclusion

It is concluded that there is no fiscal impact associated with the granting of tenure to Dr. Lara Thompson in the School of Engineering & Applied Sciences (SEAS) of the University of the District of Columbia (UDC).

The proposed resolution is for the approval of tenure for Dr. Thompson. It has been recommended in the Board Resolution that Dr. Thompson, who joined the faculty in August 2013, be offered the rank of Associate Professor with continuous tenure. The Faculty Evaluation and Retention Committee (FERC) subcommittee conducted a review and prepared a report in order to make a recommendation to the dean regarding tenure for this faculty.

Background

The FERC subcommittee conducted a review of Dr. Thompson's. teaching, scholarship, and service to UDC and concluded that Dr. Thompson is an excellent teacher. Dr. Lara Thompson has served as Assistant Professor at UDC since 2013, and is recognized by her students, faculty members, administrators, and other experts in her field for her excellent teaching and track record of strong research, and contributions to undergraduate research involving students; and who has secured grants (currently totaling over $1.3M) from agencies such as the National Science Foundation and Department of Defense, for research in areas of Biomedical Engineering.

The recommendation of tenure for Dr. Thompson has been affirmed by the Dean, Chief Academic Office, and President. The President has forwarded the recommendation for tenure to the Board of Trustees.

Financial Impact

This request has been approved based upon the information provided. There are no anticipated risks at this time