MUYINATU A. LEDIJU BELL, Ph.D.

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AREAS OF SPECIALIZATION

Ultrasound imaging, photoacoustic imaging, beamforming, coherence-based beamforming, clutter reduction, photoacoustic-guided surgery, image-guided robotics, novel light delivery systems for photoacoustic imaging, medical technology development, clinical translation

EDUCATION / TRAINING

Johns Hopkins University, Baltimore, MD, USA
Postdoctoral Fellow, 2012-2016

Duke University, Durham, NC, USA
Ph.D., Biomedical Engineering, 2012

Institute of Cancer Research and Royal Marsden Hospital, Sutton, Surrey, UK
Visiting Scholar, Joint Department of Physics, 2009-2010

Massachusetts Institute of Technology, Cambridge, MA, USA
B.S., Mechanical Engineering, 2006

PROFESSIONAL APPOINTMENTS

Assistant Professor, 2017-present
Johns Hopkins University, Baltimore, MD, USA
Department of Electrical and Computer Engineering
Department of Biomedical Engineering
Department of Computer Science
Founder & Director, Photoacoustic & Ultrasonic Systems Engineering (PULSE) Lab
Affiliate, Carnegie Center for Surgical Innovation
Affiliate, Laboratory for Computational Sensing and Robotics
Affiliate, Malone Center for Engineering in Healthcare
Fellow, Hopkins Extreme Materials Institute

Assistant Research Professor, 4/1/2016-12/31/2016
Johns Hopkins University, Baltimore, MD, USA
Engineering Research Center for Computer-Integrated Surgical Systems and Technology

HONORS AND AWARDS

2018	National Academy of Engineering's US Frontiers of Engineering (FOE) Symposium – one of "100 outstanding early career engineers" selected to participate, hosted by MIT Lincoln Laboratory in Lexington, MA
2018	NSF CAREER Award
2018	NSF ASSIST Travel Grant, Academic and Research Leadership Symposium co-located with the National Society of Black Engineers Annual Convention (under NSF Grant #EEC-1548319)
2016	MIT Technology Review, Innovator Under 35 (TR35 Award)
2015	Best Paper Award Honorable Mention, IEEE International Conference on Advanced Robotics

2015	NIH K99/R00 Pathway to Independence Award
2014	Travel Award, FASEB MARC Postdoc Preparation Institute: Career Transitions
2013-2015	UNCF/Merck Postdoctoral Fellowship ($92,000)
2013-2014	Ford Foundation Postdoctoral Fellowship ($41,500)
2012	NextProf Faculty Development Workshop at University of Michigan
2012	Student Travel Award, IEEE International Symposium on Biomedical Imaging, Barcelona, Spain
2011-2012	UNCF/Merck Graduate Research Dissertation Fellowship ($63,000)
2009-2010	Whitaker International Fellowship to conduct research in the UK **(**$46,685)
2008	Student Travel Award, IEEE International Ultrasonics Symposium, Beijing, China
2008-2011	NIH Research Supplement to Promote Diversity ($105,776)
2008	NSF Graduate Research Fellowship Honorable Mention
2006-2008	NIH Medical Imaging Training Grantee
2006-2011	Duke Endowment Fellowship ($16,000)
2006	GEM Fellowship (declined award)
2006	Hanson Place Black Achievers' Award
2005	Xerox Technical Minority Scholarship
2005	MIT Ilona Karmel Prize in Engineering Writing
2004	Inducted into Pi Tau Sigma, Mechanical Engineering Honor Society
2004	Tau Beta Pi, Engineering Honor Society (declared academically eligible)

SELECTED MEDIA & PRESS COVERAGE

2018	Health Data Management News, “Enhanced imaging could cut errors in robot-aided surgeries”
2018	BioOptics World, “Image-guided surgery: Photoacoustics provides critical tissue differentiation at depth”
2017	Robohub, “25 Women in Robotics You Need to Know About”
2017	SPIE Newsroom, “Photoacoustic Imaging for Improved Surgical Tools”
2017	Society of Women Engineers (SWE) Magazine, “AI’s Forthcoming Transformation of Medicine”
2017	JHU Magazine, “Clearer Vision for Surgeons”
2016	Duke Magazine: Alumni Newsmakers

SPONSORED RESEARCH GRANTS & CONTRACTS

TOTAL: $1,444,975

NSF ECCS-1751522 $516,000 2/15/18-1/31/23

CAREER: Technical & Theoretical Foundations for Photoacoustic-Guided Surgery

The objective of this CAREER proposal is to apply optical analyses, spatial coherence theory, and independent resolution models to describe fundamental performance limits of photoacoustic-guided surgery.

Role: PI

NVIDIA GPU Grant unrestricted gift 9/8/17-present

Clinical Implementation of Novel Ultrasound Beamformers

Titan Xp GPU was donated by NVIDIA Corporation to support the clinical implementation of our novel ultrasound and photoacoustic imaging algorithms

Role: PI

Cutting Edge Surgical, Inc. $26,798 7/1/17 – 12/31/17
Spinal Fusion Photoacoustic Imaging Project
Explore feasibility of photoacoustic-guided spinal fusion surgery
Role: PI

NIH R00 EB018994 $725,965 4/1/17 – 1/31/20
Coherence-Based Photoacoustic Image Guidance of Transsphenoidal Surgeries
Build, test, and validate a prototype system for avoiding the deadly risk of carotid artery injury during surgeries to remove pituitary tumors using coherence-based photoacoustics (independent phase)
Role: PI

NIH K99 EB018994 $176,212 4/1/15 – 3/31/17
Coherence-Based Photoacoustic Image Guidance of Transsphenoidal Surgeries
Build, test, and validate a prototype system for avoiding the deadly risk of carotid artery injury during surgeries to remove pituitary tumors using coherence-based photoacoustics (mentored phase)
Role: PI

PROFESSIONAL MEMBERSHIPS

2017-present	SPIE, Lifetime Member
2017-2022	Optical Society of America (OSA), Early Career Member
2017-present	IEEE Ultrasonics, Ferroelectrics, and Frequency Control
2017	Biomedical Engineering Society (BMES), Member
2016-present	IEEE Robotics and Automation Society
2014-present	Institute of Electrical and Electronics Engineers (IEEE)
2014-2016	SPIE, Early Career Member
2013, 2015	BMES, Early Career Member
2013	American Association of Physicists in Medicine, Junior Member
2008, 2012	IEEE, Student Member
2012-2013	IEEE Engineering in Medicine and Biology Society, Student Member
2008-2012	IEEE Women in Engineering, Student Member
2008, 2012	IEEE Ultrasonics, Ferroelectrics, and Frequency Control, Student Member
2008-2010	SPIE, Student Member

INTELLECTUAL PROPERTY

P1. **Bell MAL**, Reiter A, A Machine Learning Approach to Beamforming, U.S. Patent Application Number 15/852,106, filed December 22, 2017. Patent Pending.
P2. **Bell MAL**, Boctor EM, Kazanzides P, Method and System for Transcranial Photoacoustic Imaging for Guiding Skull Base Surgeries, U.S. Patent Application Number 14/611,628, filed February 2, 2015. Patent Pending.
P3. Dahl JJ, **Bell MAL**, Trahey GE, Method and Apparatus for Van-Cittert Zernike Imaging, Duke University, U.S. Patent Number US9254116, filed March 30, 2011, awarded Feb 9, 2016.

INVITED TALKS

I1. **Bell MAL,** University of Twente, Enschede, The Netherlands, scheduled August 28,

2018

I2. **Bell MAL,** *Directing Light and Learning from Sound to Guide Surgeries*, Johns Hopkins University, Computer Science Department Seminar Series, April 10, 2018
I3. **Bell MAL,** *A Machine Learning Approach to Improve Photoacoustic-Guided Surgery*, Deep Learning in Healthcare Summit, Boston, MA, May 25-26, 2017
I4. **Bell MAL,** *Revolutionizing Image Formation to Improve Clinical Outcomes*, University of Southern California, Biomedical Engineering Department Seminar Series, March 10, 2017
I5. **Bell MAL,** *Revolutionizing Image Formation to Improve Clinical Outcomes*, Johns Hopkins University, Biomedical Engineering Department Seminar Series, March 6, 2017
I6. **Bell MAL,** *Creating clearer imaging to diagnose disease earlier and reduce patient risk,* IBM PartnerWorld, Future Innovators Forum, Las Vegas, NV, February 14, 2017
I7. **Bell MAL,** EmTech MIT, Meet the Innovators Under 35, Cambridge, MA, October 18, 2016
I8. **Bell MAL,** *Revolutionizing Image Formation to Improve Clinical Outcomes*, JHU Center for Imaging Science Seminar Series, Baltimore, MD, October 11, 2016
I9. **Bell MAL,** *Making Surgeries Safer with Photoacoustic-Guided Imaging***,** Early Career Spotlight at the 3rd Annual Academic Research and Leadership Symposium at MIT, co-located with the NSBE National Convention, Cambridge, MA, March 25, 2016
I10. **Bell MAL,** *Listening to the Sound of Light to Guide Surgeries*, MIT Institute for Medical Engineering and Science (IMES) Special Seminar, co-hosted by the Mechanical Engineering Department, Cambridge, MA, January 5, 2016
I11. **Bell MAL,** *Listening to the Sound of Light to Guide Surgeries*, Biomedical Engineering Department Seminar Series, Rensselaer Polytechnic Institute, Troy, NY, December 14, 2015
I12. **Bell MAL**, *Listening to the Sound of Light to Guide Surgeries*, Center for Cancer Research (CCR), National Cancer Institute (NCI), National Institutes of Health, Earl Stadtman Investigator Symposia, Bethesda, MD, December 7, 2015
I13. **Bell MAL,** *Listening to the Sound of Light to Guide Surgeries*, Mechanical Engineering Department Seminar Series, Stanford University, Palo Alto, CA, December 3, 2015
I14. **Bell MAL**, *Listening to the Sound of Light to Guide Surgeries*, Biomedical Engineering Department Seminar Series, University of Michigan, November 12, 2015
I15. **Bell MAL**, *Listening to the Sound of Light to Guide Surgeries*, Electrical and Computer Engineering Department Seminar Series, Johns Hopkins University, Baltimore, MD, October 29, 2015
I16. **Bell MAL,** *Light, Sound, Action: Advancing Photoacoustic Systems Toward Clinical Ubiquity by Integrating Optics*, *Acoustics and Robotics*, Biomedical Engineering Department Seminar Series, The George Washington University, Washington, D.C., April 29, 2015
I17. **Bell MAL,** *Light, Sound, Action: Advancing Photoacoustic Systems Toward Clinical Ubiquity by Integrating Optics, Acoustics and Robotics,* Bioengineering Department Seminar Series, University of California San Diego, San Diego, CA, March 17, 2015
I18. **Bell MAL**, *Toward Clinical Implementation of Photoacoustic Imaging Systems with Short-lag Spatial Coherence Beamforming*, Biomedical Engineering Department Seminar Series, Washington University in St. Louis, St. Louis, MO, March 3, 2015
I19. **Bell MAL**, *Light, Sound, Action: Toward Clinical Ubiquity of Photoacoustic Systems by Integrating Optics, Acoustics and Robotics*, LCSR/ERC Seminar Series, Johns Hopkins University, Baltimore, MD, February 18, 2015
I20. **Bell MAL**, *Short-Lag Spatial Coherence (SLSC) Beamforming of Ultrasound and*

Photoacoustic Images, Bioengineering Department Seminar Series, University of Maryland, College Park, MD, February 26, 2014

I21. **Bell MAL**, *Short-Lag Spatial Coherence (SLSC) Beamforming of Ultrasound and Photoacoustic Images*, School of Biological and Health Systems Engineering Seminar Series, Arizona State University, Tempe, AZ, USA, January 29, 2014

I22. **Bell MAL**, *Short-Lag Spatial Coherence (SLSC) Imaging: A Novel Method for Processing Ultrasound Data*. Merck & Co., Inc., Rahway, NJ, USA, September 27, 2012

I23. **Bell MAL**, *Recent Advances in Ultrasound: Short-Lag Spatial Coherence (SLSC) Imaging and In Vivo Liver Tracking with a 2D Matrix Array*, Boston University, Boston, MA, USA, June 25, 2012

I24. **Bell MAL**, *Advances in Ultrasound Imaging: Short-Lag Spatial Coherence (SLSC) Beamforming and In Vivo Liver Tracking with a 2D Matrix Array*, Johns Hopkins University, Baltimore, MD, USA, June 14, 2012

I25. **Bell MAL**, *Short-Lag Spatial Coherence (SLSC) Imaging: A Novel Beamforming Method for Ultrasound Images*, Spanish National Research Council, Madrid, Spain, May 14, 2012

RESEARCH EXPERIENCE

2012-2016

Postdoctoral Fellow, Johns Hopkins University, Baltimore, MD
Engineering Research Center for Computer-Integrated Surgical Systems and Technology, Whiting School of Engineering, and Johns Hopkins Medical Institutions

Designed, fabricated, and tested novel photoacoustic imaging light delivery methods (e.g. interstitial, transperineal, transurethral) to improve prostate cancer detection and treatment, culminating with validation studies in phantom, *ex vivo* and *in vivo* canine prostates - Spearheaded *in vivo* human and animal studies to evaluate photoacoustic detection of brachytherapy seeds for treating prostate cancer and robotic placement of ultrasound probes for monitoring radiation therapy and measuring tissue elasticity - Managed a team of graduate students to investigate photoacoustic imaging with smaller, safer, less expensive pulsed laser diodes and coherence-based beamforming for improved image quality - Performed 3D Monte Carlo simulations of light propagation to predict optical profiles in biological tissues for transcranial and prostate photoacoustic imaging - Co-developed robot-based navigational systems for photoacoustic-guided surgery (Mentors and Clinical Collaborators: Emad Boctor, Peter Kazanzides, Danny Song, John Wong)

2006-2012

Graduate Research Assistant, Duke University, Durham, NC
Department of Biomedical Engineering

Laid theoretical foundations, developed the mathematical framework, implemented the first short-lag spatial coherence (SLSC) beamformer to improve ultrasound image quality, and tested it in phantom, simulations, and clinical cardiac data - Programmed and conducted clinical studies with a research-based Verasonics® ultrasound imaging system to improve endocardial border visualization in cardiology patients at the Duke University Medical Center - Analyzed sources of acoustic clutter noise in ultrasonic imaging, resulting in the development of novel clutter reduction and signal processing methods (Advisor: Gregg E. Trahey)

2009-2010

Academic Visitor & Whitaker International Fellow, Institute of Cancer Research and Royal Marsden Hospital, Sutton, Surrey, UK
Joint Department of Physics

Implemented 3D speckle tracking with data from a state-of-the-art 4D ultrasound system to identify minimum volume acquisition rates for ultrasound guidance of intensity-modulated radiation therapy - Initiated and won funding to support this international collaboration (Advisor: Jeffrey C. Bamber)

2002-2006

Undergraduate Research Assistant, Massachusetts Institute of Technology, Cambridge, MA
Departments of Mechanical Engineering and Materials Science and Engineering

Calculated analytical expressions derived from thermodynamic principles to describe skin heating and blood perfusion of a finger in contact with a temperature-based probe for testing endothelial dysfunction - Utilized the Surface Evolver simulation package to study the motion of an optical fiber due to solder wetting on a range of solder pad geometries (Advisors: Adam C. Powell, IV, H. Frederick Bowman)

TEACHING EXPERIENCE

	JHU Course Number	Course Name	Course mean ± std median	Instructor mean ± std median	# of students enrolled
Online since Summer 2015	N/A	Introduction to Medical Imaging	4.09 average rating* **260 students from 40 countries*** *these stats were reported on 6/3/2018 https://www.udemy.com/intro-to-medical-imaging/ shows most recent public stats		
Spring 2018	520.631	Ultrasound and Photoacoustic Beamforming	4.50±0.58 4.50	4.50±0.58 4.50	4
Fall 2017	520.432/ 580.472/ 520.632	Medical Imaging Systems	3.88±1.01 4.00	3.44±1.26 4.00	26
Fall 2016	520.631	Ultrasound and Photoacoustic Beamforming	4.71±0.49 5.00	4.86±0.38 5.00	8
Intersession 2016	600.146	Introduction to Medical Imaging	4.35±0.79 4.00	4.12±0.86 4.00	22
Spring 2014	580.684	Ultrasound Imaging: Theory and Applications	4.40±0.89 5.00	4.60±0.55 5.00	7
Intersession 2013	600.146	Introduction to Medical Imaging	3.92±0.51 4.00	3.67±0.78 4.00	15

Course Instructor, Johns Hopkins University, Baltimore, MD
520.432/580.472/520.632, Medical Imaging Systems
Department of Electrical and Computer Engineering / Cross-listed in BME Department

- Annual course for upper-level undergraduate students and graduate students to learn about medical imaging from a signals and systems viewpoint
- Introduced new hands-on image formation module

Course Instructor, Johns Hopkins University, Baltimore, MD
520.631, Ultrasound and Photoacoustic Beamforming
Department of Electrical and Computer Engineering

- Founded and developed new project-based, graduate-level course that provides extensive hands-on experience in ultrasound and photoacoustic imaging

Course Instructor, Johns Hopkins University, Baltimore, MD

600.146, Introduction to Medical Imaging
Department of Computer Science
- Designed the syllabus, prepared lecture material, and graded assignments and exams for this accelerated course offered during the intersession period

Course Instructor, Udemy, Inc., San Francisco, CA
Introduction to Medical Imaging
Massive Open Online Course
- Developed videos, interactive lectures, and quizzes and published course materials online

Course Instructor, Johns Hopkins University, Baltimore, MD
580.684, Ultrasound Imaging: Theory and Applications
Department of Biomedical Engineering
- Co-founded and co-developed this elective course for the imaging core curriculum in the BME Department - Responsible for designing and delivering lecture materials, managing student projects, creating homework and test problems, and recruiting teaching assistants - Evaluation scores exceeded JHU BME department mean and median

2012

Guest Lecturer, Duke University, Durham, NC
Department of Biomedical Engineering
- Taught lecture entitled "Introduction to Short-lag Spatial Coherence (SLSC) Imaging: A Novel Ultrasound Beamforming Approach" to students enrolled in the Advanced Methods in Ultrasound Imaging graduate-level course

2010

Guest Lecturer, Institute of Cancer Research and Royal Marsden Hospital, Sutton, Surrey, UK
Joint Department of Physics
- Taught hands-on lecture and demonstration entitled "Elastography Basics" to students from King's College London enrolled in Physics of Medical Imaging course

2008-2009

Mentor and Science Coach, Duke University, Durham, NC
Building Opportunities and Overtures in Science and Technology (BOOST) Program
- Mentored two minority sixth-grade girls for 4-6 hours a week for one year to improve the scientific performance of these underrepresented, female, and economically disadvantaged students and increase their preparedness for science education - Designed stimulating hands-on activities, led scientific experiments, fed their intuition and curiosity, and guided and encouraged them as they explored self-selected topics of interest, culminating with a year-end science exposition to family and friends

2007-2008

Laboratory Instructor and Teaching Assistant, Duke University, Durham, NC
Department of Biomedical Engineering
- Led hands-on experiments for the laboratory component of the "Introduction to Biomechanics" undergraduate-level course for two semesters - Responsible for reviewing lecture material, introducing parallel laboratory assignments, holding regular office hours, and grading laboratory reports

2006

Resident Tutor, Massachusetts Institute of Technology, Cambridge, MA
Women's Technology Program (WTP) in Mechanical Engineering
- Founding member - Taught a lecture entitled "Introduction to Mechanical Design" to twenty

talented rising high-school seniors in the inaugural mechanical engineering branch of WTP - Assisted with coursework development, class instruction, and nightly homework

2006

Reading Tutor, Cambridge Community Center, Cambridge, MA
ReachOut Reading Program

- Tutored a local third-grade student in reading, writing, and language arts once a week for one year

STUDENTS ADVISED

Doctoral Students

Derek Allman, Electrical and Computer Engineering, 2016-present
Eduardo Gonzalez, Biomedical Engineering, 2017-present
Received Fulbright Fellowship
Michelle Graham, Electrical and Computer Engineering, 2016-present
Received NSF Graduate Research Fellowship
Arun Nair, Electrical and Computer Engineering (co-advised with Prof. Trac Tran), 2017-present
Alycen Wiacek, Electrical and Computer Engineering, 2017-present

Master's Students

Jinxin Dong, Electrical and Computer Engineering, 2017-present
Huayu Hou, Electrical and Computer Engineering, 2018-present
Joshua Shubert, Electrical and Computer Engineering, 2016-2018 (expected)
Received NSF Graduate Research Fellowship

Visiting PhD Student

Ole Marius Hoel Rindal, University of Oslo, 2016-2017

JHU Undergraduate Students

Joanna Guo, Biomedical Engineering, 2018
Rene Lopez, Biomedical Engineering, 2018
Elizabeth Shi, Electrical and Computer Engineering, 2017
Brooke Stephanian, Biomedical Engineering, 2017-present
2nd place undergrad poster award, OSA-Sponsored Optics & Photonics Conference at JHU

NSF Computational Sensing and Medical Robotics (CSMR) REU Students

Margaret Allard, Smith College, Summer 2017
Received Best Presentation Award
Alicia B. Dagle, Clark University, Summer 2015
Received Best Presentation Award
Blackberrie Eddins, Johns Hopkins University, Summer 2016
Received Best Presentation Award
Neeraj Gandhi, University of Virginia, Summer 2016
Kelley Kempski, University of Delaware, Summer 2018
Anastasia K. Ostrowski, University of Michigan, Summers 2013 & 2014

Other External Undergraduate Students

Jasmin Palmer, Massachusetts Institute of Technology, Summer 2018
Leadership Alliance Scholar

Bria Goodson, Delta State University, Summer 2018
McNair Scholar

Doctoral Thesis Committee
Gyeong Woo Cheon, JHU Electrical and Computer Engineering, 2016

Preliminary Research Proposal Committee
Ebuka Arinze, JHU Electrical and Computer Engineering, 2017

INDUSTRY EXPERIENCE

Summer 2005

Medtronic, Inc., Minneapolis, MN
Neurological Division
Investigated the top manufacturing defect in neurological stimulation leads and presented possible solutions to the engineering design team, resulting in potential savings of approximately $1M

Summer 2004

Medtronic, Inc., Minneapolis, MN
Cardiac Rhythm Management Division
Assisted with four projects in the areas of concept product design and testing, finite element analyses of the stresses on cardiac leads inserted *in vivo,* and mechanical solutions to histological slicing

Summer 2003

United Technologies, Pratt & Whitney, Hartford, CT
Mechanical Design Intern
Performed mechanical engineering design and drafting tasks to reduce the weight of the F135 engine on the F-35 joint strike fighter plane

PUBLICATIONS & PRESENTATIONS

(h-index=14, source: Google Scholar, underline indicates students advised as Assistant Professor)

Peer-Reviewed Journal Articles

J1. Allman D, Reiter A, **Bell MAL**, Photoacoustic source detection and reflection artifact removal enabled by deep learning, *IEEE Transactions on Medical Imaging,* 37(6): 1464-1477, 2018

J2. Nair AA, Tran T, **Bell MAL**, Robust Short-Lag Spatial Coherence Imaging, *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 65(3):366-377, 2018

J3. Allard M, Shubert J, **Bell MAL**, Feasibility of photoacoustic guided teleoperated hysterectomies, *Journal of Medical Imaging: Special Issue on Image-Guided Procedures, Robotic Interventions, and Modeling,* 5(2), 021213, 2018 **[featured in Health Data Management News]**

J4. Gandhi N, Allard M, Kim S, Kazanzides P, **Bell MAL**, Photoacoustic-based approach to surgical guidance performed with and without a da Vinci robot, *Journal of Biomedical Optics*, 22(12), 121606, 2017 **[featured in BioOptics World]**

J5. Eddins B and **Bell MAL**, Design of a multifiber light delivery system for photoacoustic-guided surgery, *Journal of Biomedical Optics,* 22(4), 041011, 2017 **[featured in SPIE Newsroom]**

J6. Su L, Iordachita I, Zhang, Y, Lee J, Ng SK, Jackson J, Hooker T, Wong J, Herman JM, Sen HT, Kazanzides P, **Bell MAL**, Yang C, Ding K, Feasibility study of ultrasound imaging for stereotactic body radiation therapy with active breathing coordinator in pancreatic cancer, *J Appl Clin Med Phys*, 2017

J7. Sen HT, **Bell MAL**, Zhang Y, Ding K, Wong J, Iordachita I, Kazanzides P, System integration and in-vivo testing of a robot for ultrasound guidance and monitoring during radiotherapy, *IEEE*

Transactions on Biomedical Engineering, 64(7):1608-1618, 2017 **[featured on journal homepage]**

J8. Zhang HK, **Bell MAL**, Guo X, Kang HJ, Boctor EM, Synthetic-aperture based photoacoustic re-beamforming (SPARE) approach using beamformed ultrasound data, *Biomedical Optics Express*, 7(8):3056-3068, 2016

J9. Kang HJ, **Bell MAL**, Guo X, Boctor EM. Spatial angular compounding of photoacoustic images, *IEEE Transactions on Medical Imaging*, 35(8):1845-1855, 2016

J10. **Bell MAL**, Kumar S, Kuo L, Sen HT, Iordachita I, Kazanzides P. Toward standardized acoustic radiation force (ARF)-based ultrasound elasticity measurements with robotic force control, *IEEE Transactions on Biomedical Engineering,* 63(7):1517-1524, 2016

J11. **Bell MAL**, Dahl JJ, Trahey GE. Resolution and contrast characteristics of short-lag spatial coherence images, *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 62(7):1265, 2015 **[featured on cover]**

J12. **Bell MAL**, Ostrowski AK, Li K, Kazanzides P, Boctor EM. Localization of transcranial targets for photoacoustic-guided endonasal surgeries, *Photoacoustics,* 3(2):78-87, 2015

J13. De Luca V, Benz T, Kondo S, Koenig L, Luebke D, Rothluebbers S, Somphone O, Allaire S, **Bell MAL**, Chung D, Cifor A, Grozea C, Guenther M, Jenne J, Kipshagen T, Kowarschik M, Navab N, Ruehaak J, Schwaab J, Tanner C. The 2014 liver ultrasound tracking benchmark, *Physics in Medicine and Biology,* 60(14):557, 2015

J14. **Bell MAL**, Guo X, Song DY, Boctor EM. Transurethral light delivery for prostate photoacoustic imaging, *Journal of Biomedical Optics*, 20(3):036002, 2015

J15. **Bell MAL**, Kuo N, Song DY, Kang J, Boctor EM. *In vivo* visualization of prostate brachytherapy seeds with photoacoustic imaging, *Journal of Biomedical Optics,* 19(12):126011, 2014.

J16. **Bell MAL**, Sen HT, Iordachita I, Kazanzides P, Wong J. *In vivo* reproducibility of robotic probe placement for a novel ultrasound-guided radiation therapy system, *Journal of Medical Imaging*, 1(2):025001, 2014.

J17. **Bell MAL**, Kuo N, Song DY, Boctor EM. Short-lag spatial coherence beamforming of photoacoustic images for enhanced visualization of prostate brachytherapy seeds, *Biomedical Optics Express,* 4(10): 1964-1977, 2013.

J18. **Bell MAL**, Goswami R, Kisslo JA, Dahl JJ, Trahey GE. Short-lag spatial coherence (SLSC) imaging of cardiac ultrasound data: Initial clinical results, *Ultrasound in Medicine and Biology*, 39(10):1861–74. 2013.

J19. **Bell MAL**, Byram BC, Harris EJ, Evans PM, Bamber JC. *In vivo* liver tracking with a high volume rate 4D ultrasound scanner and a 2D matrix array probe, *Physics in Medicine and Biology,* 57(5):1359-74. 2012.

J20. Dahl JJ, Hyun D, **Lediju MA**, Trahey GE. Lesion detectability in diagnostic ultrasound with short-lag spatial coherence imaging. *Ultrasonic Imaging* 33(2):119-133. 2011.

J21. **Lediju MA**, Trahey GE, Byram BC, Dahl JJ. Spatial coherence of backscattered echoes: Imaging characteristics, *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 58(7):1377-88. 2011.

J22. **Lediju MA**, Pihl MJ, Hsu SJ, Dahl JJ, Gallippi CM, Trahey GE. A motion-based approach to abdominal clutter reduction. *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 56(11):2437-49. 2009. **[featured on cover]**

J23. **Lediju MA**, Pihl MJ, Hsu SJ, Dahl JJ, Trahey GE. Quantitative assessment of the magnitude, impact, and spatial extent of ultrasonic clutter. *Ultrasonic Imaging* 30(3):151-168. 2008.

Conference Proceedings & Associated Presentations

C1. Nair AA, Tran T, Reiter A, **Bell MAL**, A deep learning based alternative to beamforming ultrasound images, *IEEE International Conference on Acoustics, Speech and Signal Processing*, 2018

C2. Allard M, Shubert J, **Bell MAL**, Technical Note: Feasibility of photoacoustic guided hysterectomies with the da Vinci robot, *Proceedings of SPIE Medical Imaging*, Houston, TX, February 10-15, 2018

C3. Graham M**, Bell MAL**, Development and validation of a short-lag spatial coherence theory for photoacoustic imaging, *Proceedings of SPIE Photonics West*, San Francisco, CA, January 28-31, 2018
C4. Shubert J, **Bell MAL**, A novel drill design for photoacoustic guided surgeries, *Proceedings of SPIE Photonics West*, San Francisco, CA, January 28-31, 2018
C5. Allman D, Reiter A, **Bell MAL**, Exploring the effects of transducer models when training convolutional neural networks to eliminate reflection artifacts in experimental photoacoustic images, *Proceedings of SPIE Photonics West*, San Francisco, CA, January 28-31, 2018
C6. Graham M**, Bell MAL**, Theoretical Application of Short-Lag Spatial Coherence to Photoacoustic Imaging, *Proceedings of the 2017 IEEE International Ultrasonics Symposium*, Washington, DC, September 6-9, 2017
C7. Shubert J, **Bell MAL**, Photoacoustic Based Visual Servoing of Needle Tips to Improve Biopsy on Obese Patients, *Proceedings of the 2017 IEEE International Ultrasonics Symposium*, Washington, DC, September 6-9, 2017
C8. Allman D, Reiter A, **Bell MAL**, A Machine Learning Method to Identify and Remove Reflection Artifacts in Photoacoustic Channel Data, *Proceedings of the 2017 IEEE International Ultrasonics Symposium*, Washington, DC, September 6-9, 2017
C9. Dahl J, Hyun D, Li Y, Jakovljevic M, **Bell MAL**, Long W, Bottenus N, Kakkad V, Trahey G, Coherence Beamforming and its Applications to the Difficult-to-Image Patient, *Proceedings of the 2017 IEEE International Ultrasonics Symposium*, Washington, DC, September 6-9, 2017
C10. Rodriguez-Molares A, Rindal OMH, Bernard O, Nair A, **Bell MAL**, Liebgott H, Austeng A, Lovstakken L, TheUltraSound Toolbox, *Proceedings of the 2017 IEEE International Ultrasonics Symposium*, Washington, DC, September 6-9, 2017
C11. Kim S, **Bell MAL**, Kazanzides P, Feasibility of a photoacoustic image guided telerobotic system for skull base surgery, *Proceedings of the 14th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Jeju, South Korea, June 28-July 1, 2017
C12. Kim S, Gandhi N, **Bell MAL**, Kazanzides P, Improving the Safety of Telerobotic Drilling of the Skull Base Via Photoacoustic Sensing of the Carotid Arteries, *Proceedings of IEEE International Conference on Robotics and Automation*, Singapore, May 29-June 3, 2017.
C13. Reiter A and **Bell MAL**, A machine learning approach to detect point sources in photoacoustic data, *Proceedings of SPIE Photonics West*, San Francisco, CA, January 28 - February 2, 2017.
C14. Eddins B and **Bell MAL**, Optimizing light delivery for a photoacoustic surgical system, *Proceedings of SPIE Photonics West*, San Francisco, CA, January 28 - February 2, 2017.
C15. Gandhi N, Kim S, Kazanzides P, **Bell MAL**, Accuracy of a novel photoacoustic-based approach to surgical guidance performed with and without a teleoperated da Vinci robot, *Proceedings of SPIE Photonics West*, San Francisco, CA, January 28 - February 2, 2017.
C16. Kim S, Tan Y, Kazanzides P, **Bell MAL**. Feasibility of photoacoustic image guidance for telerobotic endonasal transsphenoidal surgery, *Proceedings of the 2016 IEEE International Conference on Biomedical Robotics and Biomechatronics*, University Town, Singapore, June 26-29, 2016.
C17. **Bell MAL**, Dagle AB, Kazanzides P, Boctor EM. Experimental Assessment of Energy Requirements and Tool Tip Visibility for Photoacoustic-Guided Endonasal Surgery, *Proceedings of SPIE Photonics West*, San Francisco, CA, February 13-17, 2016.
C18. Sen HT, **Bell MAL**, Zhang Y, Ding K, Wong J, Iordachita I, Kazanzides P, System integration and preliminary in-vivo experiments of a robot for ultrasound guidance and monitoring during radiotherapy, *Proceedings of the 2015 IEEE 17th International Conference on Advanced Robotics*, Istanbul, Turkey, July 27-31, 2015. **[this paper received 2nd place for Best Paper Award -- i.e., Honorable Mention]**
C19. Kim S, Kang HJ, Cheng A, **Bell MAL**, Boctor EM, Kazanzides P. Photoacoustic image guidance for robot-assisted skull base surgery, *Proceedings of IEEE International Conference on Robotics and Automation*, Seattle, WA, May 26-30, 2015.
C20. **Bell MAL**, Ostrowski AK, Li K, Kazanzides P, Boctor EM. Quantifying bone thickness, light transmission, and contrast interrelationships in transcranial photoacoustic imaging, *Proceedings*

of SPIE Photonics West, San Francisco, CA, February 7-12, 2015.

C21. **Bell MAL**, Guo X, Kang HJ, Boctor EM. Improved contrast in laser-diode-based photoacoustic images with short-lag spatial coherence beamforming, *Proceedings of the 2014 IEEE International Ultrasonics Symposium*, Chicago, IL, September 3-6, 2014.

C22. **Bell MAL**, Sen HT, Iordachita I, Kazanzides P. Force-controlled ultrasound robot for consistent tissue pre-loading: Implications for acoustic radiation force elasticity imaging, *Proceedings of the 2014 IEEE International Conference on Biomedical Robotics and Biomechatronics*, São Paulo, Brazil, August 12-15, 2014.

C23. **Bell MAL**, Sen HT, Iordachita I, Kazanzides P, Wong J. In vivo reproducibility of robotic probe placement for an integrated US-CT image-guided radiotherapy system, *Proceedings of SPIE Medical Imaging*, San Diego, CA, February 16-20, 2014.

C24. **Bell MAL**, Ostrowski AK, Kazanzides P, Boctor EM. Feasibility of transcranial photoacoustic imaging for interventional guidance of endonasal surgeries, *Proceedings of SPIE Photonics West*, San Francisco, CA, February 1-6, 2014.

C25. **Bell MAL**, Song DY, Boctor EM. Coherence-based photoacoustic imaging of brachytherapy seeds implanted in a canine prostate, *Proceedings of SPIE Medical Imaging*, San Diego, CA, February 16-20, 2014.

C26. **Bell MAL**, Kuo N, Kang J, Song DY, Boctor EM. *In vivo* photoacoustic imaging of prostate brachytherapy seeds, *Proceedings of SPIE Photonics West*, San Francisco, CA, February 1-6, 2014.

C27. **Bell MAL**, Guo X, Song DY, Boctor EM. Photoacoustic imaging of brachytherapy seeds in an *ex vivo* prostate with transurethral light delivery, *Proceedings of SPIE Photonics West*, San Francisco, CA, February 1-6, 2014.

C28. Kang HJ, **Bell MAL**, Guo X, Taylor RH, Boctor EM. Freehand spatial-angular compounding of photoacoustic images, *Proceedings of SPIE Medical Imaging*, San Diego, CA, February 16-20, 2014.

C29. Sen HT, **Bell MAL**, Iordachita I, Wong J, Kazanzides P, A Cooperatively Controlled Robot for Ultrasound Monitoring of Radiation Therapy**,** *Proceedings of the 2013 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Tokoyo, Japan, November 3-8, 2013.

C30. Dahl JJ, Bottenus N, **Bell MAL**, Cook M, Coherent Flow Imaging: A Power Doppler Imaging Technique Based on Backscatter Spatial Coherence, *Proceedings of the 2013 IEEE Joint UFFC, EFTF, PFM Symposium*, Prague, Czech Republic, July 21-25, 2013.

C31. **Bell MAL**, Goswami R, Dahl JJ, Trahey GE. Improved Visualization of Endocardial Borders with Short-Lag Spatial Coherence (SLSC) Imaging of Fundamental and Harmonic Ultrasound Data*, Proceedings of the 2012 IEEE International Ultrasonics Symposium*, Dresden, Germany, October 7-10, 2012.

C32. **Bell MAL,** Goswami R, Trahey GE. Clutter Reduction in Echocardiography with Short-Lag Spatial Coherence (SLSC) Imaging*, Proceedings of the 2012 IEEE International Symposium on Biomedical Imaging*, Barcelona, Spain, May 2-5, 2012.

C33. **Bell MAL**, Dahl JJ, Trahey GE. Comparative Resolution and Tracking Performance in B-mode and Short-Lag Spatial Coherence (SLSC) Imaging*, Proceedings of the 2011 IEEE International Ultrasonics Symposium*, Orlando, FL, October 18-21, 2011.

C34. Dahl JJ , Pinton GF, **Lediju MA**, Trahey GE. A Novel Imaging Technique Based on the Spatial Coherence of Backscattered Waves: Demonstration in the Presence of Acoustical Clutter*, Proceedings of SPIE Medical Imaging*, Orlando, FL, February 12-17, 2011.

C35. **Lediju MA**, Trahey GE, Jakovlijevic M, Byram BC, Dahl JJ. Short-Lag Spatial Coherence Imaging*, Proceedings of the 2010 IEEE International Ultrasonics Symposium*, San Diego, CA, October 11-14, 2010.

C36. **Lediju MA**, Byram BC, Harris EJ, Evans PM, Bamber JC. 3D Liver Tracking Using a Matrix Array: Implications for Ultrasonic Guidance of IMRT*, Proceedings of the 2010 IEEE International Ultrasonics Symposium*, San Diego, CA, October 11-14, 2010.

C37. **Lediju MA**, Byram BC, Trahey GE. Sources and Characterization of Clutter in Cardiac B-mode Images*, Proceedings of the 2009 IEEE International Ultrasonics Symposium*, Rome, Italy,

September 20-23, 2009.

C38. Dahl JJ, Pinton GF, **Lediju MA**, Trahey GE. Simulation and Experimental Analysis of Ultrasonic Clutter in Fundamental and Harmonic Imaging*, Proceedings of SPIE Medical Imaging 2009*, Orlando, FL, February 7-12, 2009.

C39. **Lediju MA**, Pihl MJ, Hsu SJ, Dahl JJ, Gallippi CM, Trahey GE. Magnitude, origins, and reduction of abdominal ultrasonic clutter*, Proceedings of the 2008 IEEE International* Ultrasonics Symposium, Beijing, China, November 2-5, 2008.

Refereed Conference Abstracts & Associated Presentations

A1. Wiacek A, Rindal OMH, Fabrega-Foster K, Harvey S, **Bell MAL**, Application of robust short-lag spatial coherence beamforming to breast ultrasound data, *43rd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, May 30- June 1, 2018.

A2. Graham MT, **Bell MAL**, Implications of theoretical photoacoustic spatial covariance for short-lag spatial coherence imaging, *43rd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, May 30- June 1, 2018.

A3. Nair AA, Tran TD, Reiter A, **Bell MAL**, Deep learning alternative to beamforming ultrasound images, *43rd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, May 30- June 1, 2018.

A4. Allman DM, Reiter A, **Bell MAL**, Deep learning for photoacoustic source detection and reflection artifact removal, *43rd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, May 30- June 1, 2018.

A5. Gonzalez E, Graham MT, **Bell MAL**, Comparative study of CT-US registration performance with DAS and SLSC ultrasound beamforming techniques, *43rd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, May 30- June 1, 2018.

A6. Nair AA, Tran TD, **Bell MAL**, Principal component short-lag spatial coherence imaging (PC-SLSC), *42nd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 5-7, 2017.

A7. Shubert J, **Bell MAL,** Photoacoustic-based visual servoing of needle tips to improve surgery on obese patients, *42nd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 5-7, 2017.

A8. Graham M, **Bell MAL,** Theoretical application of short-lag spatial coherence to photoacoustic imaging, *42nd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 5-7, 2017.

A9. Allman D, Reiter A, **Bell MAL,** Evaluation of a convolutional neural network for identifying reflection artifacts in photoacoustic imaging, *42nd International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 5-7, 2017.

A10. Ding K, Su L, Lin H, Oshea T, Iordachita I, Lee J, Ng SK, Zhang Y, Wang KK, Wong JW, Harris E, Herman JM, Sen HT, Kazanzides P, **Bell MAL** and Yang C. Improving targeting accuracy in abdominal proton therapy with real-time robotic ultrasound, *41st International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 8-10, 2016.

A11. HT Sen, Kazanzides P, **Bell MAL**, *Cooperatively controlled robot to standardize acoustic radiation force (ARF)-based tissue elasticity measurements, 41st International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 8-10, 2016.

A12. Sen HT, Kazanzides P, **Bell MAL**, Iordachita I, Wong J, Ding K, A Robotic System for Ultrasound-Guided Patient Setup and Real-Time Treatment Monitoring, 18th International Conference on the Use of Computers in Radiation Therapy, London, UK, June 27-30, 2016.

A13. Sen HT, Ding K, Cheng A, **Bell MAL**, Wong J, Iordachita I, and Kazanzides P, A Cooperatively-Controlled Robot for Ultrasound-Guided Radiation Therapy, NCIGT and NIH Image Guided Therapy Workshop, Bethesda, MD, March 15-16, 2016.

A14. Zhang Y, Su L, Lee J, Hooker T, Ng SK, Iordachita I, Wong J, Herman J, Sen HT, Kazanzides P, **Bell MAL**, Ding K, Planning Feasibility Study of Ultrasound Guided Stereotactic Radiation Therapy (SBRT) on CyberKnife for Pancreatic Cancer, *American Society for Radiation Oncology (ASTRO) 57th Annual Meeting,* San Antonio, TX, October 18-21, 2015.

A15. Su L, Zhang Y, Lee J, Ng SK, Iordachita I, Jackson J, Wong J, Herman J, Sen HT, Hooker T, Kazanzides P, **Bell MAL**, Ding K, Stereotactic Body Radiation Therapy Planning for Pancreas Cancer Under Real Time Ultrasound Monitoring, *American Society for Radiation Oncology (ASTRO) 57th Annual Meeting,* San Antonio, TX, October 18-21, 2015.

A16. Ng SK, Armour E, Su L, Zhang Y, Iordachita I, Wong J, Sen HT, Kazanzides P, **Bell MAL**, Ding K. Evaluation of Fiducial Markers for Ultrasound and X-Ray Images Used for Motion Tracking in Pancreas SBRT, *AAPM 57th Annual Meeting and Exhibition*, Anaheim, CA, July 12-16, 2015.

A17. Su L, O'Shea T, Ng SK, Zhang Y, Iordachita I, Wong J, Harris E, Bamber J, Sen HT, Kazanzides P, **Bell MAL**, Ding K. Real-Time Ultrasound Monitoring with Speckle Tracking in Abdominal Stereotactic Body Radiation Therapy, *AAPM 57th Annual Meeting and Exhibition*, Anaheim, CA, July 12-16, 2015.

A18. **Bell MAL**, Guo X, Kuo NP, Song DY, Boctor EM. Comparison of light delivery methods for photoacoustic imaging of prostate brachytherapy seeds, *40th International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 22-24, 2015.

A19. Ding K, Zhang Y, Sen H, **Bell MAL**, Goldstein S, Kazanzides P, Iordachita I, Wong J. Towards Integrated CT and Ultrasound Guided Radiation Therapy Using A Robotic Arm with Virtual Springs, *AAPM 56th Annual Meeting and Exhibition*, Austin, TX, July 20-24, 2014.

A20. **Bell MAL**, Boctor EM, Kuo N, Kang J, Song DY. Photoacoustic imaging for improved visualization of prostate brachytherapy seeds, *American Radium Society*, St. Thomas, U.S. Virgin Islands, April 26-29, 2014.

A21. **Bell MAL**, Kang HJ, Guo X, Song DY, Boctor EM. Real-time transurethral photoacoustic imaging of prostate brachytherapy seeds, *39th International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 9-11, 2013.

A22. Kang HJ, **Bell MAL**, Guo X, Cheng A, Tavakoli B, Boctor EM. Flexible software framework for acquiring pre-beamformed photoacoustic RF data in real time, *39th International Symposium on Ultrasonic Imaging and Tissue Characterization*, Arlington, VA, June 9-11, 2013.

A23. **Bell MAL**, Sen HT, Kazanzides P, Iordachita I, Forbang RT, Lachaine M, Wong J, Repeatability of Robotic Placement of Ultrasound Probes for An Integrated US-CT Approach to Image-Guided Radiotherapy, *AAPM 55th Annual Meeting and Exhibition*, Indianapolis, IN, August 4-8, 2013.

A24. **Bell MAL**, Sen HT, Kazanzides P, Iordachita I, Boctor EM, Wong J, *Feasibility of robotic placement of imaging and model ultrasound probes for combined US-CT image-guided radiotherapy*, Joint Workshop: Technology for Innovation in Radiation Oncology, Bethesda, MD, June 13-14, 2013.

A25. **Bell MAL**, Sen HT, Kazanzides P, Iordachita I, Wong J, Boctor EM, *Reproducibility of tissue deformations with robot-assisted placement of an ultrasound probe***,** 38th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 10-12, 2013.

A26. Kang H**, Bell MAL,** Guo X, Taylor RH, Boctor EM, *Freehand spatial-angular compounding of photoacoustic images,* 38th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 10-12, 2013.

A27. Kuo N, **Bell MAL,** Boctor EM, *Prototype system and preliminary comparison of beamforming algorithms for photoacoustic imaging of prostate brachytherapy seeds*, 38th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 10-12, 2013.

A28. Guo X, Etienne-Cummings R, Kang H, **Bell MAL**, Boctor EM, *Localizing surgical tools with an ultrasound-based active reflector-tracking system*, 38th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 10-12, 2013.

A29. Trahey GE, **Bell MAL**, Jakovljevic M, Hyun D, Dahl JJ, *Comparison of delay-and-sum and coherence beamforming methods,* 38th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 10-12, 2013.

A30. **Bell MAL,** Goswami R, Trahey GE. *Clutter reduction in in-vivo cardiac images with Short-Lag Spatial Coherence (SLSC) imaging.* 37th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 11-13, 2012.

A31. **Lediju MA**, Dahl JJ, Trahey GE. *Comparative resolution measurements in B-mode and Short-Lag Spatial Coherence images.* 36th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 13-15, 2011.
A32. **Lediju MA**, Byram BC, Trahey GE. *Preliminary investigation of clutter in cardiac images.* 34th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, June 10-12, 2009.
A33. **Lediju MA**, Pihl MJ, Hsu SJ, Dahl JJ, Gallippi CM, Trahey GE. *Ultrasonic clutter: Magnitude, impact on lesion detection, effect of harmonic imaging, and characterization of origins.* 33rd International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, May 14-16, 2008.
A34. Dahl JJ, **Lediju MA**, Pihl MJ, Hsu SJ, Gallippi CM, Trahey GE. *Clutter reduction methods from compression of tissue,* Sixth International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity, Santa Fe, New Mexico, November 2-5, 2007.
A35. **Lediju MA**, Pihl MJ, Hsu SJ, Dahl JJ, Gallippi CM, Trahey GE. *Investigations into clutter reduction methods in abdominal ultrasonic imaging.* 32nd International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA, May 16-18, 2007.

PROFESSIONAL SERVICE

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Ultrasonic Imaging

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Biomedical Optics Express
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IEEE Transactions on Ultrasonics Ferroelectrics and Frequency Control
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Conference Organization, Technical Program, and Society Committees
OSA
Program Committee: Biophotonics Congress: Biomedical Optics, Optical Tomography and Spectroscopy, Hollywood, FL, 2018
Organizing Committee: OSA-Sponsored Optics and Photonics Conference at Johns Hopkins, Baltimore, MD, 2017
IEEE International Ultrasonics Symposium (IUS)
Organizing Committee: Communications Chair, Kobe, Japan, 2018
Organizing Committee: Communications Co-Chair, Washington, DC, 2017
IEEE International Symposium on Circuits and Systems (ISCAS)
Special Session Co-Organizer: Innovations in Acoustics, Baltimore, MD, 2017

Medical Imaging and Computer-Assisted Interventions (MICCAI)
Co-Organizer: Challenge on Liver Ultrasound Tracking, Munich, Germany, 2015
Co-Organizer: Challenge on Liver Ultrasound Tracking, Boston, MA, 2014
IEEE Ultrasonics, Ferroelectrics, and Frequency Control (UFFC)
Women in Engineering Committee, Ultrasonics Representative, 2017-present

Session Chair
OSA
Biophotonics Congress, Photoacoustic Tomography, Microscopy and Endoscopy, 2018
American Institute of Ultrasound in Medicine (AIUM)
Basic Science and Instrumentation: Tissue Characterization, Session Moderator, 2017
IEEE International Ultrasonics Symposium (IUS)
Emerging Methods for Elasticity Imaging, 2017
IEEE International Symposium on Circuits and Systems (ISCAS)
Special Session: Innovations in Acoustics, 2017
IEEE Conference on Information Sciences and Systems (CISS)
Machine Learning, 2017
Ultrasonic Imaging and Tissue Characterization (UITC) Symposium
Photoacoustics, 2018
Photoacoustics, 2017
Photoacoustics, 2015

Grant Panel Reviewer
National Institutes of Health (NIH)
BMIT A, 2018
NICHD, Special Emphasis Panel, 2017
BMIT B, 2017
National Science Foundation (NSF)
ECCS Communication, Circuits, and Sensing-Systems, 2015

Conference Abstract Reviewer
BMES, 2017
BMES, 2018

UNIVERSITY SERVICE AND OUTREACH

Assistant Professor, Johns Hopkins University

2017-present	Faculty Advisor, Graduate Association of Women in Computer Science & Electrical and Computer Engineering (GRACE)
2017-2018	Faculty Search Committee, Biomedical Engineering Department
2017-2018	Faculty Search Committee, LCSR Lecturer
2018	Vredenburg Travel Scholarship Selection Committee
2018	Featured in SPIE Women in Optics Planner – This planner includes photos and interesting facts about women who are making a difference through their work and other contributions to the fields of science, optics, and engineering. Five thousand copies are printed and distributed in over 25 countries worldwide
2017	Panel Member, BME Women Engineers – This panel took place at the annual BME Faculty retreat to provide our students with some insights into life as a female faculty member
2017	Panel Member, Explore Hopkins (EHOP), Breakout Session 1: Pathways to the

Professoriate (STEM) -- Recruitment event developed to provide prospective underrepresented minority graduate students with a customized opportunity to learn more about our doctoral programs and network with our faculty. The purpose of this panel was to provide students with a better understanding of why obtaining a PhD is worthwhile and share insights on career trajectories and opportunities for STEM PhDs in academia

2017 Faculty Judge, HW-PDA Elevator Pitch Competition -- Annual event that occurs during postdoc appreciation week (initiated during my tenure as HW-PDA president)

2017 PULSE Lab Tours: LCSR Industry Day, Miracle City Summer Enrichment Camp

Interim Assistant Research Professor, Johns Hopkins University

2016 Faculty Advisor, Graduate Association of Women in Computer Science & Electrical and Computer Engineering (GRACE)

2016 Panel Member, GRACE Mentoring Dinner

2016 Panel Member, Explore Hopkins, Breakout Session 1: Academic Careers in STEM

2016 Featured Guest, STEM Dialogue – Podcast series designed to expose high school students to the world of science, technology, engineering, and math

2016 Mentored Neeraj Gandhi & Blackberrie Eddins through the NSF CSMR REU Program **[Blackberrie Eddins received the Best Presentation Award]**

Seminars Hosted at Johns Hopkins University

2018 LCSR Seminar Speaker, Michael Miga

2018 BME Seminar Speaker, Christine Hendon

2017 BME Seminar Speaker, Stacey Finley

2017 ECE Distinguished Lecturer, Michael Insana

2017 Joint ECE-BME Seminar Speaker, Mostafa Fatemi

2016 ECE Distinguished Lecturer, Stanislav Emelianov

Postdoctoral Fellow, Johns Hopkins University

2015-2016 President, Homewood Postdoc Association (HW-PDA)

2015 Mentored Alicia B. Dagle through the NSF Computational Sensing and Medical Robotics Summer Research Experience for Undergraduates (REU) Program **[Alicia B. Dagle received the Best Presentation Award for work that I independently supervised]**

2014-2015 Social Co-Chair, HW-PDA Executive Board

2013, 2014 Mentored Anastasia K Ostrowski through the NSF REU program for two summers

2014 Invited Speaker, Project Scientist Academy, Charlotte, NC, USA – Delivered an invited research and motivational talk, entitled "*Engineering and Innovation in Medicine with Ultrasound and Photoacoustic Technology"* to empower girls ages 4-12 who possess aptitude, talent and passion for STEM (August 1, 2014 & August 8, 2014)

Graduate Student, Duke University

2012 Selected to recruit graduate students to Duke University at the 38th National Convention for the National Society of Black Engineers (NSBE), Pittsburgh, PA, resulting in 53 students signing up to be contacted by the admissions office

2006-2012 Immanuel Temple SDA Soup Kitchen Ministry

2007-2012 Young Adult Ministry Leader, Immanuel Temple SDA

2006-2012 Member, Duke University Bouchet Society – An organization that supports the academic, professional, and social development of underrepresented minority graduate students in the STEM fields

2010 Invited Speaker, Wallington SDA Group, Wallington, Surrey, UK -- Delivered an invited research and motivational talk to church group entitled, *"The Story of One Biomedical Engineer"* (May 22, 2010)

2007-2008 Mentor and Science Coach, Building Opportunities and Overtures in Science and Technology (BOOST) Program – Mentored two minority sixth-grade girls for 4-6 hours a week for one year

2007-2008 Public Relations Chairperson, Duke University Bouchet Society – Organized and promoted events such as the Celebration of Black History Month Poster Session and Seminar Series

2007 Invited Speaker, Lee High School, Raleigh, NC, USA – Delivered an invited research and motivational talk to high school students entitled, *"On the Road to Success"* (January 2017)

Undergraduate Student, Massachusetts Institute of Technology

2006 Resident Tutor, Inaugural Women's Technology Program in Mechanical Engineering (WTP-ME) – Mentored and taught a lecture entitled "Introduction to Mechanical Design" to twenty talented rising high-school seniors in the inaugural mechanical engineering branch of WTP

2002-2006 Member, Biomedical Engineering Society (BMES), MIT Student Chapter

2003-2004 Vice President of Publicity, BMES MIT Student Chapter

2004-2006 Editor, *The BioTECH,* Newsletter of BMES MIT Student Chapter

2002-2006 Member, MIT Black Students' Union (BSU)

2004-2005 Treasurer, MIT BSU

2002-2006 Member, National Society of Black Engineers, MIT Student Chapter