MASSACHUSETTS INSTITUTE OF TECHNOLOGY
School of Engineering Faculty Personnel Record

Date: July 20, 2025 Name: Brian W. Anthony

Department: Mechanical Engineering / Institute of Medical Engineering and Science

1. Date of Birth: July 1972
2. Citizenship: USA
3. Education:

School	Degree	Date
Carnegie Mellon University	BS	1994
MIT	SM	1998
MIT	PhD	2006

4. Title of Thesis for Most Advanced Degree:
   Video Based System Monitoring

5. Principal Fields of Interest:
   Biomedical Imaging, Ambient and Wearable Instruments and Sensors, Computational Instrumentation, Optics, Applied ML and AI, Device Design and Manufacturing, Innovation and Product Realization, Imaging.

6. Name and Rank of Other Department Faculty in the Same Field:
   Harry Asada, Professor
   Ian Hunter, Professor
   Kamal Youcef-Toumi, Professor

7. Non-MIT Experience (including military service):

Employer	Position	Beginning	Ending
LANL	Scientist	1992	1994
Independent Consultant	Consultant	1994	1998
Xcitex	CoFounder / CTO	1998	2005
Cooper Perkins	CTO	2005	2007
dRNOME	CoFounder	2011	2016

8. History of MIT Appointments:

Rank	Beginning	Ending
Lecturer, Sloan	2006	2009
Lecturer, MechE	2006	(present)
Research Scientist	2006	2013
Principal Research Scientist	2013	(present)
Director Singapore MIT Alliance – Manufacturing Systems and Technology Program (SMA-MST)	2006	2010
Director Advanced Manufacturing and Design Program	2006	(present)

Faculty Lead for Education, MIT Skoltech Initiative	2011	2016
Deputy Director, MIT Skoltech Initiative	2014	2016
Associate Director, AIM Academy	2016	2017
Faculty Lead for Industry Engagement, MechE	2018	2022
Associate Director, MIT.nano	2017	(present)
Director, Clinical Technology, Center for Clinical and Translational Research	2017	(present)
Director, Immersion Lab	2017	(present)

9. Consulting Record:

Engagements greater than 3 months.

Firm	Beginning	Ending
Los Alamos National Labs		2000
Textron		2000
Federal Trade Commission		2000
FAA		2004
Kodak		2004
Redlake		2005
Olympus		2006
TIS	2009	2012
Photron	2009	2011
Cooper Perkins	2010	2012
IDEO	2012	---
Alcon	2012	---
Ximedica	2013	2014
Herman Miller	2014	2014
Novartis	2015	2015
Lenze	2015	2016
Baxter	2019	2019
Apple	2017	2025
Samsung	2024	2025

10. Professional Service

Activity	Beginning	Ending
MEngM Admissions Committee	2006	present
CDO Admissions Committee	2007	2008
Career Fair – SMA in Singapore, Org Chair	2007	2007
Career Fair – SMA/MIT in Singapore, Org Chair	2008	2008
Mfg. microFluidics Symp, Chair	2009	2010
SMART Proposal Lead on Med Devices	3/2010	9/2010
LMP Summit Co-Chair	2011	2011
MEDRC Workshop, Chair	2012	2012
Pilot IMI Proposal, MIT Lead	5/2012	6/2012
Additive mfg working group, Lead	6/2012	8/2012
Co-Chair Education Workstream, AMP 2.0	2013	2014
MIT's role in reducing the cost of health care	2014	2015

AIM Photonics Workforce Committee	2017	2017
Nextflex Collaboration Lead PI	2016	2017
Campus and Community Heath Management	2020	2021
MIT-Skoltech Steering Committee	2017	2022
SPIE Conference Committee	2011	2022
MIT / Tufts CTSI TAP Committee	2020	
MIT. nano Leadership Council	2017	

11. Awards Received:

Award	Date
National Television Academy, Emmy for Innovative Technical Achievement. "Golf on CBS, SwingVision."	2005
BPLA Invented Here, Featured Honoree	2014

12. Current Organization Membership:

Organization	Offices Held
ASME	
IEEE	
SPIE	
AIUM (American Institute of Ultrasound in Medicine)	
Sigma Xi	
RSNA	

13. Patents and Patent Applications Pending:
    1. US Patent 5606130 “Method for determining the octane rating of gasoline samples by observing corresponding acoustic resonances therein.”
    2. US Patent 6393384 “Apparatus and method for remote ultrasonic determination of thin material properties using signal correlation.”
    3. US Patent 6226081 “Optical height of fill detection system and associated methods.”
    4. US Patent 8,333,704, B. Anthony and M. Gilbertson, “Handheld Force-Controlled Ultrasound Probe,” Dec 11, 2012
    5. US Patent 8,328,725, B. Anthony and M. Gilbertson, “Ultrasound Probe,” Dec 18, 2012
    6. US Patent 8,382,671, B. Anthony and M. Gilbertson, “Handheld Ultrasound Probe,” Feb 26, 2013
    7. US Patent 9,121,705, B. Anthony and D. Ljubicic, “Sensor for Simultaneous Measurement of Thickness and Lateral Position of a transparent object,” Sept 1, 2015
    8. US Patent 9,456,800, Brian W. Anthony, Matthew W. Gilbertson, “Ultrasound scanning system”, Oct 4, 2016
    9. US Patent 10353191, Circular scanning technique for large area inspection, July 16, 2019.
    10. MIT Case 14088, Force Controlled Ultrasound Probe, 16-Dec-09
    11. MIT Case 14387, Deformation Estimation and Correction in Elastography with a Handheld Force Controlled Ultrasound Probe, 16-Jul-10
    12. MIT Case 14422, High-Speed Profilometer for Manufacturing Inspection, 30-Jul-10
    13. MIT Case 14966J, Force Measurement Ultrasound Probe for Sonographer Fatigue Monitoring, 10-Jun-11
    14. MIT Case 15012, A 6-DOF Optical System for Freehand 3D Ultrasound, 05-Jul-11

15. MIT Case 15681J, Local Actuation and Control of Stamp Deformation in Microcontact Printing, 06-Jun-12
16. MIT Case 15782, Usability Improvements to a Handheld Force-Controlled Ultrasound Probe, 03-Aug-12
17. MIT Case 15884, Computer-Guided Restoration of Ultrasound Scan Poses by Optical Tracking, 01-Oct-12
18. MIT Case 16160, Quick-Release Mechanism for a Force-Measuring Ultrasound Probe, 22-Feb-13
19. MIT Case 16447, Force-correlated Quantitative Ultrasound Image Analysis, 02-Jul-13
20. MIT Case 17106J, Acoustic Characterization of Superficial Body Fluids, 07-May-14
21. MIT Case 17211J, Wireless Capsule Endoscopic Ultrasound, 24-Jun-14
22. MIT Case 17259K, A Concentric Circle Scanning Technique for Large Area Inspection, 09-Jul-14
23. MIT Case 17260K, Grid-Based Matching for Full-Field Large-Area Deformation Measurement, 09-Jul-14
24. MIT Case 17344, Recovery and Computer-Guided Restoration of Ultrasound Scan Poses Based on Human Skin Features, 21-Aug-14
25. MIT Case 17864J, Ultrasound-Based Individual Scatterer Detection Method Using Scatterer Motion Induced by Acoustic Radiation Force, 21-Apr-15
26. MIT Case 17865, Ultrasound-Based Absolute Scatterer Concentration Measurement Technique: Image Volume Estimation from Scatter Spread Function Extracted From the Image, 21-Apr-15
27. MIT Case 17990, Hydrogel Ultrasound Angle Wedge, 04-Jun-15
28. MIT Case 18074, Joint Camera-Ultrasound Data Acquisition for Limb Scanning, 13-Jul-15
29. MIT Case 18544, An Iterative RTM with a Priori Data to Estimate Bone Thickness Using a Cylindrically Scanning Ultrasound Tomography Scanner, 22-Feb-16
30. MIT Case 18545K, Block-Wise Inversion for the Soundspeed of Human Soft Tissue and Bone Using Ray Based Travel Time Tomographic Techniques, 22-Feb-16
31. MIT Case 18636, Concentric Ring-Based Point Pattern Matching of Skin Features, 05-Apr-16
32. MIT Case, Physical and Chemical Characterization of Aerosols with Photonic Waveguides, United States Patent Application 20190234850
33. MIT Case 19192QJ, Non-Invasive Assessment of Venous Pressure via Actuation of Reciprocal Surface Forces for Vessel Collapse Using Single-Crystal Ultrasound in Vertebrates
34. MIT Case 19409, Medical Ultrasound Device with Integrated Force Measurement and Methods for Data Synchronization
35. MIT Case 19460, Shear Wave Elastography Imaging with External Mechanical Vibration
36. MIT Case 19516, Source and Receiver Tracking for Non-Contact Ultrasound
37. MIT Case 19618, Real Time Imaging of Invisible Micron-Scale Monolayer Patterns on a Moving Web Using Condensation Figures
38. MIT Case 19626TE, Apparatus and Methods for Ultrasound Limb Scanning Under Load
39. MIT Case 19710, A Technique for Imaging Cortical Bone and Soft Tissue Using the Level-Set Method to Regularize Travel-Time and Full Waveform Tomography Techniques
40. MIT Case 19791, On chip Photonic Aerosol Spectrometer
41. MIT Case 19921, Equity Disbursement for Bionic Skins LLC (4914743)
42. MIT Case 20289, Miniaturization of External Mechanical Vibration for Ultrasound Shear Wave Elastography Imaging

43. MIT Case 20506L, Systems and Methods for Enabling Non-Contact Laser Ultrasound
44. MIT Case 21078, Microscale Photoacoustic Spectroscopy and Microscopy
45. MIT Case 21123, Tunable Filler Assembly in Mult-imaterial Polymer Extrusions Using Direct Injection and Acoustic Radiation Forces
46. MIT Case 21145, 3D Organ and Tissue Property Mapping using Superficial Vasculature-Based RGBD-SLAM and Deep Vasculature Alignment
47. MIT Case 22420, Integrated Optofluidic Sensor for Thromboembolic and Coagulation Risk Monitoring in COVID-19 Patients at Point-of-Care
48. MIT Case 22432, High Sensitivity and Specificity, Rapid, Low Cost, On-Chip Covid-19 Virus (and Other Virus) Detection using Integrated Photonic Sensors
49. MIT Case 22652, Dynamic Control of a Fiber Manufacturing Process using Deep Reinforcement Learning
50. MIT Case 23256, Privacy-Preserving Health Diagnosis of Manufacturing Machines
51. Circular scanning technique for large area imaging (US Patent 10,735,674)
52. Method for detecting circulating cells in superficial body fluids (US Patent 10,639,012)
53. Physical and Chemical Characterization of Aerosols with Photonic Waveguides (US Patent 11,181,454

Publications of Brian W. Anthony

1. Books:
   Smart Manufacturing On-line course, deployed 2019 and 2020

2. Papers in Referred Journals:
   2.1. B. Anthony, A. Abbate, D. Klimek, P. Kotidis., "Analysis of Ultrasonic Waves in Arbitrarily Oriented or Rotating Anisotropic Thin Materials", Quantitative Nondestructive Evaluation. Vol 18. pgs 215 - 222. (1999).
   2.2 A. Abbate, B. Anthony, D. Klimek, P. Kotidis., "Analysis of Dispersive Ultrasonic Signals by the Ridges of the Analysitc Wavelet Transform", Quantitative Nondestructive Evaluation. Vol 18. pgs 703 - 710. (1999).
   2.3 Dan Klimek, Brian Anthony, Agostino Abbate, Petros Kotidis, "Laser Ultrasonic Instrumentation for Accurate Temperature Measurement of Silicon Wafers in Rapid Thermal Processing Systems", Rapid Thermal and Integrated Processing VII, Materials Research Society, Volume 525, pg 135. (1999)
   2.4 Hardt, D.E., Anthony, B.W., Tor S.B., "A teaching factory for polymer microfabrication - μFac," International Journal of Nanomanufacturing, 2010, Vol. 6, No.1/2/3/4, pp. 137 - 151.
   2.5 Shih-Yu Sun, Matthew Gilbertson, and Brian W. Anthony, "Probe Localization for Freehand 3D Ultrasound by Tracking Skin Features", Book Section, Medical Image Computing and Computer-Assisted Intervention - MICCAI 2014, Springer, 2014, Vol. 8674. Lecture Notes in Computer Science, Pages 365-372.
   2.6 Xian Du, Brian W. Anthony, Nigel C. Kojimoto, “Grid-based matching for full-field large-area deformation measurement”, Optics and Lasers in Engineering, Volume 66, March 2015, Pages 307-319.
   2.7 Xian Du, Nigel C. Kojimoto, Brian W. Anthony, “Concentric circular trajectory sampling for super-resolution and image mosaicing”, Journal of the Optical Society of America A, Volume 32, No. 2, February 2015, Pages 293-304.
   2.8 M. Gilbertson, B. Anthony. "A Force and Position Control System for Freehand Ultrasound”, IEEE Transactions on Robotics, Volume 31, Issue 4. 2015.
   2.9 Andrey Kuzmin, Aaron Zakrzewski, Brian Anthony, Victor Lempitsky, "Multi-frame Elastography Using Handheld Force-Controlled Ultrasound Probe". Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, Volume 62 , Issue 8, Pages 1486 – 1500, 2015.
   2.10 Xian Du and Brian Anthony, "Concentric circle scanning system for large-area and high-precision imaging," Optics Express, Vol 23, Issue 15, Pages 20014-20029, 2015.
   2.11 Du, X.., Anthony, B., “Controlled angular and radial scanning for super resolution concentric circular imaging,” Opt. Express 24(20), 22581, United States (2016).
   2.12 Jimenez, X., Shukla, S. K., Ortega, I., Illana, F. J., Castro-González, C., Marti-Fuster, B., Butterworth, I., Arroyo, M., Anthony, B., et al., “Quantification of Very Low Concentrations of Leukocyte Suspensions In Vitro by High-Frequency Ultrasound,” Ultrasound Med. Biol. 42(7), 1568–1573, England (2016).
   2.13 Koppaka, S., Shklyar, I., Rutkove, S. B., Darras, B. T., Anthony, B. W., Zaidman, C. M.., Wu, J. S., “Quantitative Ultrasound Assessment of Duchenne Muscular Dystrophy Using Edge Detection Analysis,” J. Ultrasound Med. 35(9), 1889–1897, United States (2016).
   2.14 Lee, J., Boning, D., Anthony, B., "Measuring the Absolute Concentration of Microparticles in Suspension using High Frequency B-mode Ultrasound Imaging", Ultrasound in Medicine and Biology, 2018.
   2.15 Correa-de-Araujo, R., Harris-Love, M., Miljkoviv, I., Fragala, M.S., Anthony, B.W., Manini, T., Newman, A.B., "The Need for Standardized Assessment of Muscle Quality in Skeletal Muscle Function Deficit and Other Aging-Related Muscle Dysfunctions: A Symposium Report", Frontiers in Physiology, Section on Striated Muscle Physiology, 2017

2.16 Anthony, B, et al, “A Pilot Study to Precisely Quantify Forces Applied by Sonographers While Scanning: A Step Toward Reducing Ergonomic Injury”, WORK: A Journal of Prevention, Assessment, and Rehabilitation, 2017

2.17 Zakrzewski, Aaron M., Anthony, Brian W., "Non-Invasive Blood Pressure Estimation Using Ultrasound and Simple Finite Element Models", IEEE Transactions on Biomedical Engineering, 2017

2,18 Anthony, B., Fitriana, "Computationally-Efficient Optimal Video-Comparison for Machine Monitoring and Process Control", Journal of Manufacturing Science and Engineering, 2017

2.19 Lee, I., Du, X., & Anthony, B. (2017). Hair segmentation using adaptive threshold from edge and branch length measures. Computers in biology and medicine, 89, 314-324.

2.20 Pigula-Tresansky AJ, Wu JS, Kapur K, Darras BT, Rutkove SB, Anthony BW. “Muscle compression improves reliability of ultrasound echo intensity,” Muscle Nerve, 2017.

2.21 Xian Du, David Hardt, and Brian W. Anthony, “Real time imaging of invisible micron-scale monolayer patterns on a moving web using condensation figure,” IEEE Transactions on Industry Electronics, (submitted, in review), 2017.

2.22 Brian W. Anthony, Xian Du, Ina Kundu, Judith Beaudoin, “Skin registration and point pattern matching of skin microrelief structure,” (submitted, in revision), 2017.

2.23 Ozturk A, Grajo JR, Dhyani M, Anthony BW, Samir AE. Principles of ultrasound elastography. Abdominal Radiology. 2018.

2.24 Benjamin A, Zubajlo RE, Dhyani M, Samir AE, Thomenius KE, Grajo JR, Anthony, Brian W., “A Novel Approach to the Quantification of the Longitudinal Speed of Sound and its Potential for Tissue Characterization (Part I)”, Journal of Ultrasound in Medicine and Biology, 2018

2.25 B. Anthony et al, “Experimental Validation of Longitudinal Speed of Sound Estimates in the Diagnosis of Hepatic Steatosis (Part II)”, Journal of Ultrasound in medicine and biology, 2018

2.26 A. Ozturk et al., "Quantitative Hepatic Fat Quantification in NAFLD using Ultrasound-Based Techniques: A Review of Literature and their Diagnostic Performance," Ultrasound in Medicine and Biology, 2018

2.27 Zakrzewski, A. M., Huang, A. Y., Zubajlo, R. E., & Anthony, B. W. Real-Time Blood Pressure Estimation From Force-Measured Ultrasound. IEEE Transactions on Biomedical Engineering, 2018 (Nov 2018 cover article).

2.28 Singh, R., Su, P., Kimerling, L., Agarwal, A., & Anthony, B. W. “Towards On-chip Mid Infrared Photonic Aerosol Spectroscopy.” Applied Physics Letters. (Accepted). 2018

2.29 Ranger, Bryan J., Feigin, M., Zhang, X., Moerman, Kevin M., Herr, H., Anthony, Brian W. “3D ultrasound imaging of residual limbs with camera-based motion compensation”, Transactions on Neural Systems & Rehabilitation, (accepted) 2018.

2.30 Singh, R., Ma, D., Kimerling, L., Agarwal, A., & Anthony, B. W. “Chemical Characterization of Aerosol Particles Using On-chip Photonic Cavity Enhanced Spectroscopy”. ACS Sensors. 2018

2.31 Feigin, M., Ranger, B., Anthony, B., “Probabilistic Framework for Maximal Consensus Image Registration with Application to Medical Ultrasound Imaging” IEEE Transactions on Biomedical Engineering, (submitted) 2019.

2.32 X. Du, D. Hardt, and B. Anthony, “Real Time Imaging of Invisible Micron-Scale Monolayer Patterns on a Moving Web Using Condensation Figures,” IEEE Trans. Ind. Electron., pp. 1–1, 2019.

2.33 B. J. Ranger, M. Feigin, X. Zhang, K. M. Moerman, H. Herr, and B. W. Anthony, “3D Ultrasound Imaging of Residual Limbs With Camera-Based Motion Compensation,” IEEE Trans. Neural Syst. Rehabil. Eng., vol. 27, no. 2, pp. 207–217, Feb. 2019.

2.34 M. Feigin-Almon, D. Freedman, and B. W. Anthony, “A Deep Learning Framework for Single-Sided Sound Speed Inversion in Medical Ultrasound,” IEEE Trans. Biomed. Eng., pp. 1–1, 2019.

2.35 R. Singh, D. Ma, L. Kimerling, A. M. Agarwal, and B. W. Anthony, “Chemical Characterization of Aerosol Particles Using On-Chip Photonic Cavity Enhanced Spectroscopy,” ACS Sensors, vol. 4, no. 3, pp. 571–577, Mar. 2019.

2.00 J. R. Fincke, C. M. Wynn, R. Haupt, X. Zhang, D. Rivera, and B. Anthony, "Characterization of laser ultrasound source signals in biological tissues for imaging applications," J. Biomed. Opt., vol. 24, no. 02, p. 1, Dec. 2018.
2.36 Xiang Zhang, Jonathan Fincke, Charles Wynn, Matthew Johnson, Robert Haupt, and Brian Anthony. Full Noncontact Laser Ultrasound: First Human Data. Nature, Light: Science & Applications. 2019.
2.37 M. Feigin, M. Zwecker, D. Freedman, and B. W. Anthony, "Detecting muscle activation using ultrasound speed of sound inversion with deep learning," Submitted Oct. 2019.
2.38 S. Kim, D. D. Kim, and B. Anthony, "Dynamic Control of a Fiber Manufacturing Process using Deep Reinforcement Learning," Submitted Nov. 2019.
2.39 R. Singh, Y. Nie, A. M. Agarwal, and B. W. Anthony, "Inverse Design of Photonic Metasurface Gratings for Beam Collimation in Opto-fluidic Sensing," Submitted Oct. 2019.
2.40 Benjamin A, Chen M, Li Q, Chen L, Dong Y, Carrascal CA, et al. Renal Volume Estimation Using Freehand Ultrasound Scans: An Ex Vivo Demonstration. Ultrasound Med Biol. 2020 Jul;46(7):1769–82.
2.41 Chrzanowski S, Tresansky AP, Nagy J, Rutkove S, Anthony B. Muscle Imaging – MRI. Neuromuscul Disord. 2020 Oct;30:S95.
2.42 Singh R, Agarwal A, W Anthony B. Mapping the design space of photonic topological states via deep learning. Opt Express. 2020 Sep 14;28(19):27893.
2.43 Lee JH, Traverso G, Ibarra-Zarate D, Boning DS, Anthony BW. Ex Vivo and In Vivo Imaging Study of Ultrasound Capsule Endoscopy. J Med Device. 2020 Jun 1;14(2).
2.44 Singh R, Agarwal A, Anthony BW. Design of optical meta-structures with applications to beam engineering using deep learning. Sci Rep. 2020 Dec 16;10(1):19923.
2.45 Yang H, Carrascal CA, Xie H, Shamdasani V, Anthony BW. 2-D Ultrasound Shear Wave Elastography With Multi-Sphere-Source External Mechanical Vibration: Preliminary Phantom Results. Ultrasound Med Biol. 2020 Sep;46(9):2505–19.
2.46 Benjamin, Alex; Ely, Gregory; Fincke, Jonathan; Anthony BW. Reflection Ultrasound Tomography Using Localized Freehand Scans. IEEE Int Symp Biomed Imaging. 2020.
2.47 Ozturk A, Zubajlo RE, Dhyani M, Grajo JR, Mercaldo N, Anthony BW, et al. Variation of Shear Wave Elastography With Preload in the Thyroid: Quantitative Validation. J Ultrasound Med. 2021 Apr 20;40(4):779–86.
2.48 Kang HED, Kim D, Kim S, Kim DD, Cheon JH, Anthony BW. Homomorphic Encryption as a secure PHM outsourcing solution for small and medium manufacturing enterprise. J Manuf Syst. 2021 Oct;61:856–65.
2.49 Kim S, Kim DD, Anthony B. Dynamic Control of a Fiber Manufacturing Process using Deep Reinforcement Learning. IEEE/ASME Trans Mechatronics [Internet]. 2021;4435(c):1–1.
2.50 Fincke J, Zhang X, Shin B, Ely G, Anthony BW. Quantitative Sound Speed Imaging of Cortical Bone and Soft Tissue: Results from Observational Data Sets. IEEE Trans Med Imaging. 2021;PP(X):1–1.
2.51 Singh R, Nie Y, Gao M, Agarwal AM, Anthony BW. Inverse design of photonic meta-structure for beam collimation in on-chip sensing. Sci Rep. 2021 Dec 5;11(1):5343.
2.52 Benjamin A, Ely G, Anthony BW. 2D speed of sound mapping using a multilook reflection ultrasound tomography framework. Ultrasonics. 2021 Jul;114:106393.
2.53 Hahm KS, Anthony BW. In-home Health Monitoring using Floor-based Gait Tracking. Internet of Things (Netherlands) [Internet]. 2022 Aug;19:100541.
2.54 Goryachev I, Tresansky AP, Ely GT, Chrzanowski SM, Nagy JA, Rutkove SB, et al. Comparison of Quantitative Ultrasound Methods to Classify Dystrophic and Obese Models of Skeletal Muscle. Ultrasound Med Biol. 2022 Sep;48(9):1918–32.
2.56 Jaffe AT, Zubajlo RE, Daniel L, Anthony BW. Automated Force-Coupled Ultrasound Method for Calibration-Free Carotid Artery Blood Pressure Estimation. Ultrasound Med Biol. 2022 Sep;48(9):1806–21.

2.57 Zhang, X., Ely, G., Shin, B., & Anthony, B. W. (2022). Multimanipulator Robotic System for Ultrasound Tomography: Design, Calibration, and Image Results. Journal of Medical Devices, 16(4), 041013.

2.58 Wang YJ, Chai LA, Zubajlo RE, Anthony BW. Sequencing waves in single-transducer acoustophoretic patterning of microspheres. Appl Phys Lett. 2022 Dec 12;121(24):244106.

2.59 Silva L, Dias M, Folgado D, Nunes M, Namburi P, Anthony B, et al. Respiratory Inductance Plethysmography to Assess Fatigability during Repetitive Work. Sensors. 2022 Jun 2;22(11):4247.

2.60 Magana-Salgado U, Namburi P, Feigin-Almon M, Pallares-Lopez R, Anthony B. A comparison of point-tracking algorithms in ultrasound videos from the upper limb. Biomed Eng. 2023 May 24;22(1):52.

2.61 Jaffe, A., Goryachev, I., Sodini, C., & Anthony, B. W. (2023). Central venous pressure estimation with force-coupled ultrasound of the internal jugular vein. *Scientific Reports*, *13*(1), 1500..

2.62 Ponce P, Anthony B, Deshpande AS, Molina A. A Low-Cost Microcontroller-Based Normal and Abnormal Conditions Classification Model for Induction Motors Using Self-Organizing Feature Maps (SOFM). Energies. 2023 Oct 30;16(21):7340.

2.63 Sankepalle DM, Anthony B, Mallidi S. Visual inertial odometry enabled 3D ultrasound and photoacoustic imaging. Biomed Opt Express. 2023 Jun 1;14(6):2756.

2.64 Feigin, M., Freedman, D., & Anthony, B. W. (2023). Computing speed-of-sound from ultrasound: user-agnostic recovery and a new benchmark. IEEE Transactions on Biomedical Engineering, 71(4), 1094-1103.

2.65 Medina, A., Bradley, R., Xu, W., Ponce, P., Anthony, B. and Molina, A., 2024. Learning manufacturing computer vision systems using tiny YOLOv4. Frontiers in Robotics and AI, 11, p.1331249.

2.66 Wang YJ, Anthony BW. Using Local Concentration to Model the Progress of Acoustophoretic Assembly of Microspheres in Planar Standing Waves. J Micro- Nano-Manufacturing []. 2023 Dec 1;11(4).

2.67 Ranger, B. J., Moerman, K. M., Anthony, B. W., & Herr, H. M. (2023). Constitutive parameter identification of transtibial residual limb soft tissue using ultrasound indentation and shear wave elastography. Journal of the Mechanical Behavior of Biomedical Materials, 137, 105541.

2.68 Wang, J; Anthony B. Absolute Magnitude of the Acoustic Radiation Force in a Multi-Wavelength Patterning Device Before and After Pattern Formation. Proc ASME 2024. 2024;1–10.

2.69 Camacho J de J, Aguirre B, Ponce P, Anthony B, Molina A. Leveraging Artificial Intelligence to Bolster the Energy Sector in Smart Cities: A Literature Review. Energies []. 2024 Jan 10;17(2):353.

2.70 Ponce P, Anthony B, Bradley R, Maldonado-Romo J, Méndez JI, Montesinos L, et al. Developing a virtual reality and AI-based framework for advanced digital manufacturing and nearshoring opportunities in Mexico. Sci Rep []. 2024 May 16;14(1):11214.

2.71 Ranger, B. J., Moerman, K. M., Feigin, M., Herr, H. M., & Anthony, B. W. (2024). 3D Ultrasound Shear Wave Elastography for Musculoskeletal Tissue Assessment Under Compressive Load: A Feasibility Study. Ultrasonic Imaging, 46(4-5), 251-262.

2.72 Lee JH, Nathanson LA, Burke RC, Anthony BW, Shapiro NI, Dagan AS. Assessment of respiratory rate monitoring in the emergency department. JACEP Open []. 2024 Jun 8;5(3).

2.73 Krbec, Brooke A., Xiang Zhang, Inbar Chityat, Alexandria Brady-Mine, Evan Linton, Daniel Copeland, Brian W. Anthony, Elazer R. Edelman, and Jonathan M. Davis. Emerging innovations in neonatal monitoring: a comprehensive review of progress and potential for non-contact technologies. Frontiers in Pediatrics 12 (2024): 1442753.

2.74 Kang DHE, Kim D, Song Y, Lee D, Kwak H, Anthony BW. Harnessing the potential of shared data in a secure, inclusive, and resilient manner via multi-key homomorphic encryption. Sci Rep []. 2024 Jun 13;14(1):13626.

2.75 Hahm, K. S., & Anthony, B. W. (2024). Machine learning-based gait health monitoring for multi-occupant smart homes. Internet of Things, 26, 101154.
2.76 Pérez Briceño C, Ponce P, Robinson Fayek A, Anthony B, Bradley R, Molina A. Discrete event simulation for photovoltaic integration in sustainable manufacturing– A review and future directions. Renew Sustain Energy Rev []. 2025 Jul;216(March):115676.
2.77 Mata O, Ponce P, Perez C, Ramirez M, Anthony B, Russel B, et al. Digital twin designs with generative AI: crafting a comprehensive framework for manufacturing systems. J Intell Manuf []. 2025 Feb 20.
2.78 Jaffe, A. T., Pallarès-López, R., Raines, J. K., Aguirre, A. D., & Anthony, B. W. (2025). Noninvasive Quantitative Compression Ultrasound Central Venous Pressure: A Clinical Pilot Study. BME frontiers, 6, 0115.

3. Proceedings of Refereed Conferences:

3.1. Dipen N. Sinha, Brian W. Anthony, David C. Lizon, "Swept Frequency Acoustic Interferometery Techniques for Chemical Weapons Verification and Monitoring", Third International Conference On-Site Analysis, (1995).
3.2. David E. Hardt, Brian W. Anthony and Shu Beng Tor, "A Teaching Factory for Polymer Microfabrication – muFac", Proc. 5th International Symposium on Nano-Manufacturing (ISNM), Athens, November 12-15, 2008.
3.3. Gilbertson, M., Anthony, B., and Sun, S.Y., "Handheld Force Controlled Ultrasound Probe", J. Med. Devices 4, 027540 (2010)
3.4. Ljubicic, D. M., Anthony, B., "Development of a high-speed profilometer for manufacturing inspection," Proceedings of SPIE Vol. 7767, 776705 (2010).
3.5. Sun, S., Anthony, B. W., Gilbertson, M. W., "Trajectory-based deformation correction in ultrasound images," Proceedings of SPIE Vol. 7629, 76290A (2010).
3.6. Anthony, B. W., Hardt, D. E., Hale, M., et al., "A research factory for polymer microdevices: muFac," Proceedings of SPIE Vol. 7593, 75930A (2010).
3.7. Gilbertson, M. W., Anthony, B. W., "Impedance-controlled ultrasound probe," Proceedings of SPIE Vol. 7968, 796816 (2011).
3.8. Ljubicic, D. M., Anthony, B. W., "3D high-speed profilometer for inspection of micro-manufactured transparent parts," Proceedings of SPIE Vol. 8082, 808211 (2011).
3.9. Anthony, B.W, Hardt, D.E., "Revitalizing US Manufacturing to Capitalize on Innovation – Through Education" 119th ASEE Annual Conference, San Antonio TX, June 10-13, (2012)
3.10. Anthony, B. W., Namvari, K., "Dimensional variation of polymer substrate electrode production," Proceedings of SPIE Vol. 8251, 82510G (2012).
3.11. Selvakumar, S., Linares, R., Oppenheimer, A., Anthony, B., "Variation analysis of flow rate delivered using a blister pump," Proceedings of SPIE Vol. 8251, 82510I (2012).
3.12. Donoghue, L., Anthony, B. W., "Design for manufacture of a micro-interdigitated electrode for impedance measurement in a biochemical assay," Proceedings of SPIE Vol. 8251, 82510Y (2012).
3.13. Holmes, J., Anthony, B. W., "Robustness and repeatability test of interdigitated electrodes on a polymer substrate in an aqueous environment," Proceedings of SPIE Vol. 8251, 825110 (2012).
3.14. Sun, S.-Y, Anthony, B. W. "Freehand 3D ultrasound volume imaging using a miniature-mobile 6-DOF camera tracking system". 2012 IEEE International Symposium on Biomedical Imaging (ISBI), 2-5 May, (2012).
3.15. Gilbertson, M.W., Anthony, B.A., 2012. "Ergonomic Controls Strategies for a Handheld Force-Controlled Ultrasound Probe," 2012 IEEE/RSJ Intelligent Robots and Systems (IROS) Conference. Vilamoura, Portugal. (2012)

3.16. Sun, S.-Y, Gilbertson, M., Anthony, B. W. “6-DoF Probe Tracking via Skin Mapping for Freehand 3D Ultrasound”. 2013 IEEE International Symposium on Biomedical Imaging (ISBI), (2013).
3.17. Sun, S.-Y, Gilbertson, M., Anthony, B. W. “Computer-Guided Ultrasound Probe Realignment by Optical Tracking”. 2013 IEEE International Symposium on Biomedical Imaging (ISBI), (2013).
3.18. Inamdar, T., Anthony, B. W., “Characterizing fluidic seals for on-board reagent delivery," Proceedings of SPIE (2013).
3.19. Zakrzewski, A., Anthony, B. W. “Quantitative Elastography and its Application to Blood Pressure Estimation: Theoretical and Experimental Results”. 2013 IEEE Engineering in Medicine and Biology Society (EMBS), (2013).
3.20. Gilbertson, M. Anthony, B.W., “An Ergonomic, Instrumented Ultrasound Probe for 6-Axis Force/Torque Measurement”. 2013 IEEE Engineering in Medicine and Biology Society (EMBS), (2013).
3.21. Dhyani, M, Gilbertson, M., Samir, A., Anthony, B.W., "Precise Quantification of Sonographic Forces: A First Step Toward Reducing Ergonomic Injury", 2014 AIUM Annual Convention, (2014).
3.22. Koppaka, S., Gilbertson, M., Wu, J., Rutkove, S., Anthony, B. W. “Assessing Duchenne Muscular Dystrophy With Force-controlled Ultrasound”. 2014 IEEE International Symposium on Biomedical Imaging (ISBI), (2014).
3.23. Koppaka, S., Gilbertson, M., Rutkove, S., Anthony, B. W. “Evaluating the Clinical Relevance of Force-correlated Ultrasound”. 2014 IEEE International Symposium on Biomedical Imaging (ISBI), (2014).
3.24. J. H. Lee, C. M. Schoellhammer, G. Traverso, D. Blankschtein, R. Langer, K. E. Thomenius, D. S. Boning, B. Anthony, "Towards Wireless Capsule Endoscopic Ultrasound (WCEU)," IEEE International Ultrasonics Symposium (IUS), Chicago, IL, 2014, pp. 734-7.
3.25. Zhang, Xiang; Fincke, Jonathan; Kuzmin, Andrey; Lempitsky, Victor; Anthony, Brian, "A single element 3D ultrasound tomography system," in Engineering in Medicine and Biology Society (EMBC), 2015 37th Annual International Conference of the IEEE , vol., no., pp.5541-5544, 25-29 Aug. 2015.
3.26. Ranger, Bryan J.; Feigin, Micha; Pestrov, Nikita; Zhang, Xiang; Lempitsky, Victor; Herr, Hugh M.; Anthony, Brian W., "Motion compensation in a tomographic ultrasound imaging system: Toward volumetric scans of a limb for prosthetic socket design," in Engineering in Medicine and Biology Society (EMBC), 2015 37th Annual International Conference of the IEEE , vol., no., pp.7204-7207, 25-29 Aug. 2015.
3.27. Lee, John H.; Jimenez, Javier; Xiang Zhang; Boning, Duane S.; Anthony, Brian W., "Ultrasound image-based absolute concentration measurement technique for materials with low scatterer concentration", IEEE International Ultrasonics Symposium (IUS), 2015.
3.28. Lee, John H.; Jimenez, Javier; Butterworth, Ian R.; Castro-Gonzalez, Carlos; Shukla, Shiva K.; Marti-Fuster, Berta; Elvira, Luis; Boning, Duane S.; Anthony, Brian W., "Measurement of very low concentration of microparticles in fluid by single particle detection using acoustic radiation force induced particle motion", IEEE International, Ultrasonics Symposium (IUS), 2015.
3.29. Anthony, B. W., “Enhanced ultrasound for advanced diagnostics, ultrasound tomography for volume limb imaging and prosthetic fitting,” Proc. SPIE 9790, N. Duric and B. Heyde, Eds., 97900Q (2016).
3.30. Fincke, J. R., Feigin, M., Prieto, G. A., Zhang, X.., Anthony, B., “Towards ultrasound travel time tomography for quantifying human limb geometry and material properties,” Proc. SPIE 9790, N. Duric and B. Heyde, Eds., 97901S (2016).
3.31. Kuzmin, A., Zhang, X., Finche, J., Feigin, M., Anthony, B. W.., Lempitsky, V., “Fast low-cost single element ultrasound reflectivity tomography using angular distribution analysis,” 2016 IEEE 13th Int. Symp. Biomed. Imaging, 1021–1024, IEEE (2016).

3.32. Pigula, A. J., Wu, J. S., Gilbertson, M. W., Darras, B. T., Rutkove, S. B.., Anthony, B. W., "Force-controlled ultrasound to measure passive mechanical properties of muscle in Duchenne muscular dystrophy," 2016 38th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc., 2865–2868, IEEE (2016).

3.33. Ranger, B. J., Feigin, M., Zhang, X., Mireault, A., Raskar, R., Herr, H. M.., Anthony, B. W., "3D optical imagery for motion compensation in a limb ultrasound system," Proc. SPIE 9790, N. Duric and B. Heyde, Eds., 97900R (2016).

3.34. Zhang, X., Fincke, J. R.., Anthony, B. W., "Single element ultrasonic imaging of limb geometry: an in-vivo study with comparison to MRI," Proc. SPIE 9790, 97901R–97901R–7 (2016).

3.35. Nguyen, M.M, Graule, M.A., Huang, A.Y, Shamdasani, V., Anthony, B.W., Xie, H., "Ultrasound shearwave elastography with force sensing – integration design and preliminary ex-vivo results.," Proc. Int. Tissue Elast. Conf. 2016 (2016).

3.36. Feigin M., Ranger, B.., Anthony, B., "Statistical Consensus Matching Framework for Image Registration," IEEE Int. Conf. Pattern Recognition, (2016).

3.37. Zakrzewski, A. M., Dhyani, M., Samir, A. E.., Anthony, B. W., "Non-Invasive, Non-Occlusive Blood Pressure Estimation Using Ultrasound: Clinical Results (I)," 38th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc. (2016).

3.38. Anthony, et al, "Arterial Blood Pressure Estimation Using Ultrasound: Results on Healthy Volunteers and a Medicated Hypertensive Volunteer", 2017 39th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc., accepted (2017).

3.39. Anthony, et al, "Non-Invasive Diagnosis of Non-Alcoholic Fatty Liver Disease (NAFLD) using Ultrasound Image Echogenicity", 2017 39th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc., accepted (2017).

3.40. Anthony, et al, "Camera-tracking vs. image-based motion compensation in a tomographic limb ultrasound system", 2017 39th Annu. Int. Conf. IEEE Eng. Med. Biol. Soc., (2017).

3.41. Fincke JR. Imaging cortical bone using the level-set method to regularize travel-time and full waveform tomography techniques. J Acoust Soc Am. Acoustical Society of America; (2017)

3.42. Yang H, Nguyen MM, Huang S-W, Shamdasani V, Xie H, Anthony BW. "Simulation, design, and implementation of external mechanical vibration for ultrasound shear wave elastography.", IEEE International Ultrasonics Symposium (IUS) IEEE; 2017.

3.43. A. Benjamin et al., "Non-invasive diagnosis of non-alcoholic fatty liver disease (NAFLD) using ultrasound image echogenicity," 2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Seogwipo, 2017,

3.44. H. Yang, A.Benjamin, B. Anthony, "Simulation of multi-source external mechanical vibration for shear wave elastography," The Journal of the Acoustical Society of America, 142, 2017

3.45. Singh, R., Ma, D., Agarwal, A., & Anthony, B. W. (2018). On-chip photonic particle senso. Presented at the SPIE BiOS, San Francisco, CA.

3.46. Kundu, I., & Anthony, B. W. . "Imaging the superficial vascular structure for mapping and identification." SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring, Denver, Colorado. (2018).

3.47. Kundu, I., Du, X., & Anthony, B. W. (2018). "Imaging platforms for registering and analyzing the skin microrelief structure." Presented at the SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring, Denver, Colorado. (2018).

3.48. Zakrzewski, A. M., & Anthony, B. W. (2018). Pre-and-Post Exercise Blood Pressure Estimation from Force-Measured Ultrasound: First Results. Presented at the 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI.

3.49. Donk, F., Yang, H., & Anthony, B. W. (2018). Miniaturization of External Mechanical Vibration for Shear Wave Elastography Imaging. Presented at the 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI.

3.50. Chen, M., Li, Q., Karimian, N., Yeh, H., Duan, Y., Fontan, F., … Samir, A. E. (2018). Contrast-Enhanced Ultrasound to Quantify Perfusion in a Machine-Perfused Pig Liver. Presented at the 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI.

3.51. Wang, Y. J., & Anthony, B. W. (2018). Characterization of wave fields using transient motion of microspheres under acoustic radiation force. Presented at the 21st International Symposium on Nonlinear Acoustics, Santa Fe, NM.

3.52. Yang, H., Carrascal, C., Xie, H., Shamdasani, V., Anthony, B.W., "Design and Experimental Validation of Miniature External Mechanical Vibrators towards Clinical Ultrasound Shear Wave Elastography", IUS, 2018.

3.53. Singh, Robin; Ma, Danhao; Kimerling, Lionel; Agarwal, Anuradha; Anthony, Brian, "Microscale photoacoustic spectroscopy using integrated photonics for lab-on-chip applications", Spie BIOS, (accepted), 2018.

3.54. J. B. Frontin and B. W. Anthony, "Quantifying Dermatology: Method and Device for User-Independent Ultrasound Measurement of Skin Thickness," in 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2019, pp. 5743-5748.

3.55. A. Benjamin et al., "Renal volume reconstruction using free-hand ultrasound scans," J. Acoust. Soc. Am., vol. 145, no. 3, pp. 1922–1922, Mar. 2019.

3.56. A. Y. Huang and B. W. Anthony, "An Instrumented Ultrasound Probe for Shear Wave Elastography With Uneven Force Distribution," in 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2019, pp. 6208–6211.

3.57. Feigin M, Zwecker M, Freedman D, Anthony BW. Detecting muscle activation using ultrasound speed of sound inversion with deep learning. Proc Annu Int Conf IEEE Eng Med Biol Soc EMBS. 2020 Oct 20;2020-July:2092–5.

3.58. Li Y, Kim DD, Anthony B. HapticWall - An Ecountered-type Two-Dimensional Vertical System for Virtual Reality. Dyn Syst Control Conf. 2020;1–9.

3.59. Feigin M, Zwecker M, Freedman D, Anthony BW. Detecting muscle activation using ultrasound speed of sound inversion with deep learning. In: 2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC). IEEE; 2020. p. 2092–5.

3.60. Feigin M, Makovsky Y, Freedman D, Anthony BW. High-frequency full-waveform inversion with deep learning for seismic and medical ultrasound imaging. In: SEG Technical Program Expanded Abstracts 2020. Society of Exploration Geophysicists; 2020. p. 3492–6.

3.61. Singh R, Agarwal A, Anthony BW. Ultra-high sensitive all-optical photoacoustic transducers. In: Oraevsky AA, Wang L V., editors. Photons Plus Ultrasound: Imaging and Sensing 2020. SPIE; 2020. p. 35.

3.62. Singh R, Agarwal A, Anthony BW. Leveraging Integrated Photonics for Ultrasound Sensing Applications. In: Imaging and Applied Optics Congress. Washington, D.C.: OSA; 2020. p. JW5A.7.

3.63. Singh R, Su P, Agarwal A, Anthony BW. Integrated Mid-IR Photonics for Gas and Aerosol Sensors. In: Imaging and Applied Optics Congress. Washington, D.C.: OSA; 2020. p. JW5C.7.

3.64. Ely G, Fincke J, Zhang X, Anthony BW. Optimizing Transducer Acquisition Scheme for Rapid Ultrasound Tomography of Limbs. In: 2020 IEEE International Ultrasonics Symposium (IUS). IEEE; 2020. p. 1–4.

3.65. Cuiffi JD, Wang H, Heim J, Anthony BW, Kim S, Kim DD. Factory 4.0 Toolkit for Smart Manufacturing Training. In: 2021 ASEE Virtual Annual Conference Content Access. 2021.

3.66. Hahm KS, Chase AS, Dwyer B, Anthony BW. Indoor Human Localization and Gait Analysis using Machine Learning for In-home Health Monitoring. In: 2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC). IEEE; 2021. p. 6859–62

3.67. Hong MS. Teaching Process Data Analytics and Machine Learning at MIT. Chem Eng Educ. 2022;56(4).
3.68. Ranger B, Hira A, Smith B, Zhang X, Anthony B. Work in progress: cost-effective table-top ultrasound systems as platform for biomedical engineering education. In: 2022 ASEE Annual Conference & Exposition. 2022.