



Jeremy Dahl

Professor of Radiology (Pediatric Radiology)

Radiology - Pediatric Radiology

CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

My laboratory develops ultrasonic beamforming and image reconstruction methods. A current focus in our lab is the development of methods that improve the quality of ultrasound images in the difficult-to-image patient population. For example, my lab has developed a differentiable beamforming technique that estimates the local sound speed to correct for distortion in the ultrasound image. We have also adapted the differentiable beamformer to solve other problems in ultrasound imaging, such as estimation of the array shape for flexible ultrasound arrays. Often, we attempt to build these imaging methods into real-time imaging systems in order to apply them to clinical applications. Another focus of my laboratory is ultrasound molecular imaging, where we used targeted microbubbles to image the molecular signatures of disease. In this project, we have developed nondestructive real-time molecular imaging techniques alongside unique targeted contrast agents for the purpose of early detection of cancer and other diseases. Other small projects in my lab often involve ultrasonic beamforming and image reconstruction in new ways to enhance other areas of ultrasound research, such as drug delivery and passive cavitation mapping.

ACADEMIC APPOINTMENTS

- Professor, Radiology - Pediatric Radiology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Medicine Children's Health Center for IBD and Celiac Disease
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Director, Research Academic Affairs, Department of Radiology, (2020- present)

HONORS AND AWARDS

- Fellow, American Institute for Medical and Biological Engineering (2026)
- Fellow, American Institute of Ultrasound in Medicine (2021)
- Senior Member, Institute of Electrical and Electronics Engineers (2020)
- Distinguished Investigator Award, The Academy for Radiology & Biomedical Imaging Research (2018)
- Outstanding Paper Award, IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society (2011)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, IEEE Transactions on Medical Imaging (2017 - 2024)
- Chair, Basic Science & Instrumentation Community, American Institute of Ultrasound in Medicine (2018 - 2024)
- Board of Governors, American Institute of Ultrasound in Medicine (2021 - present)
- Associate Editor, IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (2013 - present)
- Associate Editor, Ultrasonic Imaging (2013 - present)

PROFESSIONAL EDUCATION

- B.S., University of Cincinnati, Electrical Engineering (1999)
- Ph.D., Duke University, Biomedical Engineering (2004)

PATENTS

- M. Razavi, J. J. Dahl, and A. Thakor. "United States Patent 12,186,594 Pulsed Focused Ultrasound Therapy for Treatment of Pancreatic Disorders", Leland Stanford Junior University, Jan 7, 2025
- M. Jakovljevic, S. Hsieh, and J. J. Dahl. "United States Patent 11,397,167 Quantifying Speed of Sound in Tissue for Medical Ultrasound", Leland Stanford Junior University, Jul 26, 2022
- D. Hyun, L. Brickson, K. Looby, and J. J. Dahl. "United States Patent 11,030,780 Ultrasound speckle reduction and image reconstruction using deep learning techniques", Leland Stanford Junior University, Jun 8, 2021
- T. Lee, J. K. Willmann, and J. J. Dahl. "United States Patent 10,792,518 System and device for improved ultrasound cavitation mapping", The Board of Trustees of the Leland Stanford Junior University, Oct 6, 2020
- J. J. Dahl, D. Hyun, and J. K. Willmann. "United States Patent 10,751,028 Coherence-Based Beamforming for Improved Microbubble Detection in Contrast Enhanced Ultrasound", Leland Stanford Junior University, Aug 25, 2020
- J. J. Dahl and Y. L. Li. "United States Patent 10,111,644 A Method of Coherent Flow Imaging Using Synthetic Transmit Focusing and Acoustic Reciprocity", Leland Stanford Junior University, Oct 30, 2018
- J. Doherty, J. J. Dahl, K. R. Nightingale, and G. E. Trahey. "United States Patent 9,883,852 Ultrasound systems, methods and computer program products for estimating tissue deformation with harmonic signals", Duke University, Feb 6, 2018
- J. J. Dahl, M. A. Lediju Bell, and G. E. Trahey. "United States Patent 9,254,116 Methods, systems and apparatuses for Van-Cittert Zernike imaging", Duke University, Feb 9, 2016

LINKS

- Lab Website: <http://ultrasound.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our laboratory is an ultrasound engineering laboratory that develops ultrasonic beamforming and image reconstruction methods for diagnostic imaging applications. Our current focus is on beamforming methods that are capable of generating high-quality images in difficult-to-image patients and imaging conditions. We attempt to build these imaging methods into real-time imaging systems in order to apply them to clinical applications, such as pediatric, cardiac, liver, and fetal imaging. Another focus of our laboratory is the development of ultrasound molecular imaging platforms, including image

reconstruction methodologies and targeted microbubbles for molecular signatures. We also employ beamforming concepts to enhance other areas of ultrasound research, such as therapeutic ultrasound and microbubble-mediated drug delivery or passive cavitation imaging.

A current project in our laboratory involve differentiable beamforming, which is a technique that iteratively estimates beamforming parameters to improve the reconstructed image. For example, we estimate the local sound speed and beamform the image using that speed of sound to correct for distortion in the ultrasound image (also known as aberration correction). We have also used the differentiable beamformer to solve other problems in ultrasound imaging, such as estimating the array shape of flexible ultrasound arrays. Another project involves the simulation of nonlinear, acoustic wave propagation under complex models of human anatomy and evaluate the impact of anatomy and acoustic parameters on the resulting images. Often, the anatomy and acoustic parameters are the source of aberration and diffuse reverberation of the wavefronts, both of which contribute to image noise. We have developed techniques that suppress the reverberation noise to improve downstream imaging techniques such as Doppler, radiation force imaging, or aberration correction. We often employ these techniques in clinical studies to observe the improvement in image quality.

In ultrasound molecular imaging, we utilize signal processing and machine learning techniques to develop nondestructive, real-time ultrasound molecular imaging to permit clinical usage of the technique. In ultrasound molecular imaging, ligands are attached to microbubbles in order to bind to a specific biomarker of disease. In our case, we wish to avoid the destruction of the microbubble in the imaging process, which is commonly used to differentiate bound from free-floating microbubbles. We also wish to permit free-hand and real-time molecular imaging, which is currently unavailable with state-of-the-art ultrasound molecular imaging techniques. In addition to developing imaging capabilities, we have also developed small ligands that bind to cancer biomarkers such that the cancers can be detected and diagnosed under ultrasound.

CLINICAL TRIALS

- Early Therapeutic Monitoring of Response to Therapy with Serial Ultrasound in Metastatic RCC, Not Recruiting

Teaching

COURSES

2025-26

- Advanced Ultrasound Imaging: BMP 235, RAD 235 (Win)
- Medical Imaging Systems I: BMP 269A, EE 369A (Spr)

2024-25

- Medical Imaging Systems I: BMP 269A, EE 369A (Spr)

2023-24

- Advanced Ultrasound Imaging: BMP 235, RAD 235 (Win)
- Medical Imaging Systems I: BMP 269A, EE 369A (Win)

2022-23

- Advanced Ultrasound Imaging: RAD 235 (Win)
- Biomedical Signals II: BMP 212, RAD 212 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Kaitlyn Liang

Postdoctoral Faculty Sponsor

Jihye Baek, Samuel Beuret, Hoda Hashemi

Doctoral Dissertation Advisor (AC)

Brian Boitnott, Benjamin Frey, Caelia Thomas

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biomedical Physics (Phd Program)
- Stanford Cancer Imaging Training Program (SCIT) (Fellowship Program)

Publications

PUBLICATIONS

- **Ultrasound Autofocusing: Common Midpoint Phase Error Optimization via Differentiable Beamforming** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Simson, W., Zhuang, L., Frey, B. N., Sanabria, S. J., Dahl, J. J., Hyun, D.
2026; 45 (2): 681-692
- **UltraFlex: Iterative Model-Based Ultrasonic Flexible-Array Shape Calibration** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Frey, B. N., Hyun, D., Simson, W., Zhuang, L., Hashemi, H. S., Schneider, M., Dahl, J. J.
2025; 72 (11): 1462-1475
- **Differentiable Beamforming for Ultrasound Autofocusing**
Simson, W., Zhuang, L., Sanabria, S. J., Antil, N., Dahl, J. J., Hyun, D.
edited by Greenspan, H., Madabhushi, A., Mousavi, P., Salcudean, S., Duncan, J., Syeda-Mahmood, T., Taylor, R.
SPRINGER INTERNATIONAL PUBLISHING AG.2023: 428-437
- **Distributed Aberration Correction Techniques Based on Tomographic Sound Speed Estimates.** *IEEE transactions on ultrasonics, ferroelectrics, and frequency control*
Ali, R., Brevett, T., Hyun, D., Brickson, L. L., Dahl, J. J.
2022; 69 (5): 1714-1726
- **Reverberation Noise Suppression in Ultrasound Channel Signals Using a 3D Fully Convolutional Neural Network** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Brickson, L. L., Hyun, D., Jakovljevic, M., Dahl, J. J.
2021; 40 (4): 1184-95
- **Nondestructive Detection of Targeted Microbubbles Using Dual-Mode Data and Deep Learning for Real-Time Ultrasound Molecular Imaging.** *IEEE transactions on medical imaging*
Hyun, D. n., Abou-Elkacem, L. n., Bam, R. n., Brickson, L. L., Herickhoff, C. D., Dahl, J. J.
2020
- **Efficacy of affibody-based ultrasound molecular imaging of vascular B7-H3 for breast cancer detection.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
Bam, R. n., Lown, P. S., Stern, L. A., Sharma, K. n., Wilson, K. E., Bean, G. R., Lutz, A. M., Paulmurugan, R. n., Hackel, B. J., Dahl, J. n., Abou-Elkacem, L. n.
2020
- **Fourier Beamforming of Ultrasound Signals From Chirp Transmits Using the Chirp Scaling Algorithm.** *Ultrasonic imaging*
Zhuang, L., Schoen, S., Dahl, J., Jakovljevic, M.
2026: 1617346261441787
- **Renal cancer early diagnosis using a novel B7-H3 targeted ultrasound contrast imaging**
Natarajan, A., Baek, J., Paulmurugan, R., Dahl, J.
AMER ASSOC CANCER RESEARCH.2026
- **Enhancing Ultrasound Molecular Imaging: Toward Real-Time RPCA-Based Filtering to Differentiate Bound and Free Microbubbles.** *IEEE transactions on ultrasonics*

Hashemi, H. S., Hyun, D., Nguyen, N., Baek, J., Natarajan, A., Tabesh, F., Andrzejek, A., Paulmurugan, R., Dahl, J. J.
2025

- **A Theoretical Approach in Applying High-Frequency Acoustic and Elasticity Microscopy to Assess Cells and Tissues.** *Annual review of biomedical engineering*
Winterroth, F., Wang, J., Wink, O., Carelsen, B., Dahl, J., Thakor, A. S.
2025
- **Enhancing Ultrasound Molecular Imaging: RPCA-Based Filtering to Differentiate Tumor-Bound and Free Microbubbles**
Hashemi, H. S., Hyun, D., Baek, J., Natarajan, A., Tabesh, F., Paulmurugan, R., Dahl, J. J., IEEE
IEEE.2024
- **A multi-parametric model for progression of metabolic dysfunction-associated steatohepatitis (MASH) in humans**
Baek, J., Sanabria, S., Oyarzabal, I., Echevarria-Uraga, J. J., Quesada, C., Dahl, J., Parker, K. J., IEEE
IEEE.2024
- **Differentiable Beamforming for Distributed Attenuation Estimation and Spatial Gain Compensation (SGC)**
Frey, B. N., Hyun, D., Simson, W., Brevett, T., Zhuang, L., Baek, J., Sanabria, S. J., Dahl, J. J., IEEE
IEEE.2024
- **Simultaneous Reverberation Noise Reduction and Aberration Correction Using Wavefield Correlation**
Zhuang, L., Brevett, T., Hyun, D., Dahl, J., IEEE
IEEE.2024
- **Frequency estimator to improve H-scan tissue characterization**
Baek, J., Brevett, T., Hyun, D., El Kaffas, A., Parker, K. J., Dahl, J., IEEE
IEEE.2024
- **Nondestructive ultrasound molecular imaging based on a neural network approach utilizing post-processed ultrasound images**
Baek, J., Hyun, D., Nataraj, A., Tabesh, F., Paulmurugan, R., Dahl, J. J., IEEE
IEEE.2024
- **Ultrasound-assisted targeted delivery of drug-loaded nanoparticles for retinoblastoma treatment**
Park, J., Mehta, S., Paulmurugan, R., Dahl, J. J., IEEE
IEEE.2024
- **Investigating pulse-echo sound speed estimation in breast ultrasound with deep learning.** *Ultrasonics*
Simson, W. A., Paschali, M., Sideri-Lampretsa, V., Navab, N., Dahl, J. J.
2023; 137: 107179
- **Fast volumetric ultrasound facilitates high-resolution 3D mapping of tissue compartments.** *Science advances*
Park, E. Y., Cai, X., Foiret, J., Bendjador, H., Hyun, D., Fite, B. Z., Wodnicki, R., Dahl, J. J., Boutin, R. D., Ferrara, K. W.
2023; 9 (22): eadg8176
- **Synthesis and Evaluation of Clinically Translatable Targeted Microbubbles Using a Microfluidic Device for In Vivo Ultrasound Molecular Imaging.** *International journal of molecular sciences*
Bam, R., Natarajan, A., Tabesh, F., Paulmurugan, R., Dahl, J. J.
2023; 24 (10)
- **Optimal transmit apodization for the maximization of lag-one coherence with applications to aberration delay estimation.** *Ultrasonics*
Ali, R., Duric, N., Dahl, J. J.
2023; 132: 107010
- **Sound Speed Estimation for Distributed Aberration Correction in Laterally Varying Media.** *IEEE transactions on computational imaging*
Ali, R., Mitcham, T. M., Singh, M., Doyley, M. M., Bouchard, R. R., Dahl, J. J., Duric, N.
2023; 9: 367-382
- **Rapid beamforming of ultrasound chirp signals in frequency domain using the chirp scaling algorithm**
Zhuang, L. L., Dahl, J., Zebker, H., Jakovljevic, M.
ACOUSTICAL SOC AMER AMER INST PHYSICS.2023

- **Aberration correction in diagnostic ultrasound: A review of the prior field and current directions.** *Zeitschrift fur medizinische Physik*
Ali, R., Brevett, T., Zhuang, L., Bendjador, H., Podkowa, A. S., Hsieh, S. S., Simson, W., Sanabria, S. J., Herickhoff, C. D., Dahl, J. J.
2023
- **Distributed Aberration Correction in Handheld Ultrasound Based on Tomographic Estimates of the Speed of Sound**
Ali, R., Mitcham, T., Singh, M., Bouchard, R., Dahl, J., Doyley, M., Duric, N.
edited by Boehm, C., Bottenus, N.
SPIE-INT SOC OPTICAL ENGINEERING.2023
- **Sound Speed Estimation for Distributed Aberration Correction in Laterally Varying Media** *IEEE TRANSACTIONS ON COMPUTATIONAL IMAGING*
Ali, R., Mitcham, T. M. M., Singh, M., Doyley, M. M. M., Bouchard, R. R. R., Dahl, J. J. J., Duric, N.
2023; 9: 367-382
- **Correction: Immunotheranostic microbubbles (iMBs) - a modular platform for dendritic cell vaccine delivery applied to breast cancer immunotherapy.** *Journal of experimental & clinical cancer research : CR*
Jugniot, N., Dahl, J. J., Paulmurugan, R.
2022; 41 (1): 357
- **Correction: Facilitating islet transplantation using a three-step approach with mesenchymal stem cells, encapsulation, and pulsed focused ultrasound.** *Stem cell research & therapy*
Razavi, M., Ren, T., Zheng, F., Telichko, A., Wang, J., Dahl, J. J., Demirci, U., Thakor, A. S.
2022; 13 (1): 526
- **Separation of mainlobe and sidelobe contributions to B-mode ultrasound images based on the aperture spectrum.** *Journal of medical imaging (Bellingham, Wash.)*
Ali, R., Mitcham, T., Brickson, L., Hu, W., Doyley, M., Rubens, D., Ignjatovic, Z., Duric, N., Dahl, J.
2022; 9 (6): 067001
- **Immunotheranostic microbubbles (iMBs) - a modular platform for dendritic cell vaccine delivery applied to breast cancer immunotherapy.** *Journal of experimental & clinical cancer research : CR*
Jugniot, N., Dahl, J. J., Paulmurugan, R.
2022; 41 (1): 299
- **Adaptation of Range-Doppler Algorithm for Efficient Beamforming of Monostatic and Multistatic Ultrasound Signals.** *IEEE transactions on ultrasonics, ferroelectrics, and frequency control*
Jakovljevic, M., Michaelides, R., Biondi, E., Hyun, D., Zebker, H., Dahl, J.
2022; PP
- **Comparative Study of Raw Ultrasound Data Representations in Deep Learning to Classify Hepatic Steatosis.** *Ultrasound in medicine & biology*
Sanabria, S. J., Pirmoazen, A. M., Dahl, J., Kamaya, A., El Kaffas, A.
2022
- **Improving Transcranial Acoustic Targeting: The Limits of CT Based Velocity Estimates and The Role of MR.** *IEEE transactions on ultrasonics, ferroelectrics, and frequency control*
Webb, T. D., Fu, F., Leung, S. A., Ghanouni, P., Dahl, J., Does, M. D., Pauly, K. B.
2022; PP
- **Biomimetic nanobubbles for triple-negative breast cancer targeted ultrasound molecular imaging.** *Journal of nanobiotechnology*
Jugniot, N., Massoud, T. F., Dahl, J. J., Paulmurugan, R.
2022; 20 (1): 267
- **Angular spectrum method for curvilinear arrays: Theory and application to Fourier beamforming.** *JASA express letters*
Ali, R., Dahl, J.
2022; 2 (5): 052001
- **Cylindrical Transducer Array for Intravascular Shear Wave Elasticity Imaging: Preliminary Development.** *IEEE transactions on ultrasonics, ferroelectrics, and frequency control*
Telichko, A. V., Dahl, J. J., Herickhoff, C. D.

2022; 69 (3): 1077-1087

- **Local Sound Speed Estimation for Pulse-Echo Ultrasound in Layered Media** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Ali, R., Telichko, A., Wang, H., Sukumar, U. K., Vilches-Moure, J. G., Paulmurugan, R., Dahl, J. J.
2022; 69 (2): 500-511
- **Ultrasound Lesion Detectability as a Distance Between Probability Measures** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Hyun, D., Kim, G. B., Bottenus, N., Dahl, J. J.
2022; 69 (2): 732-743
- **Ultrasound-Guided Microbubble-Mediated Locoregional Delivery of Multiple MicroRNAs Improves Chemotherapy in Hepatocellular Carcinoma.** *Nanotheranostics*
Wang, H., Hu, Z., Sukumar, U. K., Bose, R. J., Telichko, A., Dahl, J. J., Paulmurugan, R.
1800; 6 (1): 62-78
- **Speed of Sound Estimation at Multiple Angles from Common Midpoint Gathers of Non-Beamformed Data**
Brevett, T., Sanabria, S. J., Ali, R., Dahl, J., IEEE
IEEE.2022
- **Direct Speed of Sound Reconstruction from Full-Synthetic Aperture Data with Dual Regularization**
Sanabria, S. J., Brevett, T., Ali, R., Telichko, A., Dahl, J., IEEE
IEEE.2022
- **Speed of Sound Imaging with Curvilinear Probes from Full-Synthetic Aperture Data**
Sanabria, S. J., Brevett, T., Telichko, A., Dahl, J., IEEE
IEEE.2022
- **APPLYING THE CHIRP SCALING ALGORITHM FOR EFFICIENT BEAMFORMING OF ULTRASOUND IMAGES**
Zhuang, L., Dahl, J., Zebker, H., Jakovljevic, M., IEEE
IEEE.2022: 3011-3014
- **Separation of Mainlobe and Sidelobe Contributions to B-Mode Ultrasound Images Based on the Aperture Spectrum**
Ali, R.
edited by Bottenus, N., Ruitter, N. V.
SPIE-INT SOC OPTICAL ENGINEERING.2022
- **Noninvasive estimation of local speed of sound by pulse-echo ultrasound in a rat model of nonalcoholic fatty liver.** *Physics in medicine and biology*
Telichko, A. V., Ali, R., Brevett, T., Wang, H., Vilches-Moure, J., Kumar, S. U., Paulmurugan, R., Dahl, J. J.
1800
- **Real-Time In Vivo Imaging of Human Liver Vasculature Using Coherent Flow Power Doppler: A Pilot Clinical Study** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Li, Y., Hyun, D., Ducey-Wysling, J., Durot, I., D'Hondt, A., Patel, B., Dahl, J. J.
2021; 68 (9): 3027-3041
- **Passive Cavitation Mapping by Cavitation Source Localization From Aperture-Domain Signals-Part II: Phantom and In Vivo Experiments** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Telichko, A., Lee, T., Hyun, D., Chowdhury, S., Bachawal, S., Herickhoff, C. D., Paulmurugan, R., Dahl, J. J.
2021; 68 (4): 1198-1212
- **Passive Cavitation Mapping by Cavitation Source Localization From Aperture-Domain Signals-Part I: Theory and Validation Through Simulations** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Telichko, A., Lee, T., Jakovljevic, M., Dahl, J. J.
2021; 68 (4): 1184-97
- **Ultrasound Triggered Co-Delivery of Therapeutic MicroRNAs and a Triple Suicide Gene Therapy Vector by Using Biocompatible Polymer Nanoparticles for Improved Cancer Therapy in Mouse Models** *ADVANCED THERAPEUTICS*
Kumar, S., Wang, H., Telichko, A. V., Natarajan, A., Bettinger, T., Cherkaoui, S., Massoud, T. F., Dahl, J. J., Paulmurugan, R.

2021

- **Blood Flow Imaging in the Neonatal Brain Using Angular Coherence Power Doppler** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Jakovljevic, M., Yoon, B., Abou-Elkacem, L., Hyun, D., Li, Y., Rubesova, E., Dahl, J. J.
2021; 68 (1): 92–106
- **Real-Time Universal Synthetic Transmit Aperture Beamforming with Retrospective Encoding for Conventional Ultrasound Sequences (REFoCUS)**
Hyun, D., Dahl, J. J., Bottenus, N., IEEE
IEEE.2021
- **Upstream Machine Learning in Radiology.** *Radiologic clinics of North America*
Sandino, C. M., Cole, E. K., Alkan, C., Chaudhari, A. S., Loening, A. M., Hyun, D., Dahl, J., Imran, A. A., Wang, A. S., Vasanaawala, S. S.
2021; 59 (6): 967-985
- **Superiorized Photo-Acoustic Non-NEgative Reconstruction (SPANNER) for Clinical Photoacoustic Imaging.** *IEEE transactions on medical imaging*
Steinberg, I. n., Kim, J. n., Schneider, M. K., Hyun, D. n., Zlitni, A. n., Hooper, S. M., Klap, T. n., Sonn, G. A., Dahl, J. J., Kim, C. n., Gambhir, S. S.
2021; PP
- **Acoustically Driven Microbubbles Enable Targeted Delivery of microRNA-Loaded Nanoparticles to Spontaneous Hepatocellular Neoplasia in Canines.** *Advanced therapeutics*
Kumar, S. U., Telichko, A. V., Wang, H., Hyun, D., Johnson, E. G., Kent, M. S., Rebhun, R. B., Dahl, J. J., Culp, W. T., Paulmurugan, R.
2020; 3 (12)
- **Acoustically Driven Microbubbles Enable Targeted Delivery of microRNA-Loaded Nanoparticles to Spontaneous Hepatocellular Neoplasia in Canines** *ADVANCED THERAPEUTICS*
Kumar, S., Telichko, A. V., Wang, H., Hyun, D., Johnson, E. G., Kent, M. S., Rebhun, R. B., Dahl, J. J., Culp, W. T. N., Paulmurugan, R.
2020
- **Therapeutic Ultrasound Parameter Optimization for Drug Delivery Applied to a Murine Model of Hepatocellular Carcinoma.** *Ultrasound in medicine & biology*
Telichko, A. V., Wang, H., Bachawal, S., Kumar, S. U., Bose, J. C., Paulmurugan, R., Dahl, J. J.
2020
- **Extending Retrospective Encoding for Robust Recovery of the Multistatic Data Set** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Ali, R., Herickhoff, C. D., Hyun, D., Dahl, J. J., Bottenus, N.
2020; 67 (5): 943–56
- **The role of ultrasound in enhancing mesenchymal stromal cell-based therapies.** *Stem cells translational medicine*
Liu, D. D., Ullah, M., Concepcion, W., Dahl, J. J., Thakor, A. S.
2020
- **Effects of motion on correlations of pulse-echo ultrasound signals: Applications in delay estimation and aperture coherence.** *The Journal of the Acoustical Society of America*
Hyun, D., Dahl, J. J.
2020; 147 (3): 1323
- **Effects of motion on correlations of pulse-echo ultrasound signals: Applications in delay estimation and aperture coherence** *JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA*
Hyun, D., Dahl, J. J.
2020; 147 (3): 1323–32
- **Ultrasound and microbubble mediated therapeutic delivery: Underlying mechanisms and future outlook.** *Journal of controlled release : official journal of the Controlled Release Society*
Chowdhury, S. M., Abou-Elkacem, L. n., Lee, T. n., Dahl, J. n., Lutz, A. M.
2020
- **Acoustic Attenuation: Multifrequency Measurement and Relationship To CT and MR Imaging.** *IEEE transactions on ultrasonics, ferroelectrics, and frequency control*

- Webb, T. D., Leung, S. A., Ghanouni, P. n., Dahl, J. J., Pelc, N. J., Pauly, K. B.
2020; PP
- **Medical Pulse-Echo Ultrasound Imaging Based on the Cross-Correlation of Transmitted and Backpropagated-Receive Wavefields**
Ali, R., Jennings, J., Dahl, J. J., IEEE
IEEE.2020
 - **Application of Common Midpoint Gatherers to Medical Pulse-Echo Ultrasound for Optimal Coherence and Improved Sound Speed Estimation in Layered Media**
Ali, R., Hyun, D., Dahl, J. J., IEEE
IEEE.2020
 - **Anisotropic regularization of ultrasound pulse-echo tomography for reconstruction of speed-of-sound and tissue heterogeneity through abdominal layers.**
Sanabria, S. J., Brevett, T., Dahl, J., IEEE
IEEE.2020
 - **Lung ultrasound for point-of-care COVID-19 pneumonia stratification: computer-aided diagnostics in a smartphone. First experiences classifying semiology from public datasets.**
Almeida, A., Bilbao, A., Ruby, L., Rominger, M. B., Lopez-de-Ipina, D., Dahl, J., ElKaffas, A., Sanabria, S. J., IEEE
IEEE.2020
 - **Application of a Range-Doppler Algorithm to Frequency-Domain Beamforming of Ultrasound Signals**
Jakovljevic, M., Michaelides, R., Biondi, E., Herickhoff, C., Hyun, D., Zebker, H., Dahl, J., IEEE
IEEE.2020
 - **Learning steatosis staging with two-dimensional Convolutional Neural Networks: comparison of accuracy of clinical B-mode with a co-registered spectrogram representation of RF Data**
Sanabria, S. J., Dahl, J., Pirmoazen, A., Kamaya, A., ElKaffas, A., IEEE
IEEE.2020
 - **Multi-parametric Ultrasound Tissue Characterization (MUTC) as a surrogate to Magnetic Resonance Imaging (MRI) for Non-Alcoholic Fatty Liver Disease (NAFLD) characterization.**
Sanabria, S. J., Dahl, J., Pirmoazen, A., Kamaya, A., ElKaffas, A., IEEE
IEEE.2020
 - **Human Placental Vasculature Imaging Using Long Ensemble Angular-coherence-based Doppler**
Li, Y., Chueh, J., Ness, A., Hyun, D., Jakovljevic, M., Lyell, D., Winn, V., Dahl, J. J., IEEE
IEEE.2020
 - **The Paracrine Function of Mesenchymal Stem Cells in Response to Pulsed Focused Ultrasound** *CELL TRANSPLANTATION*
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