Stanford

Jeremy Dahl

Associate Professor of Radiology (Pediatric Radiology)

Radiology - Pediatric Radiology

CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

My laboratory develops and implements ultrasonic beamforming methods, ultrasonic imaging modalities, and ultrasonic devices. Our current focus is on beamforming methods that are capable of generating high-quality images in the difficult-to-image patient population. These methods include general B-mode and Doppler imaging techniques that utilize additional information from the ultrasonic wavefields. We attempt to build these imaging methods into real-time imaging systems in order to apply them to clinical applications. Other projects in our laboratory include the development of novel ultrasonic imaging devices, such as small, intravascular ultrasound arrays that are capable of generating high acoustic output. These arrays are capable of generating radiation force in order to push on tissue to elucidate the mechanical properties and structure of vascular plaques.

ACADEMIC APPOINTMENTS

- Associate Professor, Radiology - Pediatric Radiology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Outstanding Paper Award, Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (2011)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Secretary, Basic Science & Instrumentation Community, American Institute of Ultrasound in Medicine (2018 - present)
- Associate Editor, IEEE Transactions on Medical Imaging (2017 - 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)

COMMUNITY AND INTERNATIONAL WORK

- Aberration Correction in the Minimum Variance Distortionless Response Beamformer, Lima, Perú

LINKS

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

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My laboratory develops and implements ultrasonic beamforming methods, ultrasonic imaging modalities, and ultrasonic devices for diagnostic imaging applications. Our current focus is on beamforming methods that are capable of generating high-quality images in the difficult-to-image patient population. These methods include general B-mode and Doppler imaging techniques that utilize additional information from the ultrasonic wavefields. We attempt to build these imaging methods into real-time imaging systems in order to apply them to clinical applications. In addition, our laboratory develops ultrasonic imaging devices, such as small, intravascular ultrasound (IVUS) arrays that are capable of generating high acoustic output. These arrays are capable of generating radiation force in order to push on tissue to elucidate the mechanical properties and structure of vascular plaques, but can be utilized for therapeutic applications of ultrasound as well.

Current projects in our laboratory involve the simulation of nonlinear, acoustic wave propagation under complex models of human anatomy and 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 clutter. In addition to modeling and understanding these sources of clutter, we have developed imaging methods that utilize the spatial coherence of the ultrasonic wavefields in order to mitigate the impact of ultrasonic clutter (called short-lag spatial coherence [SLSC] imaging and coherent flow power Doppler [CFPD] imaging). These methods demonstrate significant improvement in image quality and the ability to detect slow flow.

Because the SLSC and CFPD imaging techniques require the individual channel signals from transducer arrays, these methods are difficult to integrate in current ultrasonic imaging scanners, where specialized hardware is utilized to generate real-time images. We have developed a prototype imaging system capable of implementing SLSC in real time. The system is currently capable of generating up to 30-35 frames per second of matched B-mode (conventional) and SLSC images. We are currently developing methods and approximations to the spatial coherence functions in order to increase the real-time display and image quality. This system will be utilized in clinical studies of cardiac function and focal liver lesions to compare the performance of SLSC and B-mode imaging.

We are also currently developing IVUS and catheter-based arrays to implement radiation-force based imaging techniques, such as Acoustic Radiation Force Impulse (ARFI) imaging and Shear Wave Elastography Imaging (SWEI). IVUS and catheter-based imaging transducers are generally high-frequency transducers that are capable of generating conventional B-mode displays. However, due to their small size and high frequency, they are often incapable of generating radiation forces in order to probe the mechanical properties of these tissues. We are currently building prototype IVUS and catheter transducers and arrays for the express purpose of generating radiation forces and high acoustic outputs.

Teaching

COURSES

2018-19

- Advanced Ultrasound Imaging: RAD 235 (Win)

2017-18

- Advanced Ultrasound Imaging: RAD 235 (Win)

2016-17

- Advanced Ultrasound Imaging: RAD 235 (Win)
- Ultrasound Imaging and Therapeutic Applications: BIOE 225, RAD 225 (Aut)

2015-16

- Ultrasound Imaging and Therapeutic Applications: BIOE 225, RAD 225 (Aut)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Marko Jakovljevic, You Li, Arsenii Telichko

Doctoral Dissertation Advisor (AC)

Rehman Ali

Publications

PUBLICATIONS

- **Beamforming and Speckle Reduction Using Neural Networks.** *IEEE transactions on ultrasonics, ferroelectrics, and frequency control*
  Hyun, D., Brickson, L. L., Looby, K. T., Dahl, J. J.
  2019; 66 (5): 898–910
- **Improved Visualization in Difficult-to-Image Stress Echocardiography Patients Using Real-Time Harmonic Spatial Coherence Imaging** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Hyun, D., Crowley, A. C., LeFevre, M., Cleve, J., Rosenberg, J., Dahl, J. J.
  2019; 66 (3): 433–41
- **Local speed of sound estimation in tissue using pulse-echo ultrasound: Model-based approach.** *The Journal of the Acoustical Society of America*
  Jakovljevic, M., Hsieh, S., Ali, R., Chau Loo Kung, G., Hyun, D., Dahl, J. J.
  2018; 144 (1): 254
- **Longitudinal assessment of ultrasound-guided complementary microRNA therapy of hepatocellular carcinoma.** *Journal of controlled release : official journal of the Controlled Release Society*
  Chowdhury, S. M., Lee, T., Bachawal, S. V., Devulapally, R., Abou-Elkacem, L., Yeung, T. A., Wischhusen, J., Tian, L., Dahl, J., Paulmurugan, R., Willmann, J. K.
  2018
- **Coherent Flow Power Doppler (CFPD): Flow Detection Using Spatial Coherence Beamforming** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Li, Y. L., Dahl, J. J.
  2015; 62 (6): 1022-1035
- **Short-Lag Spatial Coherence of Backscattered Echoes: Imaging Characteristics** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Lediju, M. A., Trahey, G. E., Byram, B. C., Dahl, J. J.
  2011; 58 (7): 1377-1388
- **Sources of Image Degradation in Fundamental and Harmonic Ultrasound Imaging: A Nonlinear, Full-Wave, Simulation Study (vol 58, pg 754, 2011)** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Pinton, G. F., Trahey, G. E., Dahl, J. J.
  2011; 58 (6): 1272-1283
- **Special Issue on Pilot Clinical Translation of New Medical Ultrasound Methodologies** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*

Gallippi, C. M., Dahl, J. J.
2019; 66 (3): 423–24

- **Versatile Low-Cost Volumetric 3-D Ultrasound Platform for Existing Clinical 2-D Systems** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
  Morgan, M. R., Broder, J. S., Dahl, J. J., Herickhoff, C. D.
  2018; 37 (10): 2248–56
- **A Locally Adaptive Phase Aberration Correction (LAPAC) Method for Synthetic Aperture Sequences.** *Ultrasonic imaging*
  Chau, G., Jakovljevic, M., Lavarello, R., Dahl, J.
  2018: 161734618796556
- **Measurements of the Relationship Between CT Hounsfield Units and Acoustic Velocity and How It Changes With Photon Energy and Reconstruction Method** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Webb, T. D., Leung, S. A., Rosenberg, J., Ghanouni, P., Dahl, J. J., Pelc, N. J., Pauly, K.
  2018; 65 (7): 1111–24
- **Improved Sensitivity in Ultrasound Molecular Imaging With Coherence-Based Beamforming.** *IEEE transactions on medical imaging*
  Hyun, D., Abou-Elkacem, L., Perez, V. A., Chowdhury, S. M., Willmann, J. K., Dahl, J. J.
  2018; 37 (1): 241–50
- **Reverberation Noise Suppression in the Aperture Domain Using 3D Fully Convolutional Neural Networks**
  Brickson, L. L., Hyun, D., Dahl, J. J., IEEE
  IEEE.2018
- **Distributed Phase Aberration Correction Techniques Based on Local Sound Speed Estimates**
  Ali, R., Dahl, J. J., IEEE
  IEEE.2018
- **Regularized Inversion Method for Frequency-Domain Recovery of the Full Synthetic Aperture Dataset From Focused Transmissions**
  Ali, R., Dahl, J. J., Bottenus, N., IEEE
  IEEE.2018
- **High Sensitivity Liver Vasculature Visualization Using a Real-time Coherent Flow Power Doppler (CFPD) Imaging System: A Pilot Clinical Study**
  Li, Y., Hyun, D., Durot, I., Willmann, J. K., Dahl, J. J., IEEE
  IEEE.2018
- **Adaptive Grayscale Mapping to Improve Molecular Ultrasound Difference Images**
  Shu, J., Hyun, D., Abou-Elkacem, L., Willmann, J., Dahl, J., IEEE
  IEEE.2018
- **Effects of Phase Aberration and Phase Aberration Correction on the Minimum Variance Beamformer.** *Ultrasonic imaging*
  Chau, G., Dahl, J., Lavarello, R.
  2018; 40 (1): 15–34
- **B-line detection using amplitude modulation-frequency modulation (AM-FM) features** *SPIE MEDICAL IMAGING*
  Chau, G., Mamani, G., Fortuni#, E., Serpa, S., Zenteno, O., Ramos, D., Peña, G., Fredes, G., Chura, E., Ticona, E., Manella, H., Lobo, V., Dahl, et al
  2018; 10580
- **K-Means Clustering for High-Resolution, Realistic Acoustic Maps**
  Looby, K., Sandino, C., Zhang, T., Vasanawala, S., Dahl, J., Duric, N., Byram, B. C.
  SPIE-INT SOC OPTICAL ENGINEERING.2018
- **Effects of Phase Aberration and Phase Aberration Correction on the Minimum Variance Beamformer** *ULTRASONIC IMAGING*
  Chau, G., Dahl, J., Lavarello, R.
  2018; 40 (1): 15–34
- **Effects of Phase Aberration Correction Methods on the Minimum Variance Beamformer** *2016 IEEE 38th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC)*
  Chau, G. R., Dahl, J. J., Lavarello, R. J.
  : 3231–34

- **Low-cost Volumetric Ultrasound by Augmentation of 2D Systems: Design and Prototype.** *Ultrasonic imaging*
  Herickhoff, C. D., Morgan, M. R., Broder, J. S., Dahl, J. J.
  2017: 161734617718528

- **Angular coherence in ultrasound imaging: Theory and applications** *JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA*
  Li, Y. L., Dahl, J. J.
  2017; 141 (3): 1582-1594

- **Efficient Strategies for Estimating the Spatial Coherence of Backscatter** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Hyun, D., Crowley, A. L., Dahl, J. J.
  2017; 64 (3): 500-513

- **Coherence Beamforming and its Applications to the Difficult-to-Image Patient**
  Dahl, J. J., Hyun, D., Li, Y., Jakovljevic, M., Bell, M. L., Long, W. J., Bottenus, N., Kakkad, V., Trahey, G. E., IEEE
  IEEE.2017

- **Visualization of Small-Diameter Vessels by Reduction of Incoherent Reverberation With Coherent Flow Power Doppler.** *IEEE transactions on ultrasonics, ferroelectrics, and frequency control*
  Li, Y. L., Hyun, D., Abou-Elkacem, L., Willmann, J. K., Dahl, J. J.
  2016; 63 (11): 1878-1889

- **Advances in Ultrasonic Imaging Technology** *Advances in Medical Physics – 2016*
  Herickhoff, C. D., Dahl, J. J.
  Medical Physics Publishing.2016: 71–96

- **Comparison of Acoustic Radiation Force Impulse Imaging Derived Carotid Plaque Stiffness With Spatially Registered MRI Determined Composition** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
  Doherty, J. R., Dahl, J. J., Kranz, P. G., El Husseini, N., Chang, H., Chen, N., Allen, J. D., Ham, K. L., Trahey, G. E.
  2015; 34 (11): 2354-2365

- **Resolution and Brightness Characteristics of Short-Lag Spatial Coherence (SLSC) Images** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Bell, M. A., Dahl, J. J., Trahey, G. E.
  2015; 62 (7): 1265-1276

- **In Vivo Application of Short-Lag Spatial Coherence and Harmonic Spatial Coherence Imaging in Fetal Ultrasound** *ULTRASONIC IMAGING*
  Kakkad, V., Dahl, J., Ellestad, S., Trahey, G.
  2015; 37 (2): 101-116

- **Intravascular acoustic radiation force imaging: Feasibility study** *IEEE International Ultrasonics Symposium (IUS)*
  Herickhoff, C. D., Dahl, J. J.
  2015

- **Coherence Beamforming Applied to Velocity Estimation and Partially Coherent Signals** *IEEE International Ultrasonics Symposium (IUS)*
  Dahl, J. J., You, L., Hyun, D., Doherty, J. R.
  2015

- **Small-diameter Vasculature Detection with Coherent Flow Power Doppler Imaging** *IEEE International Ultrasonics Symposium (IUS)*
  You, L., Dahl, J. J.
  2015

- **Real-Time High-Framerate In Vivo Cardiac SLSC Imaging with a GPU-Based Beamformer** *IEEE International Ultrasonics Symposium (IUS)*
  Hyun, D., Trahey, G. E., Dahl, J. J.
  2015

- **Spatial Coherence in Human Tissue: Implications for Imaging and Measurement** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Pinton, G. F., Trahey, G. E., Dahl, J. J.
  2014; 61 (12): 1976-1987

- **Short-Lag Spatial Coherence Imaging on Matrix Arrays, Part II: Phantom and In Vivo Experiments** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Jakovljevic, M., Byram, B. C., Hyun, D., Dahl, J. J., Trahey, G. E.
  2014; 61 (7): 1113-1122

- **Short-Lag Spatial Coherence Imaging on Matrix Arrays, Part I: Beamforming Methods and Simulation Studies** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Hyun, D., Trahey, G. E., Jakovljevic, M., Dahl, J. J.
  2014; 61 (7): 1101-1112

- **Estimation of shear wave speed in the human uterine cervix** *ULTRASOUND IN OBSTETRICS & GYNECOLOGY*
  Carlson, L. C., Feltovich, H., Palmeri, M. L., Dahl, J. J., Munoz Del Rio, A., Hall, T. J.
  2014; 43 (4): 452-458

- **Acoustic Radiation Force Impulse Imaging (ARFI) on an IVUS Circular Array** *ULTRASONIC IMAGING*
  Patel, V., Dahl, J. J., Bradway, D. P., Doherty, J. R., Lee, S. Y., Smith, S. W.
  2014; 36 (2): 98-111

- **REVERBERATION CLUTTER FROM SUBCUTANEOUS TISSUE LAYERS: SIMULATION AND IN VIVO DEMONSTRATIONS** *ULTRASOUND IN MEDICINE AND BIOLOGY*
  Dahl, J. J., Sheth, N. M.
  2014; 40 (4): 714-726

- **Accuracy of backscatter coefficient estimation in aberrating media using different phase aberration correction strategies – a simulation study** *IEEE International Ultrasonics Symposium (IUS)*
  Gonzalez, E., Sheth, N., Castaneda, B., Dahl, J. J., Lavarello, R.
  2014: 2438–41

- **Flow detection based on the spatial coherence of backscattered echoes** *IEEE International Ultrasonics Symposium (IUS)*
  Li, Y., Dahl, J. J.
  2014: 428–31

- **Sparse sampling methods for efficient spatial coherence estimation** *IEEE International Ultrasonics Symposium (IUS)*
  Hyun, D., Trahey, G. E., Dahl, J. J.
  2014: 535–38

- **Harmonic Tracking of Acoustic Radiation Force-Induced Displacements** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Doherty, J. R., Dahl, J. J., Trahey, G. E.
  2013; 60 (11): 2347-2358

- **SHORT-LAG SPATIAL COHERENCE IMAGING OF CARDIAC ULTRASOUND DATA: INITIAL CLINICAL RESULTS** *ULTRASOUND IN MEDICINE AND BIOLOGY*
  Bell, M. A., Goswami, R., Kisslo, J. A., Dahl, J. J., Trahey, G. E.
  2013; 39 (10): 1861-1874

- **Synthetic Aperture Focusing for Short-Lag Spatial Coherence Imaging** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Bottenus, N., Byram, B. C., Dahl, J. J., Trahey, G. E.
  2013; 60 (9): 1816-1826

- **IN VIVO APPLICATION OF SHORT-LAG SPATIAL COHERENCE IMAGING IN HUMAN LIVER** *ULTRASOUND IN MEDICINE AND BIOLOGY*
  Jakovljevic, M., Trahey, G. E., Nelson, R. C., Dahl, J. J.
  2013; 39 (3): 534-542

- **Acoustic Radiation Force Imaging** *Emerging Imaging Technologies in Medicine*
  Dahl, J. J.
  Taylor & Francis Group.2013: 201–207

- **Coherent flow imaging: A power Doppler imaging technique based on backscatter spatial coherence** *Joint UFFC, EFTF, and PFM Symposium*
  Dahl, J. J., Bottenus, N., Lediju Bell, M. A., Cook, M.

2013: 639–642

- **Apodization schemes for SLSC imaging: Simula- tion, phantom and in vivo demonstrations of image quality** *Joint UFFC, EFTF, and PFM Symposium*
  Bottenus, N., Dahl, J. J., Trahey, G. E.
  2013: 1276–1279
- **Acoustic radiation force impulse imaging (ARFI) on an IVUS circular array** *Joint UFFC, EFTF, and PFM Symposium*
  Patel, V., Dahl, J., Bradway, D., Doherty, J., Lee, S. Y., Smith, S.
  2013: 773–776
- **In Vivo Performance Evaluation of Short-Lag Spatial Coherence and Harmonic Spatial Coherence Imaging in Fetal Ultrasound** *IEEE International Ultrasonics Symposium (IUS)*
  Kakkad, V., Dahl, J., Ellestad, S., Trahey, G.
  2013: 600–603
- **Spatial coherence and its relationship to human tissue: An analytical description of imaging methods** *Joint UFFC, EFTF, and PFM Symposium*
  Pinton, G., Trahey, G., Dahl, J.
  2013: 569–599
- **Volumetric SLSC imaging of vasculature on a clincal matrix array** *Joint UFFC, EFTF, and PFM Symposium*
  Jakovljevic, M., Byram, B. C., Dahl, J. J., Trahey, G. E.
  2013: 1240–43
- **Identification and impact of blocked elements in 1-D and 2-D arrays** *Joint UFFC, EFTF, and PFM Symposium*
  Jakovljevic, M., Dahl, J. J., Trahey, G. E.
  2013: 1296–99
- **In vivo performance evaluation of short- lag spatial coherence (SLSC) and harmonic spatial coherence (HSC) imaging in fetal ultrasound** *Joint UFFC, EFTF, and PFM Symposium*
  Kakkad, V., Dahl, J., Ellestad, S., Trahey, G.
  2013: 600–603
- **In Vivo demonstration of a real-time simultaneous B-mode/spatial coherence GPU-based beamformer** *Joint UFFC, EFTF, and PFM Symposium*
  Hyun, D., Trahey, G. E., Dahl, J. J.
  2013: 1280–83
- **A harmonic tracking method for improved visualization of arterial structures with acoustic radiation force impulse imaging** *Joint UFFC, EFTF, and PFM Symposium*
  Doherty, J., Dahl, J., Allen, J., Ham, K., Trahey, G.
  2013: 1769–72
- **Harmonic Spatial Coherence Imaging: An Ultrasonic Imaging Method Based on Backscatter Coherence** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Dahl, J. J., Jakovljevic, M., Pinton, G. F., Trahey, G. E.
  2012; 59 (4): 648-659
- **Recent Advances in Ultrasonic Imaging and Ultrasonic Imaging Technology** *Advances in Medical Physics – 2012*
  Dahl, J. J., Trahey, G. E.
  Medical Physics Publishing.2012: 219–234
- **Comparative evaluation of wavefront coherence imaging methods in the presence of clutter** *IEEE International Ultrasonics Symposium (IUS)*
  Dahl, J. J., Trahey, G. E.
  2012: 1977–1981
- **Clinical realization of SLSC imaging on 2D arrays** *IEEE International Ultrasonics Symposium*
  Jakovljevic, M., Hyun, D., Byram, B. C., Trahey, G. E., Dahl, J. J.
  2012: 2266–2269
- **A harmonic tracking method for acoustic radiation force impulse (ARFI) imaging** *EEE International Ultrasonics Symposium (IUS)*
  Doherty, J., Dahl, J. J., Trahey, G. E.
  2012: 208–211

- **Efficient strategies for estimating spatial coherence on matrix probes** *IEEE International Ultrasonics Symposium*
  Hyun, D., Trahey, G. E., Dahl, J. J.
  2012: 117–120
- **Application of synthetic aperture focusing to short-lag spatial coherence** *IEEE International Ultrasonics Symposium (IUS)*
  Bottenus, N., Hyun, D., Dahl, J. J., Trahey, G. E., Byram, B. C.
  2012: 2262–2265
- **Improved visualization of endocardial borders with short-lag spatial coherence imaging of fundamental and harmonic ultrasound data** *EEE International Ultrasonics Symposium (IUS)*
  Lediju Bell, M. A., Goswami, R., Dahl, J. J., Trahey, G. E.
  2012: 2129–2132
- **The development and potential of acoustic radiation force impulse (ARFI) imaging for carotid artery plaque characterization** *VASCULAR MEDICINE*
  Allen, J. D., Ham, K. L., Dumont, D. M., Sileshi, B., Trahey, G. E., Dahl, J. J.
  2011; 16 (4): 302-311
- **Lesion Detectability in Diagnostic Ultrasound with Short-Lag Spatial Coherence Imaging** *ULTRASONIC IMAGING*
  Dahl, J. J., Hyun, D., Lediju, M., Trahey, G. E.
  2011; 33 (2): 119-133
- **Improved detectability of hypoechoic regions with short-lag spatial coherence imaging** *SPIE Medical Imaging*
  Jakovljevic, M., Dahl, J. J., Trahey, G. E.
  2011
- **A novel imaging technique based on the spatial coherence of backscattered waves: Demonstration in the presence of acoustical clutter** *SPIE Medical Imaging*
  Dahl, J. J., Pinton, G. F., Lediju, M., Trahey, G. E.
  2011
- **Development and evaluation of pulse sequences for freehand ARFI imaging** *IEEE International Ultrasonics Symposium*
  Doherty, J. R., Dumont, D. M., Hyun, D., Dahl, J. J., Trahey, G. E.
  2011: 1281–1284
- **Resolution, apodization, and noise considerations in short-lag spatial coherence (SLSC) images compared to B-mode images** *IEEE International Ultrasonics Symposium (IUS)*
  Lediju Bell, M. A., Dahl, J. J., Trahey, G. E.
  2011
- **Characteristics of the spatial coherence function from backscattered ultrasound with phase aberration and reverberation clutter** *IEEE International Ultrasonics Symposium*
  Pinton, G. F., Trahey, G. E., Dahl, J. J.
  2011: 684–687
- **Comparison of ultrasonic measurements of nulliparous versus multiparous cervices** *IEEE International Ultrasonics Symposium (IUS)*
  Reush, L. M., Carlson, L., Palmeri, M. L., Dahl, J. J., Feltovich, H., Hall, T. J.
  2011: 1349–1352
- **In Vivo application of SLSC imaging in human liver** *IEEE International Ultrasonics Symposium (IUS)*
  Jakovljevic, M., Trahey, G. E., Dahl, J. J.
  2011: 2130–2133
- **Ultrasound imaging utilizing the short-lag spatial coherence of backscattered echoes** *IEEE International Ultrasonics Symposium*
  Lediju, M., Byram, B. C., Trahey, G. E., Dahl, J. J.
  2010: 987–990
- **The effects of image degradation on ultrasound-guided HIFU** *IEEE International Ultrasonics Symposium (IUS)*
  Dahl, J. J., Pinton, G. F., Trahey, G. E.
  2010: 809–812

- **Impact of the structure of subcutaneous tissue on ultrasonic clutter** *IEEE International Ultrasonics Symposium*
  Dahl, J. J.
  2010: 2167–2170

- **Impact of clutter levels on spatial covariance: Implications for imaging** *IEEE International Ultrasonics Symposium (IUS)*
  Pinton, G. F., Dahl, J. J., Trahey, G. E.
  2010: 2171–2174

- **A Motion-Based Approach to Abdominal Clutter Reduction** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Lediju, M. A., Pihl, M. J., Hsu, S. J., Dahl, J. J., Gallippi, C. M., Trahey, G. E.
  2009; 56 (11): 2437-2449

- **Comparison of 3-D Multi-Lag Cross-Correlation and Speckle Brightness Aberration Correction Algorithms on Static and Moving Targets** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Ivancevich, N. A., Dahl, J. J., Smith, S. W.
  2009; 56 (10): 2157-2166

- **On the Feasibility of Imaging Peripheral Nerves Using Acoustic Radiation Force Impulse Imaging** *ULTRASONIC IMAGING*
  Palmeri, M. L., Dahl, J. J., Macleod, D. B., Grant, S. A., Nightingale, K. R.
  2009; 31 (3): 172-182

- **Lower-Limb Vascular Imaging with Acoustic Radiation Force Elastography: Demonstration of In Vivo Feasibility** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Dumont, D., Dahl, J., Miller, E., Allen, J., Fahey, B., Trahey, G.
  2009; 56 (5): 931-944

- **ACOUSTIC RADIATION FORCE IMPULSE IMAGING FOR NONINVASIVE CHARACTERIZATION OF CAROTID ARTERY ATHEROSCLEROTIC PLAQUES: A FEASIBILITY STUDY** *ULTRASOUND IN MEDICINE AND BIOLOGY*
  Dahl, J. J., Dumont, D. M., Allen, J. D., Miller, E. M., Trahey, G. E.
  2009; 35 (5): 707-716

- **A Heterogeneous Nonlinear Attenuating Full-Wave Model of Ultrasound** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Pinton, G. F., Dahl, J., Rosenzweig, S., Trahey, G. E.
  2009; 56 (3): 474-488

- **Image Quality, Tissue Heating, and Frame Rate Trade-offs in Acoustic Radiation Force Impulse Imaging** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
  Bouchard, R. R., Dahl, J. J., Hsu, S. J., Palmeri, M. L., Trahey, G. E.
  2009; 56 (1): 63-76

- **Acoustic radiation force impulse imaging of cardiac tissue** *IEEE International Ultrasonics Symposium (IUS)*
  Trahey, G. E., Dahl, J. J., Hsu, S. J., Dumont, D. M., Bouchard, R. R., Allen, J. D., Wolf, P. D.
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