

2024 IEEE South Asian Ultrasonics Symposium (SAUS 2024)

**Gujarat, India
27-29 March 2024**



**IEEE Catalog Number: CFP24UV7-POD
ISBN: 979-8-3503-8402-4**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24UV7-POD
ISBN (Print-On-Demand):	979-8-3503-8402-4
ISBN (Online):	979-8-3503-8401-7

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Adaptive Coherence Factor Method Based on Dominant Mode Rejection Beamformer for Ultrasound Plane Wave Imaging	1
<i>Zacarias Fernando Nharongue Secane, Acácio José Zimbico, Fabio Kurt Schneider, Joaquim Miguel Maia</i>	
Maternal Fetal Ultrasound Planes Classification Using Contrastive Language Image Pre-Training Models	5
<i>Chandra Mohan Bhuma</i>	
Unlocking Potential: Harnessing k-Wave for Ultrasonic Non-Destructive Evaluation	9
<i>Navneet Kumar, Kiran Dhanaji Kale, Rajiv Ranjan Singh, Ramprasad Bhaskaran</i>	
An Experimental Investigation on In-Vitro Blood Clot Formation Using Multi-Wavelength Photoacoustics	13
<i>Subhadip Paul, Zartab Khanam, Mainak Roy, Hari Shankar Patel, Vatsala Misra, Ravi Rani, Amaresh K Sahoo, Ratan K Saha</i>	
A New Scheme for 3D Ultrasound Imaging with Custom Design FPGA Based High-Speed Data Acquisition System.....	17
<i>Samir Kumar Biswas, Pratap Khuntia, Tejprakash Sharma, Bhavuk Sharma, Nagendra Singh, Jyoti Kedia, Sriram Krishnan</i>	
Deep Learning Based Tumor Detection and Segmentation for Automated 3D Breast Ultrasound Imaging.....	21
<i>Francien Barkhof, Silvia Abbring, Rohit Pardasani, Navchetan Awasthi</i>	
Polarized Composite-Polymer Materials PVDF-TrFE/Bi ₂ O ₃ for Fabricating Broadband High Frequency Ultrasound and Photoacoustic Transducers	25
<i>Shivam Rakhouluya, Neelkamal Das, Nagendra Singh, S K Biswas</i>	
Automatic Segmentation of Cardiac Structures from 2D Echocardiographic Images Using Transformers.....	29
<i>Anne Chel, Mats Gonggrijp, Victor Kyriacou, Victor Retamal Guiberteau, Laura Latorre Moreno, Navchetan Awasthi</i>	
Liver Microvascular Flow Evaluation by Texture Analysis and Quantitative Contrast-Enhanced Ultrasound in Pediatric Chronic Liver Disease	33
<i>Laith R Sultan, Shyam S. B. Venkatakrishna, Trudy A Morgan, Morgan L Gabbert, Priscilla Machado, Corinne Wessner, Hailee Mayer, Flemming Forsberg, Sudha Anupindi</i>	
Synthesis of Ultrasound Sensitive Bovine Serum Albumin Nanosystem for on Demand Release of Camptothecin in Triple Negative Breast Cancer Cell Lines	37
<i>Sajmina Khatun, AK Seethalakshmi, Chandralekha Putta, Aravind Kumar Rengan</i>	
Lipid-Coated Iohexol-Carbon Dots for Sonodynamic Therapy of 4T1 Cancer Cells	41
<i>Vinod Ravasaheb Shinde, Sajmina Khatun, Ajinkya Madhukar Thanekar, Aravind Kumar Rengan</i>	
Gold-Coated Phage Nanosomes for Ultrasound Mediated Breast Cancer Therapeutics	45
<i>Dokkari Nagalaxmi Yadav, Sunil Venkanna Pogu, Sri Amruthaa Sankaranarayanan, Aravind Kumar Rengan</i>	

Tuning Cancer Therapeutics Effectiveness Through Ultrasound Mediated Melanin-Chlorin e6-Polydopamine Nanoparticles	49
<i>Ajinkya Madhukar Thanekar, Vinod Ravasaheb Shinde, Sajmina Khatun, Hima Sree Buddhiraju, Aravind Kumar Rengan</i>	
Ultrasound Triggered Release of Curcumin for the Breast Cancer Therapy	53
<i>Hima Sree Buddhiraju, Jagapathi Rao Maddilla, Aravind Kumar Rengan</i>	
Ultrasound Triggered Sonodynamic Therapy for the Treatment of B16 Melanoma	57
<i>Dheeraj Dehariya, Kavipriya Murugaiyan, Deeksha Trivedi, Aravind Kumar Rengan</i>	
Design and Development of 10 MHz Transceiver Circuit for CMUT	61
<i>Gaurav Madhukar, Anoop Pandey, Shuvam Gupta, Soumendu Sinha, Anil Kumar Saini, Rishi Sharma, Ravindra Mukhiya</i>	
Unveiling Subwavelength Vascular Detail Using Empirical Mode Decomposition for Super-Resolution Ultrasound Imaging.....	65
<i>Debabrata Ghosh, Kenneth Hoyt</i>	
Hyperelastic Strain Elastography to Measure Subcutaneous Adipose Tissue and Muscle Thickness: A Simulation Study	69
<i>Sameer Kumar Gautam, Manish Arora</i>	
Performance Evaluation of Beam Multiply and Sum Beamforming with Coherent Plane Wave Compounding: In-Vitro Results.....	73
<i>A. N. Madhavanunni, Mahesh Raveendranatha Panicker</i>	
Ultrasound Wave Propagation and Shear Stress Through Tissues for Intercostal Focused Ultrasound Therapy.....	77
<i>Aniket Sabale, Md. Suhail Rizvi, Viswanath Chinthapenta, Avinash Eranki</i>	
Speckle Noise Reduction in Ultrasound Images Using Denoising Auto-Encoder with Skip Connection.....	81
<i>Suraj Bhute, Subhamoy Mandal, Debashree Guha</i>	
Breast Tumor Heterogeneity Quantification Using 3D Ultrasound Texture.....	85
<i>R Megha, Geethapriya, Selvi Radhakrishna, Avinash Eranki</i>	
Innovative Transfer Matrix Approach for Simulating Pulse-Echo Interactions in Complex Interfaces	89
<i>Mounir Tafkirte, Adil Hamine, Hicham Mesbah, Mohamed Ettahiri</i>	
Characterizing Ultrasound-Based Shearwave Propagation in Collagen Fiber Network.....	93
<i>Shradha Suman Panda, Dhruva Jyoti Mech, Avinash Eranki, Mohd. Suhail Rizvi</i>	
Enabling Directional Frequency-Selective Power Transmission in Ultrasonic Guided Wave Inspections.....	97
<i>Masoud Mohammadgholiha, Stefano Taccetti, Luca De Marchi</i>	
Investigation of Non-Invasive Temperature Estimation Using Adaptive Strain Estimator for Hyperthermia Treatment Monitoring.....	101
<i>Muthu Rattina Subash Ramu, Kavitha Arunachalam, Arun Kumar Thittai</i>	
Fetal Ultrasound Brain Biometry: An Integrated Deep Learning Framework.....	105
<i>B. U Kowsalya, Sathiya Murthi Sankaran, N Mohanram, Arun K. Thittai</i>	

CUDA-GPU Implementation Strategies for Non-Linear Beamforming for Synthetic Transmit Aperture Technique: Initial Results	108
<i>Lokesh Basavarajappa, Arun K. Thittai</i>	
On the Echogenicity of Natural Starch-Based Blood Mimicking Fluids for Contrast Enhanced Ultrasound Imaging: Preliminary In-Vitro Experiments	112
<i>V. Arun Kumar, A. N. Madhavanunni, S. Nivetha, Mahesh Raveendranatha Panicker</i>	
Development of a Multiparametric Ultrasound Image Using an Integrated System and Method to Assess Hepatic Steatosis.....	116
<i>Lokesh Basavarajappa, Mawia Khairalseed, Kevin J. Parker, Kenneth Hoyt</i>	
Full Waveform Inversion for Transcranial Ultrasound Tomography Using Freely Available Modelling Software: Initial Experience.....	120
<i>Sumit Kumar Yadav, R Tushar, Arun K Thittai</i>	
Investigation of Coded Excitation in Advanced Synthetic Aperture Technique for Ultrasound Imaging.....	123
<i>R Tushar, Arun K Thittai</i>	
Implementation of a Novel Transmit- Receive Scheme Using Only 8 Active Elements: Preliminary Results	126
<i>R Rahul, Arun K Thittai</i>	
A Performance Evaluation of Filtered Delay Multiply and Sum Beamforming for Ultrasound Localization Microscopy: Preliminary Results.....	130
<i>A. N. Madhavanunni, Niya Mariam Benoy, Mahesh Raveendranatha Panicker, Himanshu Shekhar</i>	
Quantifying Textural Heterogeneity of Ultrasound Images in Breast Fibroadenomas	134
<i>R Megha, Geethapriya, Selvi Radhakrishna, Avinash Eranki</i>	
Development and Study of Electronic Delay Reference Standard for Ultrasonic Pulse Velocity Measurement Devices	138
<i>Piyush Verma, Sanjay Yadav, P. K. Dubey</i>	
Unsupervised Classification of THYROID Cancer Using Multiwavelength Photoacoustic Imaging.....	142
<i>Saugata Sinha, Megha Patil, Bhargava Chinni, Vikram Dogra, Navalgund Rao</i>	
On the Performance Investigation of Diverging-Wave-Based Vector Doppler Imaging with Linear Arrays: In-Silico Results	146
<i>A. N. Madhavanunni, Mahesh Raveendranatha Panicker</i>	
Evaluation of a Rhenium Glycosylated Complex as Sonosensitizer for Inactivation of E. Coli in Vitro.....	150
<i>Abhishek Jha, Nishita Mistry, Anu Jagaanal, Manita Das, Roshni Kerai, Dhiraj Bhatia, Iti Gupta, Himanshu Shekhar</i>	
Investigation of Capacitive Micromachined Transducers for Characterizing Specular Reflectors in Diagnostic Ultrasound Imaging.....	154
<i>Harshinee Murali, Gayathri Malamal, Mahesh Raveendranatha Panicker</i>	
PVA Based Anatomical Phantom of Rat Liver for Ultrasound Imaging.....	157
<i>Abhishek Kumar, Debdoot Sheet</i>	
Zero-Shot Multi-Frequency Ultrasound Simulation Using Physics Informed GAN.....	161
<i>Raj Krishan Ghosh, Debdoot Sheet</i>	

Torsional Ultrasonic Guided Wave-Based Smart SHM System for Locating Defects in Pipes.....	165
<i>Sheetal Patil, Sauvik Banerjee, Siddharth Tallur</i>	
Deep Learning Based Multi-Modal Ultrasound-Photoacoustic Imaging.....	169
<i>Sumana Halder, Sankalp Patidar, Koel Chaudhury, Subhamoy Mandal</i>	
Towards Soft-Robotic Assistance of Ultrasonic Imaging.....	172
<i>Gajendra Singh, Manish Chauhan, Deepak Mishra, Rahul Choudhary, Pushpinder Singh Khera</i>	

Author Index