# Jingfei Liu

# Texas Tech University Department of Mechanical Engineering Box 41021, Lubbock, Texas 79409

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# **EDUCATION**

Ph.D.	·	pment of ultrasound ela lical diagnosis	Georgia Institute of Technology stography methods for biomechanical assessmen	Dec. 2020 t of soft tissue
Ph.D.	Mechanics and End Dissertation: <i>The in</i>	ergy	Université de Lorraine, France with periodic structures and composite structures	June 2014
M.S.	Electrical and Com	-	Georgia Institute of Technology	Dec. 2012
M.S.	Mechanical Engine	-	Clarkson University	May 2009
<b>B.A.</b>	English		Dalian University of Technology, China	June 2003
B.E.	Process Equipmen	t and Control	Dalian University of Technology, China	June 2002
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POSIT	TIONS			
Assista	ant Professor	Texas Tech Univers	sitv. ME	2021-present
Instruc			Georgia Institute of Technology, BME	
	ch Assistant	· ·	Georgia Institute of Technology, ECE & BME	
Postdoctoral Fellow		University of California, Davis, BME		2017-2020 2014-2017
	Advisor: Katherine	•		
Resear	ch Assistant	Georgia Tech Lorra	ine, ME & ECE	2009-2014
Teaching Assistant		Clarkson University, ME		2007-2009
Lecturer		Beijing Polytechnic, ME		2003-2007
HONG	ORS & AWARDS	8		
		ctor of the Year, Wal	llace H. Coulter Department of Biomedical ing, Georgia Tech	2019
'Thank	: a Teacher' Award,	Center of Teaching an	nd Learning, Georgia Tech	2019
Winston Gandy Fellow Award, Wallace H. Coulter Department of Biomedical Engineering, Georgia Tech-Emory				2018-2019
Certifi	cate of Reviewing, I	Results in Physics		2017
•	cate of Reviewing, I	•		2016
Featur	ed article on the cov	er of the Journal of Ap	oplied Physics, Volume 119, Issue 17	2016
Finalist of Student Paper Award in Medical Ultrasonics, IEEE International Ultrasonics Symposium				2016
Postdoc Travel Grant, Postdoctoral Scholars Association, University of California, Davis				

Bourse de Doctorat pour Ingénieurs, Centre National de la Recherche Scientifique, France (An honorable scholarship awarded by French National Scientific Research Center)	
Award for Teaching Excellence, Beijing Polytechnic, Beijing (Top 5% faculty)	2006
Excellent Instructor Award, Beijing Polytechnic, Beijing (Top 10% faulty)	2005
Comprehensive Scholarship, Dalian University of Technology, China (Top 3% students)	2000-2002

### **GRANTS**

Winston Gandy Fellowship. Wallace H. Coulter Department of Biomedical Engineering, 2018-2019 Georgia Tech-Emory. \$4k.

Bourse de Doctorat pour Ingénieurs (Doctoral Fellowship for Engineers). Centre National de 2009-2012 la Recherche Scientifique, France (French National Scientific Center). € 54k.

# **TEACHING**

Instructor	Texas Tech University, Department of Mechanical Engineering	2021-present
	ME 3370 Fluid Mechanics	Spring 2021
Instructor	Georgia Institute of Technology, Department of Biomedical Engineer	ring 2018-2019
	BMED 3400 Introduction to Biomechanics	Fall 2018, Spring 2019
Lecturer	Beijing Polytechnic, China	2003-2007
	Mechanical Graphics	
	Hydraulic and Pneumatic Control Technology Fundamentals and Applications of Programmable Logic Controller	

# **ADVISING**

MS students, Georgia Institute of Technology, Atlanta, GA 2018-2019				
Jurjen Leer	Surface shear wave elasticity imaging			
Undergraduate students, Georgia Tech Lorraine, Metz, France 2017-2020				
Gabriela Sánchez	Surface shear wave elasticity imaging	Spring 2020		
Kevin Wang	Acoustic field simulation for therapeutic array design	Fall 2017-		
	*This project won President's Undergraduate Research Award, 2018.	Spring 2020		
Undergraduate students, Georgia Tech Lorraine, Metz, France 2010-2013				
Chelsea Dyess	Scanning acoustic microscopy of composite materials	Spring 2013		
Charlsie Lemons	Diffraction of ultrasound waves in a wedge structure	Spring 2013		
<b>Taylor Breault</b>	High frequency C-scan on composite structures	Spring 2012		
Andrew Bolduc	High frequency C-scan on corrugated surface	Spring 2012		
Cherish Weiler	Sound interaction with periodic surfaces	Fall 2011		
Surabhi Dosi	Sound interaction with anisotropic disks	Fall 2011		
Luis Balderrama	Ultrasonic characterization of anisotropic periodic structure	Spring 2011		

Ultrasonic investigation on anisotropy of materials

Summer 2010

#### **SERVICES**

#### **Reviewer for Journals (selected)**

IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control
IEEE Transactions on Medical Imaging | Journal of Ultrasound in Medicine
Journal of the Acoustical Society of America | Ultrasonics
Journal of Applied Physics | Applied Physics Letter | Results in Physics
Current Medical Imaging Reviews | Smart Materials and Structures
Smart Materials and Structures | Journal of Testing and Evaluation
AIP Advances | Applied Sciences | Sensors
Sustainability | Materials | Energies | Machines

## Invited Reviewer and Judge for Undergraduate Research

Reviewer, Research proposal for President's Undergraduate Research Award, Georgia Tech	2018-2019
Judge, 13th Annual Undergraduate Research Spring Symposium, Georgia Tech	2018-2019

#### PROFESSIONAL SOCITIES

Member	Biomedical Engineering Society (BMES)	2018-present
Member (elected)	Acoustical Society of America (ASA)	2011-present
Member	Institute of Electrical and Electronics Engineers (IEEE)	2011-present
Member	American Society of Mechanical Engineers (ASME)	2007-present

#### **PUBLICATIONS**

#### **Journal Publications**

- 21. **Jingfei Liu**, Salavat R. Aglyamov, Stanislav Y. Emelianov, "High-Sensitivity and High-Resolution Shear Wave Elasticity Imaging Based on A Dual-Transducer Approach", *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency*, xx (x), xxxx-xxxx (2021). *In review*.
- 20. **Jingfei Liu**, Jurjen Leer, Salavat Aglyamov, Stanislav Y. Emelianov, "A Scholte Wave Approach for Ultrasound Surface Wave Elasticity Imaging", *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency*, xx (x), xxxx-xxxx (2021). *In press*.
- 19. **Jingfei Liu**, Heechul Yoon, Stanislav Y. Emelianov, "Noninvasive Ultrasound Assessment of Tissue Internal Pressure Using Dual-Mode Elasticity Imaging", *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency*, xx (x), xxxx-xxxx (2021). *In press*.
- 18. Lingyi Zhao, Don Vanderaan, Heechul Yoon, **Jingfei Liu**, Stanislav Y. Emelianov, "Ultrafast Ultrasound Imaging of Surface Acoustic Waves Induced by Laser Excitation Compared with Acoustic Radiation Force", *Optics Letters*, 45 (7), 1790-1793 (2020).
- 17. **Jingfei Liu**, Kevin Wang, Nico F. Declercq, "New perspectives on the physical origin of acoustic Wood anomalies", *Acta Acustica united with Acustica*, 105 (2), 265-272 (2019).

- 16. Yu Liu\*, **Jingfei Liu**\*, Brett Z. Fite, Josquin Foiret, Asaf Ilovitsh, J. Kent Leach, Erik Dumont, Charles F. Caskey, Katherine W. Ferrara, "Supersonic Transient Magnetic Resonance Elastography for Quantitative Assessment of Tissue Elasticity", *Physics in Medicine and Biology*, 62 (10), 408 (2017). (\*Contributed equally)
- 15. Hua Zhang, Elizabeth S. Ingham, M. Karen J. Gagnon, Lisa M. Mahakian, **Jingfei Liu**, Josquin L. Foiret, Juergen K. Willmann, Katherine W. Ferrara, "In Vitro Characterization and In Vivo Ultrasound Molecular Imaging of Nucleolin-Targeted Microbubble", *Biomaterials*, 118, 63-73 (2017).
- 14. **Jingfei Liu**, Nico F. Declercq, "Acoustic Wood Anomaly in Transmitted Diffraction Field", *Journal of Applied Physics*, 121 (11), 114902 (2017).
- 13. **Jingfei Liu**, Nico F. Declercq, "Pulsed Ultrasonic Comb Filtering Effect and Its Applications in the Measurement of Sound Velocity and Thickness of Thin Plates", *Ultrasonics*, 75, 199-208 (2017).
- 12. **Jingfei Liu**, Josquin Foiret, Douglas N. Stephens, Olivier Le Baron and Katherine W. Ferrara, "Development of A Spherically Focused Phased Array Transducer for Ultrasonic Image-Guided Hyperthermia", *Physics in Medicine and Biology*, 61 (14), 5275-5296 (2016).
- 11. **Jingfei Liu**, Nico F. Declercq, "Experimental Investigation of the Dispersion of Scholte-Stoneley Waves on a Periodically Corrugated Surface", *Applied Physics Letters*, 109 (26), 261603 (2016).
- 10. Anurupa Shaw, **Jingfei Liu**, Suk Wang Yoon and Nico F. Declercq, "Characterization of the Geometry of Microscale Periodic Structures Using Acoustic Microscopy", *Ultrasonics*, 70, 258-265 (2016).
- \*9. **Jingfei Liu**, Nico F. Declercq, "A Secondary Diffraction Effect and the Generation of Scholte-Stoneley Acoustic Wave on Periodically Corrugated Surface", *Journal of Applied Physics*, 119 (17), 174901 (2016). (\*This article is featured on the cover of the Journal of Applied Physics.)
- 8. **Jingfei Liu**, Nico F. Declercq, "Investigation of the origin of acoustic Wood anomaly", *Journal of the Acoustical Society of America*, 138 (2), 1168-1179 (2015).
- 7. Rayisa Moiseyenko, **Jingfei Liu**, Sarah Benchabane, Nico Declercq, and Vincent Laude, "Excitation of Surface Waves on One-dimensional Solid-fluid Phononic Crystals and the Beam Displacement Effect", *AIP Advances*, 4 (12), 124202 (2014).
- 6. **Jingfei Liu**, Nico F. Declercq, "Experimental Observation of Acoustic Sub-harmonic Diffraction by a Grating", *Journal of Applied Physics*, 115 (24), 244902 (2014).
- 5. **Jingfei Liu**, Nico F. Declercq, "Ultrasonic Geometrical Characterization of Periodically Corrugated Surfaces", *Ultrasonics*, 53 (4), 853-861 (2013)
- 4. Rayisa P. Moiseyenko, **Jingfei Liu**, Nico F. Declercq and Vincent Laude, "Blazed Phononic Crystal Grating", *Applied Physics Letters*, 102 (3), 034108 (2013).
- 3. **Jingfei Liu**, Nico F. Declercq, "Air-Coupled Ultrasonic Investigation of Staked Cylindrical Rods", *Journal of the Acoustical Society of America*, 131 (6), 4500-4507 (2012).
- 2. **Jingfei Liu**, James D. Stephens, Brian R. Kowalczyk, Cetin Cetinkaya, "Real-time In-die Compaction Monitoring of Dry-coated Tablets", *International journal of pharmaceutics*, 414, 171-178 (2011).
- 1. **Jingfei Liu**, Cetin Cetinkaya, "Mechanical and Geometric Property Characterization of Dry-Coated Tablets with Contact Ultrasonic Techniques", *International Journal of Pharmaceutics*, 392, 148-155 (2010).

# **Conference Proceedings**

- 12. Yu Liu, **Jingfei Liu**, Brett Z. Fite, Josquin Foiret, J. Kent Leach, Katherine W. Ferrara, "Quantitative MR-guided Transient Shear Wave Imaging for Tissue Elasticity Assessment", 2016 IEEE International Ultrasonics Symposium (IUS) (2016).
- 11. **Jingfei Liu** and Nico Declercq, Anurupa Shaw, "The Phenomenon of Secondary Diffraction of Sound on Periodically Corrugated Surface", *Physics Procedia* 70, 249-252 (2015)
- 10. Nico F. Declercq, Peter McKeon, Yaacoubi Slash, **Jingfei Liu**, Anurupa Shaw, "Ultrasonic Imaging of Materials under Unconventional Circumstances", *AIP Conference Proceeding* 1650, 24 (2015).
- 9. **Jingfei Liu** and Nico F. Declercq, "A Search for the Physical Origin of Acoustic Wood Anomaly", *7th Forum Acusticum*, September 7-12, 2014, Kraków, Poland.
- 8. **Jingfei Liu**, Nico F. Declercq, "Time-Frequency Analysis of Wood Anomalies in Acoustics", *Proceedings of Meetings on Acoustics (POMA)*, 19, 055075 (2013).
- 7. **Jingfei Liu**, Nico F. Declercq, "The Effects of the Transducer Beam Properties on the Ultrasonic Geometrical Characterization of Periodically Corrugated Surfaces", *POMA*, 19, 030082, (2013).
- 6. **Jingfei Liu**, Nico F. Declercq, "Spectral Analysis of the Impact Defects in Composite Plates", *Proceedings of the 2013 International Congress on Ultrasonics (ICU2013)*, 543-548 (2013).
- 5. Rayisa P. Moiseyenko, **Jingfei Liu**, Nico F. Declercq, Vincent Laude, "Plane Wave Diffraction on Blazed Phononic Crystal Gratings", Abstract P0474, *ICU2013*, (2013).
- 4. Rayisa P. Moiseyenko, **Jingfei Liu**, Sarah Benchabane, Nico F. Declercq, Vincent Laude, "Scholte–Stoneley Waves on 2D Phononic Crystal Gratings," *International Conference Days on Diffraction*, 178-182 (2012).
- 3. Rayisa P. Moiseyenko, **Jingfei Liu**, Sarah Benchabane, Nico F. Declercq, Vincent Laude, "Scholte-Stoneley Waves on Corrugated Surfaces and on Phononic Crystal Gratings", *Proceedings of the Acoustics 2012 Nantes Conference*, 3671-3675, (2012).
- 2. **Jingfei Liu**, Nico F. Declercq, "Comparison of Different Approaches in Characterization of Impact Defects of Composite Plates", *Proceedings of the Acoustics 2012 Nantes Conference*, 2659-2663, (2012).
- Jingfei Liu, Nico F. Declercq, "Air-Coupled Ultrasonic Investigation of Stacked Cylindrical Rods", International Congress on Ultrasonics (Gdansk 2011), AIP Conference Proceedings, 1433, 323-326 (2012)

#### **Patents**

1. Yang Cao, Jingfei Liu, Haitao Ran, Zhigang Wang, Pan Li, "Digitally Controlled Low-intensity Focused Ultrasound Medical Imaging System", CN201811014215.3, 2018.

#### **PRESENTATIONS**

#### **Invited Seminars**

- 2. **Jingfei Liu**, "Interaction of ultrasound with periodic structures and composite materials", University College VIVES, KU Leuven Association, Kortrijk, Belgium, June 13, 2014.
- 1. **Jingfei Liu**, Rayisa P. Moiseyenko, Sarah Benchabane, Nico F. Declercq, Vincent Laude, "Scholte-Stoneley Waves on Corrugated Surfaces and on Phononic Crystal Gratings", XV International

Conference for Young Researchers: Wave Electronics and its Applications in the Information and Telecommunication System, September 5-10, 2012, St. Petersburg, Russia.

#### **Conference Presentations**

- 30. **Jingfei Liu**, Kevin Wang, Stanislav Emelianov, "An Evolutionary Algorithm Approach for Optimized Design of Spherically Shaped Therapeutic Phased Array Transducers", *IEEE International Ultrasonics Symposium (IUS)*, October 6-9, 2019, Glasgow, Scotland, UK.
- 29. **Jingfei Liu**, Heechul Yoon, Kirill Larin, Salavat R. Aglyamov, Stanislav Emelianov, "Two Transducer Approach for Simultaneous High-Sensitivity and High-Resolution Shear Wave Elasticity Imaging", *IEEE International Ultrasonics Symposium (IUS)*, October 6-9, 2019, Glasgow, Scotland, UK.
- 28. **Jingfei Liu**, Don Vanderlaan, Salavat R. Aglyamov, Kirill Larin, Stanislav Y. Emelianov, "In Vivo Shear Wave Elasticity Imaging of a Mouse", *IEEE International Ultrasonics Symposium (IUS)*, October 6-9, 2019, Glasgow, Scotland, UK.
- 27. **Jingfei Liu**, Heechul Yoon, Stanislav Emelianov, "Ultrasound Assessment of Tissue Internal Pressure and Implications to Diagnosis", *BMES Annual Meeting*, October 17-20, 2018, Atlanta, USA.
- 26. **Jingfei Liu** and Nico Declercq, "Acoustic Wood Anomaly: A Unique Phenomenon of Diffraction and Surface Acoustic Wave Generation on Periodically Corrugated Surface", *2nd Franco-Chinese Acoustic Conference (FCAC)*, October 29-31, 2018, Le Mans, France.
- 25. Yu Liu, **Jingfei Liu**, Brett Fite, Josquin Foiret, J. Kent Leach, Katherine W. Ferrara, "Quantitative MR-guided Transient Shear Wave Imaging for Tissue Elasticity Assessment", *IEEE International Ultrasonics Symposium (IUS)*, September 18-21, 2016, Tours, France.
- 24. Yu Liu, **Jingfei Liu**, Brett Z. Fite, Josquin Foiret, J. Kent Leach, Katherine W. Ferrara, "Quantitative Magnetic Resonance Imaging of Ultrasound Induced Transient Shear Waves", *5th International Symposium on Focused Ultrasound*, August 28-September 1, 2016, North Bethesda, Maryland, USA.
- 23. Yu Liu, Brett Fite, Josquin Foiret, **Jingfei Liu**, Erik Dumont, Katherine W. Ferrara, "Magnetic Resonance-Guided Transient Shear Wave Imaging Using Constructive Multi-Pulse Transmission", *IUS*, October 21-24, 2015, Taipei, Taiwan.
- 22. Jérémy Streque, **Jingfei Liu**, Christopher Bishop, Badreddine Assouar, Stefan McMurtry, Omar Elmazria, Abdallah Ougazzaden, and Nico F. Declercq, "Development of GaN Based Surface Acoustic Wave Sensor for Gas Sensing", *International Congress on Ultrasonics (ICU)*, May 10-14, 2015, Metz, France.
- 21. **Jingfei Liu** and Nico Declercq, Anurupa Shaw, "The Phenomenon of Secondary Diffraction of Sound on Periodically Corrugated Surface", *ICU*, May 10-14, 2015, Metz, France.
- 20. Junliang Dong, **Jingfei Liu**, Byungchil Kim, Alexandre Locquet, Nico Declercq, David Citrin, "Forced Delamination Characterization of Glass Fiber Composites Using Terahertz and Ultrasonic Imaging", *ICU*, May 10-14, 2015, Metz, France.
- 19. Nico F. Declercq, **Jingfei Liu**, "A Search of the Physical Origin of Acoustic Wood Anomaly", *7th Forum Acusticum*, September 7-12, 2014, Kraków, Poland.
- 18. Nico F. Declercq, Peter McKeon, **Jingfei Liu**, Anurupa Shaw, Rayisa Moiseyenko, Qi Wang, and Junliang Dong, "Ultrasonic Imaging of Materials Under Unconventional Circumstances", *41st Annual Review of Progress in Quantitative Nondestructive Evaluation Conference (QNDE)*, July 20-25, 2014, Idaho, USA.
- 17. Vincent Laude, Rayisa P. Moiseyenko, Sarah Benchabane, **Jingfei Liu**, Nico F. Declercq, "Phononic Crystal Diffraction Gratings for Surface and Bulk Acoustic Waves", *Phononics 2013*, June 2-7, 2013, Sharm ElSheikh, Egypt.

- 16. Anurupa Shaw, **Jingfei Liu**, Suk Wang Yoon, Nico F. Declercq, "Investigation of Sound Diffraction in Periodic Nano-structure Using Acoustic Microscopy", *166th Meeting of the Acoustical Society of America (ASA)*, December 2-6, 2013, San Francisco, USA.
- 15. **Jingfei Liu**, Nico F. Declercq, "Acoustic Wood Anomaly Phenomenon in Transmission and Diffraction Fields", *166th Meeting of ASA*, December 2-6, 2013, San Francisco, USA.
- 14. Rayisa P. Moiseyenko, **Jingfei Liu**, Nico F. Declercq, Vincent Laude, "Plane Wave Diffraction on Blazed Phononic Crystal Gratings", *IUS*, July 21-25, 2013, Prague, Czech Republic.
- 13. **Jingfei Liu**, Nico F. Declercq, "The Effects of the Transducer Beam Properties on the Ultrasonic Geometrical Characterization of Periodically Corrugated Surfaces", *21st IUS*, *165th Meeting of ASA*, *52nd Meeting of the Canadian Acoustical Association (CAA)*, June 2-7, 2013, Montréal, Canada.
- 12. **Jingfei Liu**, Nico F. Declercq, "Time-Frequency Analysis of Wood Anomalies in Acoustics", *21st ICU*, *165th Meeting of ASA*, *52nd Meeting of CAA*, June 2-7, 2013, Montréal, Québec, Canada.
- 11. Rayisa P. Moiseyenko, **Jingfei Liu**, Nico F. Declercq, Vincent Laude, "Plane Wave Diffraction on Blazed Phononic Crystal Gratings", *International Congress on Ultrasonics 2013*, May 2-5, 2013, Singapore.
- 10. **Jingfei Liu**, Nico F. Declercq, "Spectral Analysis of the Impact Defects in Composite Plates", *IUS*, May 2-5, 2013, Singapore.
- 9. **Jingfei Liu**, Rayisa P. Moiseyenko, Sarah Benchabane, Nico F. Declercq, Vincent Laude, "Scholte-Stoneley Waves on Corrugated Surfaces and on Phononic Crystal Gratings", *XV International Conference for Young Researchers: Wave Electronics and its Applications in the Information and Telecommunication System*, September 5-10, 2012, St. Petersburg, Russia.
- 8. Rayisa P. Moiseyenko, **Jingfei Liu**, Sarah Benchabane, Nico F. Declercq, Vincent Laude, "Scholte-Stoneley Waves on Phononic Crystal Gratings", *IUS*, October 7-10, 2012, Dresden, Germany.
- 7. Rayisa P. Moiseyenko, **Jingfei Liu**, Sarah Benchabane, Nico F. Declercq, Vincent Laude, "Scholte-Stoneley Waves on 1D, 2D Phononic Crystal Gratings", *Days on Diffraction 2012*, May 28-June 1, 2012, St. Petersburg, Russia.
- 6. Rayisa P. Moiseyenko, **Jingfei Liu**, Sarah Benchabane, Nico F. Declercq, Vincent Laude, "Scholte-Stoneley waves on corrugated surfaces and on phononic crystal gratings", *Acoustics 2012*, April 23-27, 2012, Nantes, France.
- 5. **Jingfei Liu**, Nico F. Declercq, "Comparison of Different Approaches in Characterization of Impact Defects of Composite Plates", *Acoustics 2012*, April 23-27, 2012, Nantes, France.
- 4. **Jingfei Liu**, Nico F. Declercq, "The Appearance and Use of Bragg Scattering Effects When Sound is Perpendicularly Incident on A Periodic Structure", *162nd Meeting of ASA*, October 31-November 4, 2011, San Diego, California, USA.
- 3. **Jingfei Liu**, Nico F. Declercq, "Air-Coupled Ultrasonic Investigation of Periodic Structures Composed of Stacked Cylindrical Rods", *IUC*, September 5-8, 2011, Gdansk, Poland.
- 2. Nico F. Declercq, Sarah Herbison, **Jingfei Liu**, Peter McKeon, Ebrahim Lamkanfi, "Ultrasonics of Periodic Structures", 47th Annual Meeting of Society of Engineering Science, October 4-6, 2010, Ames, Iowa, USA.
- 1. **Jingfei Liu**, Cetin Cetinkaya, "Contact Ultrasonic Methods for Mechanical Property Characterization of Trilayer Tablets", *Center of Advanced Materials Processing Annual Meeting*, May 15-17, 2008, Canandaigua, NY.