

Jin Yang, Ph.D.

Department of Aerospace Engineering and Engineering Mechanics
 Cockrell School of Engineering
 The University of Texas at Austin
 2617 Wichita St, Austin, TX, 78712

EDUCATION

California Institute of Technology	Mechanical Engineering	Ph.D.	2019
California Institute of Technology	Mechanical Engineering	M.S.	2014
Tsinghua University	Aerospace Engineering	B.Eng.	2013

ACADEMIC POSITIONS

Assistant Professor, The University of Texas at Austin August 2022 – Present
 Department of Aerospace Engineering and Engineering Mechanics

Postdoc Research Associate, University of Wisconsin-Madison October 2018 – August 2022
 Department of Mechanical Engineering,

Research Assistant, California Institute of Technology September 2013 – October 2018
 Department of Mechanical Engineering

RESEARCH TOPICS

- Experimental mechanics: machine learning & data-driven material characterization
 - Full-field measurements: digital image correlation, digital volume correlation, and particle tracking
 - Laser-induced inertial cavitation in hydrogels and bio-soft matter
 - Viscoelastic material behaviors at extremely-high loading rates and dynamic instability problems
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HONORS AND AWARDS

2025	National Science Foundation (NSF) Faculty Early Career Award
2024	International Mechanical Engineering Congress & Exposition (IMECE) Faculty Travel Grant
2024	Semiconductor Research Corporation (SRC) Pilot Seed Grant
2024	The University of Texas at Austin Cockrell School of Engineering Academic Development Fund
2022-2024	The University of Texas at Austin VPR Special Research Grant
2022-2025	The University of Texas at Austin Faculty Travel Grant
2022	Haythornthwaite Foundation Research Initiation Grant from the Applied Mechanics Division of ASME (American Society of Mechanical Engineers)
2021	Second place best poster award at the 6th University of Wisconsin-Madison Annual Postdoctoral Research Symposium

2021	Attendee fellowship at the 25th International Congress of Theoretical and Applied Mechanics (ICTAM 2020+1) Conference
2020	Best poster award at the 5th University of Wisconsin-Madison Annual Postdoctoral Research Symposium
2014	First-year fellowship in the Department of Mechanical & Civil Engineering at the California Institute of Technology
2013	Tsien Hsue-Shen Mechanics Elite Program Honor Degree, Tsinghua University, Beijing, China
2013	First prize (rank #7 nationwide), 9th National Zhou Pei-Yuan Mechanics Competition, China
2010-2013	Tsien Hsue-Shen Mechanics Elite Program Scholarship, Tsinghua University, Beijing, China
2011-2012	Tsinghua University Science and Technology Scholarship, Beijing, China
2011	First prize, Beijing Universities' Physics Competition, Beijing, China

RESEARCH EXPERIENCES

High strain-rate inertial micro-cavitation in viscoelastic materials UT-Austin, UW-Madison
 Postdoc advisor: Prof. Christian Franck 2018 - Present

- Laser and ultrasound induced inertial micro-cavitation in soft matter is used to characterize the dynamic behavior of surrounding viscoelastic materials at ballistic to ultra-high strain-rates.
- Investigate the critical condition of the onset of dynamic instabilities
- Apply full-field deformation measurement techniques to high strain-rate cavitation events

Algorithms of Digital Image/Volume Correlation (DIC/DVC) UT-Austin, UW-Madison,
 Advisors: Prof. Kaushik Bhattacharya, Prof. Christian Franck Caltech, 2014 - Present

- A new *fast, accurate, and adaptive mesh* DIC/DVC algorithm, augmented Lagrangian (AL-DIC/DVC) method, is developed to measure full-field heterogeneous displacement and strain fields, which takes advantages of both local subset DIC/DVC method (fast computation speed and parallel computing) and finite element-based global DIC/DVC method (accurate and incorporated kinematic compatibility).

Phase transformation in shape memory alloys Caltech
 Advisors: Prof. Kaushik Bhattacharya, Prof. Aaron Stebner 2013 - 2014

- A combined experimental and theoretical investigation was conducted to study the phase transformation temperature and transformation strain behaviors of a promising new NiTiHf high-temperature shape memory alloy.

Capillary interfacial phenomenon Tsinghua University
 Advisor: Prof. Quanshui Zheng 2011 - 2013

- A type of water top surface bubble was found lasting over months, which was stabilized by a monolayer of micro-particles.
 - Curvature of air-water-particle interface was theoretically analyzed, which produces negative capillary pressure to pump water flow from bubble bottom to the top and stabilizes the bubble.
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PUBLICATIONS

Refereed Journal Publications

Total first & corresponding author peer-reviewed journal papers: 12

Symbols: (i) *: corresponding author; (ii) †: co-first author;

- 26 Sanjeev Kumar, D Thomas Seidl, Brian N Granzow, **Jin Yang**, Jan N. Fuhg. "A comparative study of calibration techniques for finite strain elastoplasticity: Numerically-exact sensitivities for FEMU and VFM." *Computer Methods in Applied Mechanics and Engineering*, in press, 2025
- 25 Kolade Adebawale, Byung Hang Ha, Aashrith Saraswathibhatla, Dhiraj Indana, Medeea Popescu, Sally Demirdjian, **Jin Yang**, Michael C. Bassik, Christian Franck, Paul L. Bollyky, Ovijit Chaudhuri. "Monocytes use protrusive forces to generate migration paths in viscoelastic collagen-based extracellular matrices." Submitted to the *Proceedings of the National Academy of Sciences of the United States of America*, in press, 2025
- 24 Elizabeth S. Bremer-Sai, **Jin Yang**, Alexander McGhee, Christian Franck. "Ballistic and Blast-relevant, High-rate Material Properties of Physically and Chemically Crosslinked Hydrogels." *Experimental Mechanics*, 64, 587-592, 2024.
- 23 **Jin Yang***, Alexander McGhee, Griffin Radtke, Mauro Rodriguez Jr., Christian Franck. "Estimating viscoelastic, soft material properties using a modified Rayleigh cavitation bubble collapse time." *Physics of Fluids*, 36 (1), 2024.
- 22 Luke Summey, Jing Zhang, Alexander K. Landauer, Jamie Sergay, **Jin Yang**, Annalise Daul, Jialiang Tao, Jessica Park, Alexander McGhee, Christian Franck. "Open-source, In-situ, Intermediate Strain Rate Tensile Impact Device for Soft Materials and Cell Culture Systems." *Experimental Mechanics*, 63, 1445-1460, 2023.
- 21 Allison N. Ramey-Ward, Yixiao Dong, **Jin Yang**, Hiroaki Ogasawara, Elizabeth Bremmer, Oglaz Brazhkina, Christian Franck, Michael Davis, Khalid Saliata. "An Optomechanically Actuated 3D Hydrogel Platform for Cell Culture with High Spatial and Temporal Resolution." *ACS Biomaterials Science & Engineering*, 9, 5361-5375, 2023.
- 20 Anastasia Tzoumaka, **Jin Yang**, Selda Buyukozturk, Christian Franck, David L. Henann. "Modeling high strain-rate microcavitation in soft materials: the role of material behavior in bubble dynamics." *Soft Matter*, 19, 3895-3909, 2023.
- 19 Gabriella P. Sugerman, **Jin Yang**, Manuel K. Rausch. "A Speckling Technique for DIC on Ultra-Soft, Highly Hydrated Materials." *Experimental Mechanics*, 63, 585-590, 2023.
- 18 **Jin Yang**, Yue Yin, Alexander K. Landauer, Selda Buyukozturk, Jing Zhang, Luke Summey, Alexander McGhee, Matt K. Fu, John O. Dabiri, Christian Franck. "SerialTrack: Scale and Rotation Invariant Augmented Lagrangian Particle Tracking." *SoftwareX*, 19, 101204, 2022.
- 17 Alexander McGhee†, **Jin Yang†**, Elizabeth C. Bremer, Zhiqin Xu, Harry C Cramer III, Jonathan, B. Estrada, David L. Henann, Christian Franck. "High-speed, full-field deformation measurements

- near inertial microcavitation bubbles inside viscoelastic hydrogels.” *Experimental Mechanics*, 63, 63-78, 2023 ([†]: equal contributions).
- 16 **Jin Yang***, Vito Rubino, Zhan Ma, Jialiang Tao, Yue Yin, Alexander McGhee, Wenxiao Pan, Christian Franck. “SpatioTemporally Adaptive Quadtree mesh (STAQ) Digital Image Correlation for resolving large deformations around complex geometries and discontinuities.” *Experimental Mechanics*, 62, 1191-1215, 2022.
 - 15 **Jin Yang***, Harry C Cramer III, Elizabeth Bremer, Selda Buyukozturk, Yue Yin, Christian Franck. “Mechanical Characterization of Agarose Hydrogels and their Inherent Dynamic Instabilities at Ballistic to Ultra-high Strain-rates via Inertial Microcavitation.” *Extreme Mechanics Letters*, 101572, 2022.
 - 14 Philip L. Reu, Benoît Blaysat, Edward Andò, Kaushik Bhattacharya, Cyrille Couture, Vincent Couty, Debasis Deb, Samuel Saïd Fayad, Mark A. Iadicola, Stéphanie Jaminion, Markus Klein, Alexander K. Landauer, Pascal Lava, Mengying Liu, Li-Kang Luan, Sindre N. Olufsen, Julien Réthoré, Emmanuel Roubin, Daniel T. Seidl, Thorsten Siebert, Olga Stamati, Evelyne Toussaint, Daniel Turner, Chamanth Sai R. Vemulapati, Thorsten Weikert, Jean-François Witz, Oliver Witzel, **Jin Yang**. “DIC Challenge 2.0: Developing images and guidelines for evaluating accuracy and resolution of 2D analyses – Focus on the metrological efficiency indicator.” *Experimental Mechanics*, 62, 639-654, 2022.
 - 13 **Jin Yang***, Anastasia Tzoumaka, David Henann, Kazuya Murakami, Eric Johnsen, Christian Franck. Predicting Complex Nonspherical Instability Shapes of Inertial Cavitation Bubbles in Viscoelastic Soft Matter. *Physical Review E*, 104, 045108, 2021.
 - 12 Jean-Sebastien Spratt, Mauro Rodriguez, Kevin Schmidmayer, Spencer Bryngelson, **Jin Yang**, Christian Franck, Tim Colonius. Characterizing viscoelastic materials via ensemble-based data assimilation of bubble collapse observations. *Journal of the Mechanics and Physics of Solids*, 152, 104455, 2021.
 - 11 **Jin Yang[†]**, Jialiang Tao[†], Christian Franck. Smart digital image correlation pattern design via 3D printing technique. *Experimental Mechanics*, 61, 1181-1191, 2021 ([†]: equal contributions).
 - 10 Lauren Mancia, **Jin Yang**, Jean-Sebastien Spratt, Jonathan R. Sukovich, Zhen Xu, Tim Colonius, Christian Franck, Eric Johnsen. Acoustic Cavitation Rheometry. *Soft Matter*, 17(10), 2931-2941, 2021.
 - 9 **Jin Yang**, Kaushik Bhattacharya. Fast adaptive augmented Lagrangian Digital Image Correlation. *Experimental Mechanics*, 61, 719-735, 2021.
 - 8 Ali Necdet Özdür, Buğra Üçel, **Jin Yang**, and Cahit Can Aydinler. Residual Intensity as a Morphological Identifier of Twinning Fields in Microscopic Image Correlation. *Experimental Mechanics*, 61, 499-514, 2020.
 - 7 **Jin Yang**, Harry C. Cramer III, Christian Franck. Extracting Non-linear Viscoelastic Material Properties from Violently-collapsing Cavitation Bubbles. *Extreme Mechanics Letters*, 39:100839, 2020.

- 6 Lauren Hazlett, Alexander K. Landauer, Mohak Patel, Hadley A. Witt, **Jin Yang**, Jonathan S. Reichner, and Christian Franck. Epifluorescence-based three-dimensional traction force microscopy. *Scientific Reports*, 10:16599, 2020.
- 5 **Jin Yang***, Lauren Hazlett, Alexander K. Landauer, Christian Franck*. Augmented Lagrangian Digital Volume Correlation (ALDVC). *Experimental Mechanics*, 60, 1205-1223, 2020.
- 4 **Jin Yang**, Kaushik Bhattacharya. Combining image compression with Digital Image Correlation. *Experimental Mechanics*, 59, 629-642, 2019.
- 3 **Jin Yang**, Kaushik Bhattacharya. Augmented Lagrangian Digital Image Correlation. *Experimental Mechanics*, 59, 187-205, 2019.
- 2 **Jin Yang**, Ao Wang, Quanshui Zheng. Ultra-long lifetime water bubbles stabilized by negative pressure generated between microparticles. *Soft Matter*, vol 13(44), 8202-9208, 2017.
- 1 Aaron P. Stebner, Glen S. Bigelow, **Jin Yang**, Dhwanil P. Shukla, Sayed M. Saghaian, Richard Rogers, Anita Garg, Haluk E. Karaca, Yuriy Chumlyakov, Kaushik Bhattacharya, Ronald D. Noebe. Transformation strains and temperatures of a nickel–titanium–hafnium high temperature shape memory alloy. *Acta Materialia*, vol 76, 40-53, 2014.

Submitted Refereed Journal Publications

1. **Jin Yang**, Alexander McGhee, Zixiang Tong, Griffin Radtke, Mauro Rodriguez Jr., Christian Franck. "Inertial interface cavitation creates complex, flow-like structures within a soft solid." *Under review*.
2. Zixiang Tong, Dan Frolkin, Hongyang Shi, Trace LaRue, Manuel Rausch, **Jin Yang**. "3D stereo adaptive mesh augmented Lagrangian Digital Image Correlation." *Under review*.
3. Jeffrey Leu, Zixiang Tong, Andrew Doty, Solon Tsimpoukis, **Jin Yang**. "Machine learning-aided spatial adaptation for improved Digital Image Correlation analysis of complex geometries." *Under review*.
4. Zhiren Zhu, Sawyer Remillard, Bachir A. Abeid, Danila Frolkin, Spencer H. Bryngelson, **Jin Yang**, Mauro Rodriguez, Jon B. Estrada. "Parsimonious Inertial Cavitation Rheometry via bubble collapse time." *Under review*.
5. Lehu Bu, Zhaohan Yu, Shaoting Lin, Jan N. Fuhg, **Jin Yang**. "Bubble Dynamics Transformer: Microrheology at ultra-high strain rates." *Under review*.
6. Jiazheng Bao, Bin Lian, Zixiang Tong, Manuel Rausch, **Jin Yang**, D. Emma Fan. "A general approach for creating strong ultra-tough gels by exploring dipolar aprotic solvents." *Under review*.
7. Congjie Wei, Lehu Bu, **Jin Yang**, Chenglin Wu. "Machine learning extraction of viscoelastic material properties from full-field deformation measurements." *Under review*.

Refereed Conference Proceedings

1. **Jin Yang**, Kaushik Bhattacharya. Fast adaptive global Digital Image Correlation. In *Advancement of Optical Methods & Digital Image Correlation in Experimental Mechanics*, volume 3, 2019.

2. **Jin Yang**, Christian Franck. Strain hardening effects of soft viscoelastic materials in inertial microcavitation. In *Dynamic Behavior of Materials in Conference Proceedings of the Society for Experimental Mechanics*, volume 1, 2020.
3. **Jin Yang**, Harry C. Crammer III, Christian Franck. Dynamic Rugae Strain Localizations and Instabilities in Soft Viscoelastic Materials During Inertial Microcavitation. In *Conference Proceedings of the Society for Experimental Mechanics*, 2021.
4. **Jin Yang**, Yue Yin, Harry C. Crammer III, Christian Franck. The Penetration Dynamics of a Violent Cavitation Bubble through a Hydrogel-water Interface. In *Conference Proceedings of the Society for Experimental Mechanics*, 2022.
5. **Jin Yang**, Harry C. Crammer III, Selda Buyukozturk, Christian Franck. Probing Material Damage after Violently Collapsing Cavitation in Soft Viscoelastic Materials. In *Conference Proceedings of the Society for Experimental Mechanics*, 2022.
6. Zixiang Tong, Sophie Polidoro, Zhaobang Hou, **Jin Yang***. Exploring the Interplay of Alveolar Mechanics and Fluid Accumulation in Pulmonary Edema: Insights from Soft Metamaterials 3D Printing and Mechanical Testing. In *Conference Proceedings of the Society for Experimental Mechanics*, in press, 2024.
7. Lehu Bu, Zhaobang Hou, Sophie Polidoro, **Jin Yang***. High-Speed, Full-Field Measurement of Large Deformations Near Needle-Induced Cavitation Bubbles within Biological Soft Materials. In *Conference Proceedings of the Society for Experimental Mechanics*, in press, 2024.
8. **Jin Yang***, Alexander McGhee, Zixiang Tong, Lehu Bu, Sicong Wang, Griffin Radtke, Mauro Rodriguez, Christian Franck. "Spatiotemporally-resolved Kinematic and Stress Measurements of Interfacial Cavitation in Soft Matter via DIC" In *Topics in Modal Analysis & Parameter Identification, Vol. 9, Conference Proceedings of the Society for Experimental Mechanics Series*, in press, 2025

Book Chapters (Authored/Co-Authored, Edited/Co-Edited)

1. Benoît Blaysat, Michel Coret, François Hild, Pascal Lava, Florent Mathieu, Jean-Charles Passieux, Jean-Noël Périé, Julien Réthoré, Nicolas Swiergiel, **Jin Yang**. Global DIC appendix of "International Digital Image Correlation Society, Jones, E.M.C. and Iadicola, M.A. (Eds.) (2018). A Good Practices Guide for Digital Image Correlation. DOI: 10.32720/idics/gpg.ed1". *Under review*.

Patents

1. Christian Franck, **Jin Yang**, Jialiang Tao. Systems and Methods for Printing Patterns.
2. **Jin Yang**, Quanshui Zheng. Method for Preparing a Persistent Bubble.

ORAL PRESENTATIONS:

- | | | |
|------|---|---|
| [54] | 2025 Society of Engineering Science (SES) Annual Technical Meeting
Microrheology at ultra-high strain rates
Jin Yang | 10/2025
Atlanta, GA
United States |
|------|---|---|

- [53] TECHCON 2025 09/2025
3D Stereo Augmented Lagrangian Digital Image Correlation for High-Precision Full-field Deformation Characterization in Semiconductor Materials
Austin, TX
United States
Zixiang Tong, Lehu Bu, **Jin Yang**
- [52] 18th U.S. National congress on computational mechanics (USNCCM18) 07/2025
Spatiotemporally-resolved kinematic and stress measurements of interfacial cavitation in soft matter at extremely high strain rates
Chicago, IL
United States
Lehu Bu, Zixiang Tong, Sicong Wang, Mirelys Carcana Barbosa, Mauro Rodriguez, Alexander McGhee, **Jin Yang**
- [51] 2025 Society for Experimental Mechanics Annual Conference 06/2025
DVC Challenge 2.0: Establishing a Global Repository for Benchmarking Volumetric Deformation Measurement
Milwaukee, WI,
United States
Jin Yang, Alexander K. Laudauer, Zixiang Tong, Yujie Zhang, Brendan Croom, Helena Jin
- [50] IMAC XLIII Conference 02/2025
"Spatiotemporally-resolved kinematic and stress measurements of interfacial cavitation in soft matter via DIC"
Orlando, FL,
United States
Jin Yang, Alexander McGhee, Zixiang Tong, Lehu Bu, Sicong Wang, Griffin Radtke, Mauro Rodriguez Jr., Christian Franck
- [49] Contemporary Mechanics of Materials Symposium: 11/2024
Celebrating Professor Kaushik Bhattacharya's 60th Birthday
Pasadena, CA
United States
"Spatiotemporally-Resolved Kinematic and Stress Measurements of Interfacial Cavitation in Soft Matter via DIC"
Jin Yang
- [48] ASME 2024 International Mechanical Engineering Congress and Exposition (IMECE2024) 11/2024
"Characterizing Nonlinear Finite Deformation Viscoelastic Material Property Properties Using Digital Image Correlation and Deep-Learning Deep-VM Algorithms"
Portland, OR,
United States
Congjie Wei, Lehu Bu, **Jin Yang**, Chenglin Wu
- [47] 2024 Society for Experimental Mechanics Annual Conference (SEM) 06/2024
"Experimental Integration of Needle-induced Cavitation and Digital Image Correlation"
Vancouver, WA,
United States
Lehu Bu, Zhaobang Hou, Sophie Polidoro, **Jin Yang**
- [46] Fracture of Soft Materials - An AmeriMech Symposium 05/2024
"Probing material fracture after violently collapsing cavitation in soft viscoelastic materials"
Austin, TX
United States
Jin Yang
- [45] 2024 Southern Society for Experimental Mechanics Student Symposium 05/2024
"Machine Learning-Aided Spatial Adaptation for Improved Digital Image Correlation Analysis of Complex Geometries"
Baton Rouge, LA,
United States
Jin Yang

- [44] Invited seminar: Cockrell School of Engineering, Graduate Program in Acoustics, UT-Austin
 “Spatiotemporally-Resolved Kinematic and Stress Measurements of Interfacial Cavitation in Soft Matter”
Jin Yang 04/2024
 Austin, TX
 United States
- [43] ASME 2023 International Mechanical Engineering Congress and Exposition (IMECE2023)
 “Probing Material Damage After Violently Collapsing Cavitation in Soft Viscoelastic Materials”
Jin Yang 11/2023
 New Orleans, LA,
 United States
- [42] 2023 Society of Engineering Science (SES) Annual Technical Meeting
 “Probing Material Damage After Violently Collapsing Cavitation in Soft Viscoelastic Materials”
Jin Yang 10/2023
 Minneapolis, MN,
 United States
- [41] 2023 Society for Experimental Mechanics Annual Conference (SEM)
 “Temporally Adaptive Digital Image Correlation for Resolving Large Image Sequences of Non-uniform Temporal Events”
 Kaixin Zhan, Vito Rubino, Alexander McGhee, Christian Franck, **Jin Yang** 06/2023
 Orlando, FL,
 United States
- [40] Invited seminar: Department of Biomedical Engineering, UT-Austin
 “Laser-induced inertial cavitation in hydrogels”
Jin Yang 04/2023
 Austin, TX,
 United States
- [39] 2022 International Digital Image Correlation Society (iDICs) Annual Conference
 “SpatioTemporally Adaptive Quadtree mesh (STAQ) Digital Image Correlation for resolving large deformations around complex geometries and discontinuities”
Jin Yang, Vito Rubino, Zhan Ma, Jialiang Tao, Yue Yin, Alexander McGhee, Wenxiao Pan, Christian Franck 11/2022
 Boston, MA,
 United States
- [38] 2022 Society of Engineering Science (SES) Annual Technical Meeting
 “SpatioTemporally Adaptive Quadtree mesh (STAQ) Digital Image Correlation for resolving large deformations around complex geometries and discontinuities”
Jin Yang, Vito Rubino, Zhan Ma, Jialiang Tao, Yue Yin, Alexander McGhee, Wenxiao Pan, Christian Franck 10/2022
 College Station,
 TX, United States
- [37] 2022 The 6th International Conference on Dynamics, Vibration and Control
 “Laser-induced inertial cavitation in hydrogels: ultra-high strain-rate material characterization, dynamic instabilities, and full-field deformation measurements”
Jin Yang 10/2022
 Virtual conference
- [36] 2022 Closer Look Biomechanics Journal Club
 “SpatioTemporally Adaptive Quadtree mesh (STAQ) Digital Image Correlation for resolving large deformations around complex geometries and discontinuities”
Jin Yang 09/2022
 Virtual webinar

- [35] U.S. National Congress on Theoretical and Applied Mechanics (USNC/TAM)
 “Laser-induced inertial cavitation in hydrogels: ultra-high strain-rate material characterization, dynamic instabilities, and full-field deformation measurements”
Jin Yang, Alexander McGhee, Harry C. Cramer III, Elizabeth C. Bremer, David L. Henann, Christian Franck
 06/2022
 Austin, TX, United States
- [34] 2022 Society for Experimental Mechanics Annual Conference (SEM)
 “SerialTrack: Scale and Rotation Invariant Augmented Lagrangian Particle Tracking”
Jin Yang, Matthew Fu, Yue Yin, Alexander K. Landauer, Selda Buyukozturk, Jing Zhang, Luke Summey, Alexander McGhee, John O. Dabiri, Christian Franck
 06/2022
 Pittsburgh, PA United States
- [33] 2022 Society for Experimental Mechanics Annual Conference (SEM)
 “A new approach for resolving large deformations around complex geometries and discontinuities: Spatiotemporally adaptive quadtree mesh (STAQ) Digital Image Correlation”
Jin Yang, Vito Rubino, Zhan Ma, Jialiang Tao, Yue Yin, Alexander McGhee, Wenxiao Pan, Christian Franck
 06/2022
 Pittsburgh, PA United States
- [32] Invited guest lecture: TAM 456 Experimental Stress Analysis, University of Illinois Urbana-Champaign
 “Recent developments in full-field measurement techniques”
Jin Yang
 05/2022
 Virtual webinar
- [31] Invited graduate student seminar: Department of Materials Science & Engineering, Johns Hopkins University
 “Laser-induced inertial cavitation in hydrogels and biomaterials”
Jin Yang
 04/2022
 Virtual webinar
- [30] Invited seminar: Department of Mechanical Engineering, Michigan State University
 “Laser-induced inertial cavitation in hydrogels and biomaterials”
Jin Yang
 04/2022
 East Lansing, MI, United States
- [29] Invited seminar: Department of Aerospace Engineering & Engineering Mechanics, The University of Texas at Austin
 “Laser-induced inertial cavitation in hydrogels and biomaterials”
Jin Yang
 03/2022
 Austin, TX, United States
- [28] Invited seminar: Department of Mechanical Engineering, University of Wisconsin-Madison
 “Understanding Dynamic and Damage Behavior of Soft Materials at Ultra-High Strain-Rates”
Jin Yang
 02/2022
 Madison, WI United States
- [27] Invited seminar: Department of Aerospace Engineering & Mechanics, University of Minnesota-Twin Cities
 “Understanding Dynamic and Damage Behavior of Soft Materials at Ultra-High Strain-Rates”
Jin Yang
 02/2022
 Minneapolis, MN United States

- Jin Yang**
- [26] Invited seminar: Department of Mechanical Engineering – Engineering Mechanics, Michigan Technological University
“Understanding Dynamic Behavior and Damage of Soft Materials at Ultra-High Strain-Rates”
Jin Yang 01/2022
Houghton, MI, United States
- [25] Seminar: School of Engineering, Brown University
“Laser-induced inertial cavitation in hydrogels: ultra-high strain-rate soft material characterization, dynamic instabilities, and full-field deformation measurements”
Jin Yang 10/2021
Virtual conference
- [24] 2021 SES (Virtual) Month
“Probing Material Damage after Violently Collapsing Cavitation in Soft Viscoelastic Materials”
Jin Yang, Anastasia Tzoumaka, David Henann, Kazuya Murakami, Eric Johnsen, Christian Franck 10/2021
Virtual conference
- [23] 2021 6th UW-Madison Annual Postdoctoral Research Symposium
“Fast Adaptive Mesh Augmented Lagrangian Digital Image/Volume Correlation”
Jin Yang, Jialiang Tao, Alex McGhee, Alex Sun, Lauren Hazlett, Alex Landauer, Kaushik Bhattacharya, Christian Franck 09/2021
Virtual conference
- [22] 2021 Computing in Engineering Forum
“Fast Adaptive Mesh Augmented Lagrangian Digital Image/Volume Correlation”
Jin Yang, Kaushik Bhattacharya, Christian Franck 09/2021
Virtual conference
- [21] 2021 Society for Experimental Mechanics Annual Conference (SEM)
“Probing Material Damage after Violently Collapsing Cavitation in Soft Viscoelastic Materials”
Jin Yang, Harry C. Cramer III, Selda Buyukozturk, Christian Franck 06/2021
Virtual conference
- [20] 2021 Society for Experimental Mechanics Annual Conference (SEM)
“The Penetration Dynamics of a Violent Cavitation Bubble through a Hydrogel-water Interface”
Jin Yang, Yue (Sam) Yin, Harry C. Cramer III, Christian Franck 06/2021
Virtual conference
- [19] 2021 Society for Experimental Mechanics Annual Conference (SEM)
“Optimal DIC Pattern Design on Highly Compliant and Complex Surfaces via 3D Printing”
Jialiang Tao, **Jin Yang**, Christian Franck 06/2021
Virtual conference
- [18] GAIM meeting (Univ. of Minnesota, Twin cities & UW-Madison, invited)
“Augmented Lagrangian Digital Image/Volume Correlation”
Invited by Prof. Colleen Witzenburg and Prof. Victor Barocas
Jin Yang 06/2021
Virtual webinar
- [17] UW-Madison Imaging and Visualization 2020 Virtual Workshop
“Augmented Lagrangian Digital Image/Volume Correlation” 10/2020
Virtual conference

- Jin Yang, Christian Franck**
- [16] Engineering and Applied Science Forum (EASF) Young webinar
"Fast Adaptive Augmented Lagrangian Digital Image/Volume Correlation"
Jin Yang 10/2020
Virtual conference
 - [15] Seminar, Dept. of Mechanical Engineering, Univ. of Wisconsin-Madison
"Dynamic Rugae Strain Localizations and Instabilities in Soft Viscoelastic Materials During Inertial Microcavitation"
Jin Yang, Selda Buyukozturk 10/2020
Virtual conference
 - [14] 2020 Society of Engineering Science (SES), Virtual conference
"Dynamic Rugae Strain Localizations and Instabilities in Soft Viscoelastic Materials During Inertial Microcavitation"
Jin Yang, Harry C. Cramer III, Christian Franck 10/2020
Virtual conference
 - [13] 2020 5th UW-Madison Annual Postdoctoral Research Symposium
"Extracting nonlinear viscoelastic soft material properties from inertial micro-cavitation bubbles"
Jin Yang, Harry C. Cramer III, Selda Buyukozturk, Christian Franck 09/2020
Virtual conference
 - [12] 2020 Society for Experimental Mechanics Annual Conference (SEM)
"Dynamic Rugae Strain Localizations and Instabilities in Soft Viscoelastic Materials During Inertial Microcavitation"
Jin Yang, Harry C. Cramer III, Christian Franck 09/2020
Virtual conference
 - [11] Seminar, Department of Mechanical Engineering, University of Wisconsin-Madison
"Characterizing Strain Localization and Dynamic Instabilities in Soft Materials"
Jin Yang 02/2020
Madison, WI, United States
 - [10] Seminar, Department of Aerospace Engineering, Georgia Institute of Technology
"Characterizing Strain Localization and Dynamic Instabilities in Soft Materials"
Jin Yang 01/2020
Atlanta, GA, United States
 - [9] 2019 International Digital Image Correlation Society (iDICs)
"Fast augmented Lagrangian digital volume correlation"
Jin Yang, Lauren Hazkett, Alex K. Landauer, Christian Franck 10/2019
Portland, OR, United States
 - [8] 2019 Society of Engineering Science (SES)
"Strain stiffening effects of soft viscoelastic materials in inertial Microcavitation"
Jin Yang, Harry C. Cramer III, Selda Buyukozturk, Christian Franck 10/2019
St. Louis, MO, United States
 - [7] 2019 Society for Experimental Mechanics Annual Conference (SEM)
"Strain hardening effects of soft viscoelastic materials in inertial microcavitation"
Jin Yang, Christian Franck 06/2019
Reno, NV, United States
 - [6] 16th Pan American Congress of Applied Mechanics (PACAM XVI) 05/2019

	"Strain hardening effects of soft viscoelastic materials in inertial microcavitation" Jin Yang , Christian Franck	Ann Arbor, MI, United States
[5]	2018 Society for Experimental Mechanics Annual Conference (SEM) "Adaptive mesh global Digital Image Correlation" Jin Yang , Kaushik Bhattacharya	06/2018 Greenville, SC, United States
[4]	James K. Knowles Lecture and Caltech Solid Mechanics Symposium "Fast Adaptive Global Digital Image Correlation" Jin Yang , Kaushik Bhattacharya	05/2018 Pasadena, CA, United States
[3]	Southern California Applied Mathematics Symposium "Efficient Digital Image Correlation (AL-DIC) To Obtain Deformation Fields" Jin Yang , Kaushik Bhattacharya	04/2018 Santa Barbara, CA, United States
[2]	6th World Congress on Adhesion and Related Phenomena "Ultra-long lifetime water bubbles stabilized by negative pressure generated between microparticles" Jin Yang , Ao Wang, Quanshui Zheng	03/2018 San Diego, CA, United States
[1]	2017 Society for Experimental Mechanics Annual Conference (SEM) "Efficient Digital Image Correlation to Obtain Deformation Fields" Jin Yang , Kaushik Bhattacharya	06/2017 Indianapolis, IN, United States

TEACHING EXPERIENCES

Instructor: ASE 384/EM 388 Solid Mechanics 1	UT-Austin, 2024 & 2025 Fall
Instructor: ASE 324L Aerospace Materials Lab	UT-Austin, 2023 Fall
Instructor: EM 306 Statics	UT-Austin, 2022 Fall, 2024 Spring
Workshop: DIC/DVC/TPT training sessions https://www.youtube.com/channel/UCbSV0CFsPYZbElq0B481C8g	UW-Madison Franck lab & Stanford Chaudhuri lab, 2021-22
Guest lecture: TAM 456 Experimental Stress Analysis Instructor: Prof. Shelby Hutchens	UIUC 2022 Spring
Guest lecture: ME 570 Experimental Mechanics Instructor: Prof. Christian Franck	UW-Madison 2020 Fall
Teaching assistant: Micromechanics Instructor: Prof. Kaushik Bhattacharya	Caltech 2018 Spring
Teaching assistant: Solid mechanics & continuum mechanics Instructor: Prof. Nadia Lapusta	Caltech 2017 & 2018 Fall

MENTORING EXPERIENCES

Graduate students**A. Students admitted to candidacy**

Wang, Sicong (G3, Engineering Mechanics)
 Baker, Jacob (G4, Biomedical Engineering)

B. Post M.S. students preparing to take Ph.D. qualifying exam

Tong, Zixiang (G3, Engineering Mechanics)
 Bu, Lehu (G3, Engineering Mechanics)
 Zhang, Yujie (G2, Engineering Mechanics)
 Kim, Junyoung (G1, Aerospace Engineering)

M.S. IN PROGRESS:

Frolkin, Danila (G2, Aerospace Engineering)

Undergraduate students

- Virginia B. Knight, Undergraduate Research Student, 2025 summer
Current position: Undergraduate at The University of Texas at Austin, Aerospace Engineering.
- Runtian Du, Undergraduate Research Student, 2025 Jan--Present
Current position: Undergraduate at The University of Texas at Austin, Aerospace Engineering.
- Qihang Shi, Undergraduate Research Student, 2024 Sep--Present
Current position: Undergraduate at The University of Texas at Austin, Computational Engineering.
- Aidan Landis, Undergraduate Research Student, 2024 & 2025 summers
Current position: Undergraduate at Colorado Mines.
- Landon Roper, Undergraduate Research Student, 2024 Sep--Present
Current position: Undergraduate at The University of Texas at Austin, Mechanical Engineering.
- Nathaniel C. Beasley, Undergraduate Research Student, 2024 Jan--Present
Current position: Undergraduate at The University of Texas at Austin, Aerospace Engineering.
- Yi-Chung (Sam) Wang, Undergraduate Research Student, 2024 Jan—2024 June
Current position: Undergraduate at The University of Texas at Austin, Aerospace Engineering.
- Junyoung (Joey) Kim, Undergraduate Research Student, 2024 Jan—2025 Jan
2024 Fall UT-Austin Undergraduate Research Fellowship
Current position: PhD student at The University of Texas at Austin, Aerospace Engineering.
- Andrew Doty, Undergraduate Research Student, 2024 Jan—Present
2024 Spring UT-Austin Undergraduate Senate Research Fellowship
Current position: Undergraduate at The University of Texas at Austin, Aerospace Engineering.
- Zane Hong Zheng, Undergraduate Research Student, 2023 Aug--Present
Current position: Undergraduate at The University of Texas at Austin, Mechanical Engineering.
- Ethan Alphonso, Undergraduate Research Student, 2023 Jan--Present

Current position: Undergraduate at The University of Texas at Austin, Petroleum Engineering.

- Inoo Jo, Undergraduate Research Student, 2023 Jan—2023 June
Current position: Undergraduate at The University of Texas at Austin, Mechanical Engineering.
- Jeffrey Leu, Undergraduate Research Student, 2022 Aug—2024 June
2023 Fall UT-Austin Undergraduate Research Fellowship
Current position: PhD student at Stanford University, Mechanical Engineering.
- Gautam Bhaskar, Undergraduate Research Student, 2022 Aug—2023 June
Current position: Undergraduate at The University of Texas at Austin, Aerospace Engineering.
- Vaidehi Joshi, Undergraduate Research Student, 2022 Aug—2023 June
Current position: Undergraduate at The University of Texas at Austin, Aerospace Engineering.
- Yehjune Heo, Undergraduate Research Student, 2022 Aug—2023 June
Current position: Undergraduate at UT-Austin, Electrical and Computer Engineering.
- Sophie Polidoro, Visiting Caltech SURF Undergraduate Research Student, 2023 Summer
Current position: PhD student at UC Berkeley, Mechanical Engineering.

Before joining UT-Austin

- Yue (Sam) Yin, Undergraduate Research Student, University of Wisconsin-Madison, 2020.
Current position: Master student at Carnegie Mellon University.
- Zhiqin (Echo) Xu, Undergraduate Research Student, University of Wisconsin-Madison, 2021.
Current position: PhD student at Columbia University.
- Jialiang (Jay) Tao, Graduate Research Assistant, University of Wisconsin-Madison, 2020-2021.
Current position: Industry after his PhD degree from the University of Wisconsin-Madison.
- Griffin B. Radtke, Undergraduate Research Student, University of Wisconsin-Madison, 2022.
Current position: PhD student at Harvard University, Materials Science & Mechanical Engineering
- Annalise M. Daul, Graduate Research Assistant, University of Wisconsin-Madison, 2022.
Current position: Industry after her MS degree from the University of Wisconsin-Madison.

MEMBERSHIPS IN PROFESSIONAL AND HONORARY SOCIETIES

- Member, Society for Experimental Mechanics (SEM), 2016 – present
- Member, International Digital Image Correlation Society (iDICs), 2018 – present
- Member, U. S. Association for Computational Mechanics, 2025 – present

PROFESSIONAL SOCIETY AND MAJOR GOVERNMENTAL COMMITTEES, EDITORIAL BOARDS, AND CONFERENCES ORGANIZED/CHAired:

Outside Committees

- Member iDICs Standardization Committee 2018 – present

- Secretary DIC Challenge organized by the International Digital Image Correlation Society (iDICs) & Society for Experimental Mechanics (SEM) 2023 – present
- Co-chair DIC Challenge organized by the International Digital Image Correlation Society (iDICs) & Society for Experimental Mechanics (SEM) (Link: <https://idics.org/challenge/>) 2023 – present

Conference Activities

- Co-organizer Society of Engineering Science Minisymposium Nov 2025
- Co-organizer & session chair Society for Experimental Mechanics (SEM) Annual Conference June 2025
- Organizer Southern Society for Experimental Mechanics Student Symposium May 2025
- Co-organizer & session chair ASME 2024 International Mechanical Engineering Congress and Exposition (IMECE2024) Nov 2024
- Session chair Society for Experimental Mechanics (SEM) Annual Conference June 2024
- Co-organizer Southern Society for Experimental Mechanics Student Symposium May 2024
- Session chair Society of Engineering Science (SES) Annual Technical Meeting October 2023
- Session chair Society for Experimental Mechanics (SEM) Annual Conference June 2023
- Session chair Annual International DIC (iDICs) Conference November 2022
- Session chair Society for Experimental Mechanics (SEM) Annual Conference June 2022
- Session chair 19th U.S. National Congress on Theoretical and Applied Mechanics (USNC/TAM) June 2022
- Co-organizer Engineering and Applied Science Forum (EASF) webinar series Jan-April 2022
- Session chair International Digital Image Correlation Society (iDICs) conference Sep 2019
- Session chair Pan American Congress of Applied Mechanics (PACAM) June 2019
- Co-organizer 8th James K. Knowles Lecture and Caltech Solid Mechanics Symposium 2017

Current Review Activities:

Journal paper reviewer:

Acta Mechanica Sinica, Applied Science, Biophysical Journal, Experimental Mechanics, Experimental Techniques, Extreme Mechanics Letters, Frontiers in Materials, IEEE Transactions on Instrumentation & Measurement, International Journal of Solids and Structures, Journal of Applied Mechanics, Journal of Fluid Mechanics, Journal of Manufacturing Processes, Journal of Mechanics and Physics of Solids, Mechanics of Materials, MDPI Computation, MDPI Electronics, MDPI Materials, Nondestructive Testing and Evaluation, Proceedings of the Royal Society A, PNAS Nexus, Soft Matter

Proposal reviewer:

NSF reviewer, 2024

DoD NDSEG reviewer, 2024

UT-Austin OVPR proposal reviewer, 2022, 2024

Book reviewer:

iDICs Standardization Good Practices and Uncertainty Quantification,
iDICs High-Speed DIC guide

Outreach Activities

UT-Girl Day organizer (Materials Lab portion), Feb 24, 2024

Host of open-source Digital Image/Volume Correlation open sources, 2018—Present

Jin Yang, Assistant Professor

The University of Texas at Austin
Department of Aerospace Engineering and Engineering Mechanics

Dr. Jin Yang joined the Department of Aerospace Engineering & Engineering Mechanics at UT-Austin as an assistant professor in Fall 2022. He received his B.En. in Engineering Mechanics from Tsinghua University in 2013. He received his doctorate in 2019 from the California Institute of Technology, where he developed fast, accurate, adaptive-mesh augmented Lagrangian digital image/volume correlation (ALDIC/ALDVC) methods to measure 2D/3D full-field deformations quantitatively. After his graduate studies, he was a Postdoctoral Research Associate at the University of Wisconsin-Madison between 2019 and 2022, where his research focused on developing a micro-cavitation-based rheometry method to characterize viscoelastic properties of soft gel-like materials at ultra-high strain rates by utilizing laser-induced cavitation experiments. He is the recipient of the U. S. NSF Faculty Early Career Award, the Pilot Seed Grant from the Semiconductor Research Corporation (SRC), the Haythornthwaite Seed Grant from ASME, and the International Congress of Theoretical and Applied Mechanics (ICTAM) fellowship.