

Kun Gou

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EMPLOYMENT

Associate Professor, Sep 2021 – present
Department of Computational, Engineering, and Mathematical Sciences,
Texas A&M University-San Antonio (TAMUSA), San Antonio, Texas

Assistant Professor, Sep 2017 – Aug 2021
Department of Mathematical, Physical, and Engineering Sciences,
Texas A&M University-San Antonio, San Antonio, Texas

Assistant Professor, Sep 2015 – Aug 2017
Department of Mathematics,
Texas A&M University-Kingsville (TAMUK), Kingsville, Texas

Research Associate & Visiting Instructor, Jan 2013 – Aug 2015
Department of Mechanical Engineering,
Department of Mathematics,
Michigan State University (MSU), East Lansing, Michigan

VISITING EXPERIENCES

Visiting Research Scientist, Jan 2024 – May 2024
Medical School (Brigham and Women's Hospital),
Harvard University, Boston, Massachusetts

Collaboration Visitor, May 2023
Department of Mathematical Sciences,
University of Delaware, Newark, Delaware

EDUCATION

Ph.D., Mathematics, Sep 2006 – Dec 2012
Texas A&M University (TAMU), College Station, Texas

M.S., Applied Mathematics, Sep 2003 – Jun 2006
Shandong University, Jinan, China

B.S., Mathematics, Sep 1999 – Jun 2003
Shandong University, Jinan, China

RESEARCH INTERESTS

- **Biomedicine, Soft-tissue Engineering, Mathematical Biology**: development and numerical

implementation of physiological models for biological soft tissues.

- **Computational Mathematics, Numerical Analysis:** finite-difference/finite-element computational methods for the models, mathematical and numerical analysis for PDE arising from the models.
- **Nonlinear Continuum Mechanics, Fluid Mechanics:** theoretical study and application of hyperelastic models and solid-fluid interaction, application of nonlinear continuum mechanics to fracture mechanics.
- **Statistics, Data Science:** theoretical study of statistical and probabilistic behaviors, statistical analysis of data derived from mathematical models.

GRANTS AND AWARDS

• Internal Research Grants

- PI: Kun Gou. Study of Blood Dynamics under Medial Arterial Calcification with Compounding Tissue Factors. Research Council Grant, TAMUSA, Mar 2026 – Dec 2026 (\$9974)
- PI: Kun Gou. Computational Modeling of Cervix Deformation Impacted by Cervical Stiffness and Volume Development in Pregnancy. College Grant Program, College of Arts and Sciences, TAMUSA, Jan 2024 – Aug 2024 (\$9749)
- PI: Kun Gou. Computational Modeling of Blood Dynamics of Calcified Human Arteries. Research Council Grant, TAMUSA, Apr 2023 – Mar 2024 (\$9559)
- PI: Kun Gou. Stiffness Determination for Layer-reduced Umbilical Arteries. College Grant Program, College of Arts and Sciences, TAMUSA, Dec 2021 – Aug 2022 (\$8050)
- PI: Kun Gou; Co-PIs: Sukho Lee, Malin Lilley, George Shelton, Zechun Cao. Speaker Series Grant, College of Arts and Sciences, TAMUSA, Nov 2021 – Aug 2022 (\$2000)
- PI: Burak Aksoylu, Co-PI: Kun Gou. Math Postdoctoral Fellow support, College of Arts and Sciences, TAMUSA, Sep 2021 – Aug 2022 (\$45,000)
- PI: Kun Gou, Walter Den. Modeling and Simulation of Charged Particles Separation by Electrophoresis and Electrosorption in Aqueous Solutions. College of Arts and Sciences Faculty Scholarly/Creative Grant, TAMUSA, Jan 2021 – Aug 2021 (\$10,000)
- PI: Kun Gou. Structural Modeling for Swelling Soft Tissues with Fibers. Summer Faculty Fellowship Program 2020, College of Arts and Sciences, TAMUSA, May 2020 – Aug 2020 (\$3000)
- PI: Kun Gou. Mathematical Modeling of Pregnant Cervix Insufficiency (Part II). University Research Council Grants, TAMUSA, Jan 2020 – Dec 2020 (\$9940)
- PI: Kun Gou. Radius Change Analysis for Human Tubular Organs under Volume Expansion. Summer Faculty Fellowship Program 2019, College of Arts and Sciences, TAMUSA, May 2019 – Aug 2019 (\$3000)
- PI: Kun Gou. Computational Modeling of Intimal Thickening in Arteries. Faculty Research Grant Program 2019, College of Arts and Sciences, TAMUSA, May 2019 – Aug 2019 (\$3000)
- PI: Kun Gou. Mathematical Modeling of Pregnant Cervix Insufficiency. University Research Council Grants, TAMUSA, 2018 - 2019 (\$2000)
- PI: Kun Gou. Mathematical Modeling of Tracheal Angioedema. Summer Faculty Fellowship Program, College of Arts and Sciences, TAMUSA, Summer 2018 (\$3000)
- PI: Kun Gou. Heart Tissue Parameter Identification Using MRE Imaging Inversion. Research Development Support, TAMUK, Summer 2016 (\$2900)
- PI: Kun Gou. Physiological Modeling of Human Tissue Swelling. Spring Research Support, College of Arts and Sciences, TAMUK, Spring 2016 (\$3000)

- **External Grants**

- PI: Michael Luera; Co-PIs: Brandon Green, Azize Akcayoglu, Kun Gou. Data Analysis for Effect of Physical Exercises on Treatment of Diabetes (Sweet Action). Texas A&M Engineering Experiment Station, Sep 2022 – Aug 2023 (\$2500)

- **Travel Awards**

- NIH Regional Seminar on Program Funding and Grants Administration, Phoenix, Arizona, Travel support from the TAMUSA Provost Office, Nov 2019
- SIAM Conference on the Life Sciences, San Diego, California, Travel support from the SIAM travel grant, Aug 2012
- Summer School on Inverse Problems, University of Delaware, Newark, Delaware, Travel support from the IMA (Institute for Mathematics and its Applications) travel grant, Jun 2009
- Workshop on Modeling, University of Minnesota, Minneapolis, Minnesota, Travel support from the IMA travel grant, Aug 2007

- **Education Awards**

- University Honors Course Design (with Dr. Gongbo Liang in Computer Science), Course title: Smart Living with Quantitative Reasoning, Honors Program, TAMUSA, Fall 2022 (\$1160)
- University Strategic Plan Award, High School Applied Science Modeling Contest, TAMUSA, Spring 2018 (\$9900). Activity conducted in Fall 2018
- Semester Fee Scholarship for teaching development training, TAMU, Spring 2012
- Teaching Conference Fellowship, 14th Annual Wakonse South Conference on College Teaching, Burnet, Texas, Apr 2011 (\$500)
- International Education Fee Scholarship, TAMU, Fall 2009

PUBLICATIONS

- **Peer-Reviewed Journal Articles**

- Kun Gou, Jin-Jia Hu, Seungik Baek. Tissue stiffness characterization for human umbilical arteries after decellularization. *Journal of the Mechanical Behavior of Biomedical Materials*. In press
- Mallikarjunaiah S Muddamallappa, Kun Gou. Crack-tip field characterization in geometrically linear, algebraically nonlinear elastoporous solids containing a star-shaped crack: A finite element study. *Mathematics and Computers in Simulation*. Under review
- Kun Gou, Mallikarjunaiah S Muddamallappa. Three-dimensional numerical modeling of a stationary v-notch in a porous material constituted by a nonlinear response relationship. *Mathematics and Mechanics of Solids*. 2025, 1-17
- Pak-Wing Fok, Kun Gou, Brandon Myers, Peter Lanzer. Impact of Medial Calcification on Arterial Mechanics and Hemodynamics. *The Journal of Physiology*. 2025, 603: 3341-3355
- Joseph Sutlive, Betty S. Liu, Stacey A. Kwan, Jennifer M. Pan, Kun Gou, Rongguang Xu, Ali B. Ali, Hassan A. Khalil, Maximilian Ackermann, Zi Chen, Steven J. Mentzer. Buckling forces and the wavy folds between pleural epithelial cells. *BioSystems*. 2024, 240: 105216
- Kun Gou, Mallikarjunaiah S. Muddamallappa. Computational modeling of circular crack-tip fields under tensile loading in a strain-limiting elastic solid. *Communications in Nonlinear Science and Numerical Simulation*. 2023, 121: 107217
- Kun Gou, Jin-Jia Hu, Seungik Baek. Mechanical characterization of human umbilical arteries by thick-walled models: enhanced vascular compliance by removing an abluminal lining. *Journal of the Mechanical Behavior of Biomedical Materials*. 2023, 142: 105811

- Kun Gou, Mallikarjunaiah S. Muddamallappa. Finite element study of V-shaped crack-tip fields in a three-dimensional nonlinear strain-limiting elastic body. *Mathematics and Mechanics of Solids*. 2023, 28(10): 2155–2176
- Joseph Sutlive, Hamed Seyyedhosseinzadeh, Zheng Ao, Haning Xiu, Kun Gou, Feng Guo, Zi Chen. Mechanics of morphogenesis in neural development: *in vivo*, *in vitro*, and *in silico*. *Brain Multiphysics*. 2022, 4: 100062 (review paper)
- Chanseok Park, Kun Gou, Min Wang. A study on estimating the parameter of the truncated geometric distribution. *The American Statistician*. 2022, 76: 257-261
- Kun Gou, Seungik Baek, Marvin M. F. Lutnesky, Hai-Chao Han. Growth-profile configuration for specific deformations of tubular organs: a study of growth-induced thinning and dilation of the human cervix. *PLoS ONE*. 2021, 16(8): e0255895
- Joseph Sutlive, Haning Xiu, Yunfeng Chen, Kun Gou, Fengzhu Xiong, Ming Guo, Zi Chen. Generation, transmission, and regulation of mechanical forces in embryonic morphogenesis. *Small*. 2021: e2103466 (review paper)
- Pak-Wing Fok, Kun Gou. Finite element simulation of intimal thickening in 2D multilayered arterial cross sections by morphoelasticity. *Computer Methods in Applied Mechanics and Engineering*. 2020, 363: 112860
- Kun Gou, Heiko Topol, Hasan Demirkoparan, Thomas J. Pence. Stress-swelling finite element modeling of cervical response with homeostatic collagen fiber distributions. *Journal of Biomechanical Engineering*. 2020, 142: 081002
- Kun Gou, Mallikarjuna Muddamallappa. An analytic study on nonlinear radius change for hyperelastic tubular organs under volume expansion. *Acta Mechanica*. 2020, 231: 1503-1517
- Seungik Baek, Chun Liu, Kun Gou, Jungsil Kim, Hamidreza Gharahi, Christina Chan. Utilization of the theory of small on large deformation for studying mechanosensitive cellular behaviors. *Journal of Elasticity*. 2019, 136: 137-157
- Heiko Topol, Kun Gou, Hasan Demirkoparan, Thomas J. Pence. Hyperelastic modeling of the combined effects of tissue swelling and deformation-related collagen renewal in fibrous soft tissue. *Biomechanics and Modeling in Mechanobiology*. 2018, 17: 1543-1567
- Kun Gou, Pak-Wing Fok, Yibin Fu. Nonlinear tubular organ modeling and analysis for tracheal angioedema by swelling-morphoelasticity. *Journal of Engineering Mathematics*. 2018, 112: 95-117
- Kun Gou, Thomas J. Pence. Computational modeling of tracheal angioedema due to swelling of the submucous tissue layer. *International Journal for Numerical Methods of Biomedical Engineering*. 2017, 33: e2861
- Yue Liang, He Yang, Kun Gou. Existence of mild solutions for fractional nonlocal evolution equations with delay in partially ordered Banach spaces. *Journal of Advances in Difference Equations*. 2017, 11
- Kun Gou, Thomas J. Pence. Hyperelastic modeling of swelling in fibrous soft tissue with application to tracheal angioedema. *Journal of Mathematical Biology*. 2016, 72: 499-526
- Kun Gou, Mallikarjuna Muddamallappa, Kumbakonam Rajagopal, Jay Walton. Modeling fracture in the context of a strain-limiting theory of elasticity: a single plane-strain crack. *International Journal of Engineering Science*. 2015, 88: 73-82
- Kun Gou, Zi Chen. Inverse Sturm-Liouville problem and its biomedical application (review article). *JSM Mathematics and Statistics*. 2015, 2: 1-9.
- Thomas J. Pence, Kun Gou. On compressible versions of the incompressible neo-Hookean material. *Mathematics and Mechanics of Solids*. 2015, 20: 157-182.
- Kun Gou, Jay Walton. Reconstruction of nonuniform residual stress for soft hyperelastic tissue via inverse spectral techniques. *International Journal of Engineering Science*. 2014, 82: 46-73

- Kun Gou, Sunnie Joshi, Jay Walton. Recovery of material parameters of soft hyperelastic tissue by an inverse spectral technique. *International Journal of Engineering Science*. 2012, 56: 1-16
- Kun Gou, Bo Sun. Numerical solution of the Goursat problem on a triangular domain with mixed boundary conditions. *Applied Mathematics and Computation*. 2011, 217: 8765-8777
- Kun Gou, Mingyu Xu. Some adoption ways of creatures in liquid environment. *International Journal of Biomedical Engineering*. 2006, 29: 76-80 (review paper in Chinese)
- **Invited Collaboration Publications (non-primary areas)**
 - Chin-Yen Alice Liu, Kun Gou. Instructional modality and academic performance: Empirical insights from a difference-in-differences approach. *Journal of Education for Business*. 2025, 100: 333-339
- **Conference/Workshop Proceedings & Other Publications**
 - Pak-Wing Fok, Kun Gou. The Hemodynamic Impact of Medial Arterial Calcification, *SIAM News*, 2026.
 - Rene Alvarado, Kun Gou. Mechanical parameters fitting for layer-reduced umbilical arteries used for grafting, *Biology and Medicine through Mathematics Conference*, Virginia Commonwealth University, Richmond, Virginia, 2022.
 - Kun Gou. Mathematical modeling of tracheal luminal size change under angioedema-caused stiffness alteration. *Proceedings of the Biology and Medicine Through Mathematics Conference*, Richmond, Virginia, 2018
 - Kun Gou, Ping Yang, Rongdong Wang. A comparative modeling of tracheal angioedema. *Proceedings of the 5th International Conference on Computational and Mathematical Biomedical Engineering*, Pittsburgh, Pennsylvania, 2017
 - Kun Gou, Thomas J. Pence. Hyperelastic based modeling of tracheal angioedema. *Proceedings of the 17th U.S. National Congress on Theoretical & Applied Mechanics*, East Lansing, Michigan, 2014
 - Haseena Ahmed, Prince Chidyagwai, Kun Gou, Yun Liu, Timur Milgrom, Vincent Quenneville-Belair. Mathematical modeling in industry: associating earth-orbiting objects detected by astronomical telescopes. *Report of workshop project at the Institute for Mathematics and its Applications*, University of Minnesota, Minneapolis, Minnesota, 2007
- **Software Packages and Numerical Codes**
 - Kun Gou. Numerical code: Calculation of Eigenvalues and Eigenfunctions of Sturm Liouville Problems with Mixed Boundary Conditions on Finite Domains, code in MATLAB
 - Seungik Baek, Kun Gou. Software package: Finite-Element Application for Hyperelastic Soft Tissues under Swelling and Fiber Reinforcement, code in MATLAB
- **Media Reports of Research Projects**
 - Research highlight with video incorporation, Institute of Cyber-enabled Research, Michigan State University. Title: Swelling of the Human Airway. [Video Website](#)
 - Media report of research work, *2013-2014 Annual Report*, Carnegie-Mellon university-Qatar

ORGANIZING EXPERIENCES

- Organizer, Introduction to COMSOL Multiphysics Workshop (speaker from the COMSOL company), TAMUSA, Oct 2024
- Minisymposium organizer, Pathophysiological Modeling of Soft-Tissue Organs Deformation and Growth, SIAM Conference on the Life Sciences, Pittsburgh, Pennsylvania, Jul 2022

- Co-organizer, The 5th Coastal Bend Mathematics and Statistics Conference, TAMUSA, Apr 2021
- Minisymposium organizer, Advanced Applications of Continuum Mechanics in Engineering and Biological Sciences, The 2nd Annual Meeting of SIAM Texas-Louisiana Section, Southern Methodist University, Dallas, Texas, Nov 2019
- Member, conference organization committee, The 1st Annual Meeting of SIAM Texas-Louisiana Section, Louisiana State University, Baton Rouge, Louisiana, Oct 2018
- Lead minisymposium organizer (with Dr. Md Rafiul Islam and Dr. Tamer Oraby), Nonlinear Modeling of Disease Dynamics, The 1st Annual Meeting of SIAM Texas-Louisiana Section, Louisiana State University, Baton Rouge, Louisiana, Oct 2018
- Conference organizer, The 2nd Coastal Bend Mathematics and Statistics Conference, TAMUK, Apr 2017
- Lead minisymposium organizer (with Dr. Simona Hodis), Biomedical Modeling and Computation for Complex Interface Problems, 5th International Conference on Computational and Mathematical Biomedical Engineering, University of Pittsburgh, Pittsburgh, Pennsylvania, Apr 2017
- Organizer, Mathematics Seminars, Department of Mathematics, TAMUK, Jan 2016 – Aug 2017
- Lead minisymposium organizer (with Dr. Xiaoming Zheng), Mathematical Modeling of Biological Growth and Deformation, SIAM Conference on the Life Sciences, Boston, Massachusetts, Jul 2016
- Lead minisymposium organizer (with Dr. Zi Chen), Physiological Modeling of Soft Tissues via Approaches of Biomechanics, SIAM Conference on the Life Sciences, Charlotte, North Carolina, Aug 2014

REVIEWING EXPERIENCES

- **External Thesis Review**

- External Reviewer of PhD thesis & External observer of PhD thesis defense, Department of Mathematics, Amrita School of Engineering, Amrita Vishwa Vidyapeetham (private university), India, 2024, 2026

- **Editorial Board**

- American Journal of Biomedical Science & Research, 2018 - 2025
- JSM Mathematics and Statistics, 2014 - 2017

- **Journal Reviews**

Acta Biomaterialia, Communications in Nonlinear Science and Numerical Simulation, Mathematical Reviews/MathSciNet, International Journal for Numerical Methods in Biomedical Engineering, Journal of Applied Fluid Mechanics, Inverse Problems in Science and Engineering, Journal of Applied Mechanical Engineering, Journal of Elasticity, Proceedings A of the Royal Society of London, IMA Journal of Applied Mathematics, Neural Computing and Applications, Results in Physics, Journal of Biomechanical Engineering, Journal of Mechanics of Materials and Structures, Probabilistic Engineering Mechanics, European Journal of Mechanics/A Solids, Scientific Reports, International Journal of Engineering Science, Journal of Mechanics in Medicine and Biology, Frontiers in Bioengineering and Biotechnology, SIAM Undergraduate Research Online

- **Conference and Other Reviews**

The 5th International Conference on Computational and Mathematical Biomedical Engineering, The 2016 SIAM Conference on Life Science (Poster Review), The 4th International Conference on Biomedical Engineering and Biotechnology, NSF proposal

SELECTED TALKS

- **Invited Talks in University Seminars** (~1-hour long talks)

- Maximum likelihood analysis of the truncated geometric distribution & statistical applications on material parameters of human arteries, Seminar of the Graduate Program of Statistical Analytics, Computing and Modeling, Department of Mathematics, TAMUK, Kingsville, Texas, 2023
- Modeling of deformations for tubular organs under volume variation by biomechanics, Biophysics and Mechanobiology Seminar Series (virtual), Harvard Medical School (Brigham and Women's Hospital), Harvard University, Boston, Massachusetts, 2021
- Modeling human airway swelling by the deep power of fundamental mathematics, Colloquium of Mathematics, The University of Texas-Rio Grande Valley, 2018
- Mathematical and numerical modeling of human trachea angioedema, Math Seminar, Shandong University, Jinan, Shandong, China, 2017
- Mathematical modeling of human trachea angioedema and its numerical computation, Applied Math Seminar, China University of Petroleum, Qingdao, Shandong, China, 2017
- Mathematical modeling of swelling-caused trachea narrowness and deformation, Applied Math Seminar, University of Delaware, Newark, Delaware, 2016
- Arterial wall parameter identification using inverse spectral techniques, Applied Math Seminar, The University of Texas-Rio Grande Valley, 2016
- Modeling of human airway swelling by biomechanics, Analysis & Applied Mathematics Seminars, Department of Mathematics, Central Michigan University, Mount Pleasant, Michigan, 2015
- Physiological modeling of tracheal angioedema by nonlinear continuum mechanics, MSU Applied Math and PDE Seminar, Department of Mathematics, Michigan State University, 2014
- Recovery of soft tissue material parameters from natural frequencies obtained by *in vivo* spectral techniques, Mechanical Engineering Seminar, Michigan State University, 2013
- A novel application of inverse problem on arterial wall biomechanics, Undergraduate Program in Biological and Mathematical Sciences (UBM), Department of Computer and Mathematical Sciences, University of Houston-Downtown, Houston, Texas, 2012
- An *in vivo* spectral technique for estimation of residual stress of arterial wall by a novel application of intravascular ultrasound technology, Colloquium in the Department of Mathematics, Worcester Polytechnic Institute, Worcester, Massachusetts, 2012
- Recovery of residual stress of arterial wall by approach of inverse Sturm-Liouville problem, Colloquium in the Department of Mathematics, Prairie View A&M University, Prairie View, Texas, 2011

- **Invited Talks in Conferences**

- Three-dimensional finite element study of V-shaped crack-tip fields in a nonlinear strain-limiting elastic body, Texas-Louisiana Section of SIAM 8th Annual Meeting, Austin, Texas, 2025
- Modeling of cervical deformation changes during pregnancy under tissue growth, Central Sectional Meeting of American Mathematical Society, The University of Texas at San Antonio, Texas, 2024
- Material parameter studies of umbilical arteries and its model application to multilayered cervix in pregnancy, European Conference on Heart Diseases, Madrid, Spain, 2024
- Parameter fitting for the stiffness of umbilical arteries and its statistical analysis, The Alamo Symposium in Statistics, The University of Texas at San Antonio, Texas, 2023
- Stiffness determination for umbilical arteries by parameter fitting, SIAM Conference on the Life Sciences, Pittsburgh, Pennsylvania, 2022

- Computational fluid dynamics with multiphysics applied on removal of charged particles by electrophoresis in a fluid environment, Engineering Mechanics Institute Conference, John Hopkins University, Baltimore, Maryland, 2022
 - Human cervix deformation under swelling and growth, International Symposium on Biomedical Engineering and Computational Biology (virtual), Nanchang Hangkong University, China, 2021
 - Computational modeling of arterial intimal thickening by morphoelasticity, The 2nd Annual Meeting of SIAM Texas-Louisiana Section, Southern Methodist University, Dallas, Texas, 2019
 - Epidermal wound healing dynamics, 14th User Training Workshop Developing Multi-Scale, Virtual Tissue Simulations with CompuCell3D, Indiana University, Bloomington, Indiana, 2019
 - Computational modeling of pregnant cervix, 15th U.S. National Congress for Computational Mechanics, Austin, Texas, 2019
 - Nonlinear tubular organ deformation analysis for airway swelling, The 1st Annual Meeting of SIAM Texas-Louisiana Section, Louisiana State University, Baton Rouge, Louisiana, 2018
 - Mathematical modeling of human pregnant cervix, SIAM Conference on the Life Sciences, Boston, Massachusetts, 2016
 - Algorithms for numerical solution of the Goursat problem on a triangular domain with mixed boundary conditions, Coastal Bend Mathematics and Statistics Symposium, TAMUCC, 2016
 - Bio-mechanical modeling of tracheal angioedema by nonlinear finite elasticity, SIAM Conference on the Life Science, Charlotte, North Carolina, 2014
 - Hyperelastic based modeling of tracheal angioedema, 17th U.S. National Congress on Theoretical & Applied Mechanics, East Lansing, Michigan, 2014
 - Parameter identification for atherosclerotic plaques from its material spectrum gained by intravascular ultrasound imaging, SIAM Conference on the Life Sciences, San Diego, California, 2012
 - Application of inverse Sturm-Liouville problem on biomechanics and a novel approach for calculation of its solution, Workshop on Inverse Problems, TAMU, College Station, Texas, 2011
- **Contributed Talks**
- Mechanical Characterization and Hyperelastic-Damage Modeling of Decellularized Human Umbilical Arteries for Vascular Graft Applications, The 10th Coastal Bend Mathematics & Statistics Conference, Texas A&M University-Corpus Christi, 2026
 - Hemodynamic Consequences of Medial Arterial Calcification: Interplay Between Tissue Stiffening and Peripheral Resistance, Texas Differential Equations Conference, University of Texas at San Antonio, 2026
 - Computational Modeling of Hemodynamics with Thick-Walled Calcified Arteries, The Third Joint SIAM/CAIMS Annual Meetings, Montreal, Quebec, Canada, 2025
 - Study of blood flow under one-dimensional hyperelastic calcified arteries, The 9th Coastal Bend Mathematics and Statistics Conference, Texas A&M International University, Laredo, Texas, 2025
 - Study of growth complexity in large cervix deformations, The 8th Coastal Bend Mathematics and Statistics Conference, TAMUK, 2024
 - Mechanical characterization and statistical analysis for the stiffness parameters of umbilical arteries, 7th Coastal Bend Mathematics and Statistics Conference, The University of Texas-Rio Grande Valley (Brownsville Campus), 2023
 - Mechanical parameters fitting for layer-reduced umbilical arteries used for grafting, Biology and

Medicine through Mathematics Conference, Virginia Commonwealth University, Richmond, Virginia, 2022

- Modeling of tubular organ deformations - A case study on human cervix deformation during pregnancy, The 5th Coastal Bend Mathematics and Statistics Conference (virtual), TAMUSA, 2021
- Computational modeling of thickening of arterial intimal tissue, The 43rd Texas Differential Equations Conference, The University of Texas at Austin, Texas, 2020
- Pregnant cervix deformation under fiber remodeling and fluid accumulation, The 42nd Texas Differential Equations Conference, TAMUCC, Corpus Christi, Texas, 2019
- Human cervix deformation analysis during pregnancy, The 4th Coastal Bend Mathematics and Statistics Conference, The University of Texas Rio Grande Valley, Edinburg, Texas, 2019
- Modeling tracheal angioedema for modified tissue stiffness, 2018 SIAM Annual Meeting, Portland, Oregon, 2018
- Mathematical modeling of tracheal luminal size change under angioedema-caused stiffness alteration, Biology and Medicine Through Mathematics Conference, Richmond, Virginia, 2018
- Solution approximation for inverse Sturm Liouville Problem, 15th International Conference in Approximation Theory, San Antonio, Texas, 2016
- Analysis of several compressible versions of the incompressible neo-Hookean material, 2015 Joint Mathematics Meeting, San Antonio, Texas, 2015
- Mathematical modeling of tracheal angioedema, Applied Mathematics Conference, Oakland University, Michigan, 2014
- Algorithms for numerical solution of the Goursat problem on a triangular domain with mixed boundary conditions, Great Lakes SIAM 2013 Conference, Mount Pleasant, Michigan, 2013
- Estimating the stiffness of healthy arteries via multidimensional secant method, 2012 Joint Mathematics Meetings, Boston, Massachusetts, 2012
- Inverse spectral problem for partially known potential: the numerical solution for the related hyperbolic equation, Poster in the Applied Inverse Problems Conference, TAMU, College Station, Texas, 2011

MENTORING AND CONSULTING

- Teaching mentoring for Dr. Nadeem Malik, Adjunct Faculty, Math Program, TAMUSA, 2025 - present
- Consulting for Suowei Zhu, graduate student, Water Resources Science & Technology Program, TAMUSA, 2025 - present (regarding cultural adaptation and academic transition to graduate study in the United States)
- Postdoc: Dr. Shang-Huan Chiu (PhD of Math from University of Houston, co-mentored with Dr. Burak Aksoylu), TAMUSA, 2021-2022
- Visiting scholar: Dr. Ping Yang (Associate Professor, PhD, Shenyang Agricultural University, China), Department of Mathematics, TAMUK, 2016 - 2017
- Professional consultant for Maha Shrestha (Master student, Mathematics, TAMUCC) to provide research advisory assistance for her master thesis, TAMUK, 2015 - 2017

COURSES TAUGHT

Texas A&M University-San Antonio, Sep 2017 – present
 Honors Seminar, College Algebra, Precalculus, Calculus I, Calculus II, Calculus III, Differential

Equations, Biostatistics, Mathematics for Business and Social Sciences, Introductory Statistics, Mathematical Biology, Probability, Undergraduate Research in Math

Texas A&M University-Kingsville, Sep 2015 – Aug 2017

Calculus I, Business Mathematics I&II, Analytic Geometry/Precalculus, Differential Equations, Linear Algebra and Matrix Theory, Advanced Mathematics for Physics and Engineering (graduate course for PhD candidates of engineering)

Michigan State University, Jan 2013 – Aug 2015

Calculus I, Multivariable Calculus (for students of Advanced Placement), Dynamics (course of Mechanical Engineering)

Texas A&M University, Sep 2006 – Dec 2012

Methods of Applied Mathematics II (graduate course), Business Mathematics II, Mathematical Concepts-Calculus, Numerical Analysis (graduate recitation)

EDUCATIONAL DESIGN

- Lead course designer (with Dr. Gongbo Liang), HONR 1300 Smart Living by Quantitative Reasoning, Honors Program, TAMUSA, Fall 2022.
Note: An interdisciplinary seminar course for honors students, course co-taught with Dr. Liang in Fall 2023
- Member of planning group, MATH 1314 College Algebra (curriculum review, final exam, recitation etc.), Mathematics Program, TAMUSA, Summer 2021
- Sole course re-designer, MATH 3372 Mathematical Biology, redesigned as an experiential learning course, Mays Center for Experiential Learning and Community Engagement, TAMUSA, Spring 2021
- Lead designer (with program colleagues), Mathematical Biology Minor, Program of Mathematics, TAMUSA, Fall 2017
Note: also serving as the coordinator for this minor after establishment
- Lead designer (with program colleagues), three Math courses: MATH 3321 Applied Partial Differential Equations, MATH 3372 Mathematical Biology, MATH 3373 Mathematical Physiology, Department of Science and Mathematics, TAMUSA, Fall 2017
- Lead designer (with Dr. Simona Hodis), Mathematical Biology Minor, Department of Mathematics, TAMUK, Fall 2016
- Course re-designer (the sole one), Calculus I, incorporating undergraduate research in teaching, Department of Mathematics, TAMUK, Fall 2016

UNDERGRADUATES ADVISING

- IRB Research Advising: Eliut Delgado & Fernanda Vargas (computer science), The Markov Project-A Secure Digital Platform for Evidence-Based Cognitive Interventions in High-Risk Populations, 2026.
- Research advising: Angel Castro (math), Jorge Munoz (computer science), TAMUSA. 2024 – 2025. Project: logistical population modeling under parameter fitting and gradient-descent computational techniques.
 - Student talk: Logistical Modeling of Population Growth in Mexico City, Student Research Symposium, TAMUSA, 2025
- Mentor (with Dr. Gongbo Liang): honors student talks in the inaugural Honors Showcase, TAMUSA, Fall 2023.

- Elias Myers, Anabelle Ortega: Diagnosing Breast Cancer by Machine Learning
- Lianna Hernandez, Joselin Romero: Wild Birds Recognition by Artificial Intelligence
- Research advising: Iris Gomez (Biology), TAMUSA, 2023.
Project: mathematical modeling of marital dynamics
 - Student talk: The Dynamics of Marriage Relationships with Mathematical Models, 7th Coastal Bend Mathematics and Statistics Conference, The University of Texas-Rio Grande Valley (Brownsville Campus), 2023
 - Student talk: Mathematical Modeling of the Marital Interaction Dynamics, Student Research Symposium, TAMUSA, 2023
Note: conference proceedings for the talk in Digital Commons of TAMUSA.
- Research advising: Rene Alvarado (paid student worker, Mathematics), TAMUSA, 2022.
Project: mathematical soft-tissue modeling by continuum mechanics
 - Conference proceedings publication: Rene Alvarado, Kun Gou. Mechanical Parameters Fitting for Layer-reduced Umbilical Arteries Used for Grafting, Biology and Medicine through Mathematics Conference, Virginia Commonwealth University, Richmond, Virginia, 5/2022.
- Research advising: Iris Gomez (Biology), Michael Garza (Mathematics), TAMUSA, 2022.
Project: modeling and dynamics study for populations of single species
 - Student talk: Growth Models and Their Stability Analysis for Populations of a Single Species, Student Research Symposium, TAMUSA, 2022
 - Student talk: Population Models and Their Dynamic Analysis on Equilibriums and Stabilities, 17th TAMU System Pathways Student Research Symposium, College Station, 2022
- Research advising: Victoria Lucero (Mathematics), TAMUSA, 2020 - 2021
Project: fractal geometry and its applications in biological systems
 - Student talk: Biological Branching Patterns Explained by Fractal Geometry Theory, Student Research Symposium, TAMUSA, 2021
 - Student talk: Study of Patterns in Biological Branching Using Fractal Geometry, The 5th Coastal Bend Mathematics and Statistics Conference, TAMUSA, 2021
 - Student talk: Application of Fractals in Branching Patterns in Nature, the 12th Annual Undergraduate Research Conference at the Interface of Biology and Mathematics, National Institute for Biological and Mathematical Synthesis (NIMBioS), University of Tennessee, Knoxville, TN, 2020
- Research advising: Tiffany Tooke (Mathematics), TAMUSA, 2019.
Project: mathematical analysis for population dynamics and physiology
 - Obtained a Minor of Mathematical Biology, TAMUSA, 2019
 - Student poster: Mathematical Models for Competitive and Symbiotic Relationships in Populations, The 2nd Annual Meeting of SIAM Texas-Louisiana Section, Southern Methodist University, Dallas, Texas, 2019 (travel support from the conference)
 - Student talk: Population Dynamics for One and Multiple Species, 4th Coastal Bend Mathematics and Statistics Conference, The University of Texas-Rio Grande Valley, Edinburg, Texas, 2019 (travel support from Program of Mathematics, TAMUSA)
- Research advising: Emilio Barrientes (Mathematics), TAMUK, Fall 2015
Project: mathematics of public voting
- General student advising: Nobili R Flores, Gabriel A Hernandez, Department of Mathematics, TAMUK, 2015 - 2017

PROFESSIONAL TRAINING

- Dual Credit and Early College High School program, Spring 2025
- Corequisite Fellows (for teaching corequisite and first-year courses), 2024 - 2026
- Why Students Recommend Professors: Good Teaching Through Student Eyes, Association of College and University Educators (ACUE), 2024
- Building Thinking Classrooms (by Peter Liljedahl), OLSUME, Online Seminar on Undergraduate Mathematics Education, 2024
- Machine Learning and Big Data (virtual), University of Pittsburgh, 2024
- Training on Inclusive Teaching for Equitable Learning, Association of College and University Educators (ACUE), 2023
- Teaching STEM Students How to Learn (virtual), Center for Academic Success, Louisiana State University, 2023
- Experiential Learning Summer Reflection Series, Mays Center for Experiential Learning and Community Engagement, TAMUSA, 2022.
Note: trained on reflection steps of the Kolb Experiential Learning Cycle
- Electronic Courseware Development Project, TAMUSA, 2021 – 2022.
Note: training includes learning goals and objectives, pitfalls of an online/hybrid course, structuring and designing a course flow, assessments & crafting rubrics, sustainable support systems, third-party technology resources, and Blackboard fundamentals & accessibility
- Workshop, Designing Better Courses: Blending the Best of Pre- and Post-Pandemic Pedagogy, by Robert D. Austin, Professor of Information Systems at Ivey Business School and an affiliated faculty member at Harvard Medical School, 2021
- Workshop (virtual), Modeling Practice in Calculus-Professional Development, STEM Transformation Institute, Florida International University, 2020
- Active Learning Strategies Workshop, Center of Engineering Education, The University of Texas at Austin, 2019
- Teaching Professional Development Program for STEM, TAMU, 2012.
Note: the only one selected from the Department of Mathematics at TAMU during this period. The program included one-semester interactive lectures for topics about teaching professional development
- Fellow, Graduate Teaching Academy, TAMU, elected in 2011
Note: Elected after one year attendance in seminars and workshops offered by professors with excellence in teaching, and completion of teaching-related assignments

SERVICES

- **Honors and Awards**
 - Invited Welcome Address, Opening Ceremony, European Conference on Heart Disease, Madrid, Spain, 2024
 - Award, Five Years of Dedicated Service and Commitment, TAMUSA, 2022
 - Invited guest by TAMUSA President Matson, President's Night – Premier Evening Event with Texas A&M President Young, Aggie Park, San Antonio, 2018
- **Hiring Committees** (for the following positions), TAMUSA
 - Interim Department Chair, 2025
 - Assistant/Associate Professor of ESET (Electronic Systems Engineering Technology), 2024-

2025

- Adjunct Math lecturers, 2023-2024
 - Assistant professor of Mathematics, 2022-2023
 - JAMP (Joint Admission Medical Program) faculty director, Health Professions Advisory Committee, 2022
 - Math Postdoctoral Fellow, 2021
 - Departmental Spousal Hire Application Review Committee, 2021
 - Assistant professor of Biology, 2020-2021
 - Associate professor of Mathematics, 2020
 - Lecturer of Mathematics, 2018, 2024-2025
- **Evaluation and Promotion/Tenure Committees, TAMUSA**
 - Member, College Post-tenure Review Committee for the CEMS department, 2025
 - Member, Departmental Midterm Review Committee for tenure-track faculty, 2023-2025
 - Chair, Departmental Professional-Track Promotion Committee, 2025
 - Member, Departmental Professional-Track Promotion Committee, 2022-2024
 - Member, College Tenure Committee for tenure-track faculty, 2022
 - Member, College Tenure Committee (review for Provost tenure), 2022
 - Member, Departmental Annual Evaluation Committee for Tenure-track Faculty, 2026
 - Member, Departmental Annual Evaluation Committee for Professional-track Faculty, 2026
 - Chair, Departmental Annual Evaluation Committee for Professional-track Faculty, 2025
 - Chair, Departmental Annual Evaluation Committee for Tenure-track Faculty, 2025 - 2026
 - Member, Departmental Annual Faculty Evaluation Committee, 2021-2023
 - **Reviewers and Judges**
 - Judge, Texas Regional Ethics Bowl, TAMUSA, 2024
 - Judge, undergraduate talks, Student Research Symposium, TAMUSA, 2023
 - Judge, graduate student talks, 17th Texas A&M University System Pathways Student Research Symposium, TAMU, 2022
 - Judge, student posters, Science and Engineering Research Fair and Symposium, John Jay Science and Engineering Academy, San Antonio, 2021
 - Reviewer, University Faculty Awards Committee, TAMUSA, 2019 - 2023
 - Judge, student research exhibition, Alamo Regional Science and Engineering Fair, St. Mary's University, San Antonio, 2019
 - Judge, MathWorks Math Modeling Challenge, Society of Industrial and Applied Mathematics, 2019
 - Judge, Undergraduate Mathematical Modeling Contest, National Consortium for Mathematics and Its Application, 2019
 - Reviewer, Hugh Porter Scholarship, Department of Mathematics, TAMUK, 2016
 - **Panelists and Consulting**
 - Invited member for consulting, SciPinion (science peer review), 2024 - present
 - Expert panel for starting a career with a degree in Mathematics (virtual), Zippia (career development), 2024

- Panel discussion on artificial intelligence, TAMUSA, 2023
- Panel discussion on student options for Credit/No-Credit grading for a course in the COVID-19 pandemic season, TAMUSA, 2020
- GREAT seminar, Department of Mathematics, TAMU, 2012
Note: panel discussion for international students on breaking the language and cultural barrier in classrooms
- First Year Graduate Student Seminar, Department of Mathematics, TAMU, 2012.
Note: invited by the departmental Associate Head for Graduate Studies to share perspectives on choosing a research topic and an adviser
- **Leadership and Organizing Activities**
 - Honors student field trip to the School of Data Science, UTSA downtown campus, 2023
 - Organizing a booth showing Population Growth Models, Viva Science San Antonio, Witte Museum, San Antonio, 2022
Note: an event by displaying science in an entertaining fashion, organized by UT Health San Antonio
 - Organizing a talk for the Health Professions Advisory Committee, From School to Practice - an Overview of a Pharmacist Career in the Hospital Setting by Dr. Chang Liu, TAMUSA, 2021
 - Leader, Mathematical Biology Minor, Mathematics Program, TAMUSA, 2019 - present
 - Director, High School Applied Science Modeling Contest, TAMUSA, 2018
 - A Math Table in the STEM Fair, John Jay Science and Engineering Academy (a senior high school), San Antonio, 2018
 - Mathematics Seminar, Department of Mathematics, TAMUK, 2016 - 2017
 - Seminar series: Strategies for Car Purchase and Maintenance, Chinese Newcomer Club, TAMU, 2011
 - Co-organizer and speaker, Studying-Aboard Application Workshop, Shandong University, China, 2006
- **Invited Talks**
 - Math Exploration and High School Math Learning (Virtual), Foothills High School, Boise, Idaho, 2021
 - Math-World Exploration (Virtual), Enyang High School, Bazhong, China, 2021
 - Why Mathematical Biology? Invited talk in a Jaguar course, TAMUSA, 2019
 - My Life-The Past and Now, Invited talk in a Jaguar III course about career development, TAMUSA, 2018
- **Conference Advisory Committees**
 - Coastal Bend Mathematics and Statistics Conference, South Texas, 2019 - present
 - The 1st Annual Meeting of SIAM Texas-Louisiana Section, Louisiana State University, Baton Rouge, LA, 2018
- **Advisory and Leadership Roles for Associations**
 - Faculty advisor, Chinese Students and Scholars Association, TAMUK, 2016 - 2017
 - President, Chinese Newcomer Club, TAMU, 2008 - 2011
- **Other Committees**
 - Faculty Advisory Committee, TAMUSA, 2026 - 2027

- Taskforce for Justification of a Tenure-track Position on Math Education, Math Program, TAMUSA, Fall 2025
 - Faculty Professional Development Committee (provost office), TAMUSA, 2024
 - Workload Taskforce, TAMUSA, 2024 - 2025
 - Advisory Rubric Committee for Annual Evaluation, Faculty Senate, TAMUSA, 2023 - present
 - Parking Appeal Committee, Faculty Senate, TAMUSA, 2023 - 2024
 - Faculty Senate, TAMUSA, 2023 - 2025
 - Committee chair, Precalculus Committee, TAMUSA, 2022 - 2023
 - Student Research Symposium Committee, TAMUSA, 2022 - 2024
 - University Retirement Committee, TAMUSA, 2022- 2023
 - Honors Committee (for honors students), TAMUSA, 2020 - 2021
 - Inaugural Center for Academic Innovation Task Force, TAMUSA, 2022 - 2023
 - Course Committee, Program of Electronic Systems Engineering Technology, TAMUSA, 2019
 - High Performance Computing Committee, TAMUSA, 2018 - 2020
 - Department Course Committee, TAMUSA, 2018 - 2020
 - San Antonio-Bexar STEM-STEAM ecosystem workgroup, San Antonio, 2018 - 2019
 - Health Professions Advisory Committee, TAMUSA, 2017 - present
 - Undergraduate Student Committee, Department of Mathematics, TAMUK, 2015 - 2017
- **Contributed Writing or Interviews**
 - Contributed writing as a former student for Department of Mathematics, TAMU, 2024
 - Interviewed by student journalist Sebastian Cervantes for the campus media Mesquite about Asian discrimination in the United States. Article title: Asian Student Association relauches to address racial discrimination. TAMUSA, 2021. [Article Website](#).
 - Interviewed by student journalist Daisy Gonzalez Quezada for the campus media Mesquite about Asians regarding the pandemic. Article title: Rising xenophobia during pandemic. TAMUSA, 2020. [Article Website](#).
- **Volunteers and Other Services**
 - Coordinator, Departmental Showcase to University Students, TAMUSA, 2025
 - Session chair, 9th Coastal Bend Mathematics and Statistics Conference, Texas A&M International University, Laredo, TX, 2025
 - Session chair, 7th Coastal Bend Mathematics and Statistics Conference, The University of Texas-Rio Grande Valley (Brownsville Campus), 2023
 - Program Review Document writing (for the part “Program Faculty” with Mr. John Scott), Mathematics Program, TAMUSA, 2023
 - Meeting-Minutes Writing, Mathematics Program, TAMUSA, 2023
 - Strategic planning for “faculty environment, structure, and scholarship”, College of Arts and Sciences, TAMUSA, 2022
 - International flag parade, International Education Week, TAMUSA, 2021
 - Adopt-A-Family program, TAMUSA, 2020 - 2024
 - Operation Love Our Jaguars Call Campaign in COVID-19, TAMUSA, 2020
 - New Student Orientation, TAMUSA, 2019
 - Coordinator for math tutors, Harlandale High School Tutoring Collaboration Program, TAMUSA, 2018 - 2019
 - International Fashion Show, TAMUSA, 2018

- Esperanza Hall Move for new students, TAMUSA, 2018
- Traditional Chinese comedic 'Crosstalk' (Xiangsheng) performance, Gala Show for Celebration of Chinese New Year, TAMUK, 2017
- College Night Out (a funny party for students and faculty), College of Arts and Sciences, TAMUK, 2015
- Assistant, Experience in Cardiovascular Mechanics Research, Grandparents University, Michigan State University, 2014.
Note: Grandparents University is a program for alumni and their grandchildren aging 8-12 for a three-day educational experience
- Graduate Teaching Academy, TAMU, 2011 - 2012.
- International House, College Station, Texas, 2007 - 2012
- Volunteer, 70th Annual National Congress of Chinese Mathematical Society, Weihai, China, 2005

PROFESSIONAL MEMBERSHIPS

- Society for Industrial and Applied Mathematics (SIAM)
- U. S. Association for Computational Mechanics
- BioQUEST/QUBES (for STEM education innovation and transformation)