Sevan Goenezen, PhD

CONTACT
INFORMATION

Dr. Sevan Goenezen, PhD
Engineering Solutions and
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San Marcos, TX 78666

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EXPERTISE
AREA

I have +17 years of experience in computational mechanics using nonlinear finite element analysis (FEA). I have been using FEA to perform stress analysis of aero-engine parts, solve inverse problems in elasticity, compute the stress response in animal tissues, and compute the piezoelectric response. During my PhD program, I have written nonlinear FEA programs from scratch using Fortran 90. Furthermore, as a postdoctoral researcher, I extensively used the commercial software ADINA by Dr. Bathe. I also used the FEA program MSC Patran during an internship at MTU Aero Engines North America. Overall, I have a strong background in stress calculations using FEA and closed form solutions. I have taught the courses Mechanics of Materials, Solid Mechanics in Design, and Theory of Elasticity that involve stress calculations. Finally, I have also experience in CFD and FSI simulations using ADINA.

EDUCATION

Rensselaer Polytechnic Institute, Troy, New York USA

Ph.D. in Mechanical Engineering　　　　　　　　　　　　　　**May 2011**

- Dissertation Topic: "Inverse problems in finite elasticity: An application to imaging the nonlinear elastic properties of soft tissues"

Rheinisch-Westfaelische Technische Hochschule Aachen, Aachen, Germany

B.S./M.S. (5 years) in Mechanical/Aero Engineering　　　　**December 2006**

PROFESSIONAL
EXPERIENCE

Lecturer　　　　　　　　　　　　　　　　　　　**August 2023 - current**
Texas State University, Ingram School of Engineering, San Marcos, Texas

Associate Professor, Adjunct　　　　　　　　　**August 2022 - May 2023**
Texas Lutheran University, Math, Computer Science, and Information, Seguin, Texas

Engineering Consultant　　　　　　　　　　　　**July 2020 - June 2023**
Engineering Solutions and Quality Products, LLC, San Marcos, Texas

Assistant Professor　　　　　　　　　　　　　**August 2013 - June 2020**
Texas A&M University, Mechanical Engineering, College Station, Texas

Postdoctoral Researcher　　　　　　　　　　　**August 2011 - July 2013**
Oregon Health & Science University, Biomedical Engineering, Portland, Oregon

Graduate Research Assistant **January 2007 - May 2011**
Rensselaer Polytechnic Institute, Mechanical Engineering, Troy, New York

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INTERNSHIP

MTU AENA (Aero Engines North America), Rocky Hill/Newington, CT

Engineering Office **April 2005 - September 2005**

- Performed finite element simulations of turbine blades using MSC PATRAN.
- Used GEOMAGIC QUALIFY and GEOMAGIC STUDIO to process the three dimensional geometry of scanned hardware.
- Wrote FORTRAN programs to filter and post process data from a large database.

HONORS AND AWARDS

- Office of Naval Research, Summer Faculty Fellowship 2016 at U.S. Naval Research Lab, Washington DC.
- Haythornthwaite Research Initiation Grant Award 2014 via ASME Applied Mechanics Division.
- Lemelson-MIT-Rensselaer Student Prize Finalist 2011.
  https://www.eurekalert.org/news-releases/657415
- Best Presentation Award 2010/2011 (third place), Graduate Research Forum at RPI.
- Award winning for mentoring high school students at EurekaFestival and Museum of Sciences "Wind Turbine Contest" and setting new record time, 2011.

According to google scholar as of date 06/2021, the total number of citations is 874, the h-index is 15, and the i10-index is 22.

Publications with students are indicated with the superscript * in the following lists.

PEER REVIEWED PUBLICATIONS

1. **S. Goenezen**, M. C. Kotecha, J. N. Reddy, "Identification of the 3D crystallographic orientation using 2D deformations," *The Journal of Strain Analysis for Engineering Design*, **57** 6, 2022.

2. N. Zarei, S. A. Anvar, **S. Goenezen**, "Subjective approach to optimal crosssectional design of biodegradable magnesium alloy stent undergoing heterogeneous corrosion," *Acta Polytechnica*, **61** 5, 2021.

3. Y. Mei, J. Deng, X. Guo, **S. Goenezen**, S. Avril, "Introducing regularization into the virtual fields method (VFM) to identify nonhomogeneous elastic property distributions," *Computational Mechanics*, **67** 6, 2021.

4. **S. Goenezen**, B. J. Kim*, M. Kotecha*, P. Luo, M. R. Hematiyan, "Mechanics Based Tomography (MBT): Validation using experimental data," *Journal of the Mechanics and Physics of Solids*, **146**, 2021.

5. M. Hajhashemkhani*, M. R. Hematiyan, E. Khosrowpour, **S. Goenezen**, "A novel method for the identification of the unloaded configuration of a deformed hyperelastic body," *Inverse Problems in Science and Engineering*, **28** 10, 2020.

6. Y. Mei*, **S. Goenezen**, "Quantifying the anisotropic linear elastic behavior of solids," *International Journal of Mechanical Sciences*, **163**, 2019.

7. M. Hajhashemkhani*, M. R. Hematiyan, **S. Goenezen**, "Identification of hyper-viscoelastic material parameters of a soft member connected to another unidentified member by applying a dynamic load," *International Journal of Solids and Structures*, **165**, 2019.

8. M. Hajhashemkhani*, M. R. Hematiyan, **S. Goenezen**, "Inverse determination of elastic constants of a hyper-elastic member with inclusions using simple displacement/length measurements," *The Journal of Strain Analysis for Engineering Design*, **53** 7, 2018.

9. P. Luo, Y. Mei*, M. Kotecha*, A. Abbasszadehrad, S. Rabke*, G. Garner, **S. Goenezen**, "Characterization of the stiffness distribution in 2D and 3D using boundary deformations - A preliminary study," *MRS Communications*, **8** 3, 2018.

10. Y. Mei*, B. Stover*, N. A. Kazerooni, A. Srinivasa, M. Hajashemkhani, M. R. Hematiyan, **S. Goenezen**, "A comparative study of two constitutive models within an inverse approach to determine the spatial stiffness distribution in soft materials," *International Journal of Mechanical Sciences*, **140**, 2018.

11. M. Hajhashemkhani, M. R. Hematiyan, **S. Goenezen**, "Identification of material parameters of a hyper-elastic body with unknown boundary conditions," *Journal of Applied Mechanics*, **85** 5, 2018.

12. Y. Mei* and **S. Goenezen**, "Mapping the viscoelastic behavior of soft solids from time harmonic motion," *Journal of Applied Mechanics*, **85** 4, 2018.

13. S. Sridhar*, Y. Mei*, **S. Goenezen**, "Improving the sensitivity to map non-linear parameters for hyperelastic problems," *Computer Methods in Applied Mechanics and Engineering*, **331**, 2018.

14. Y. Mei*, S. Wang*, X. Shen*, S. Rabke*, **S. Goenezen**, "Mechanics based tomography: A preliminary feasibility study," *Sensors*, Invited Article for Special Issue *Force and Pressure Based Sensing Medical Application*, **17** 5, 2017.

15. Y. Mei*, M. Tajderi*, **S. Goenezen**, "Regularizing biomechanical maps for partially known material properties," *International Journal of Applied Mechanics*, **09**, 2017.

16. Y. Mei*, R. Fulmer*, V. Raja*, S. Wang*, **S. Goenezen**, "Estimating the non-homogeneous elastic modulus distribution from surface deformations," *International Journal of Solids and Structures*, **83**, 2016.

17. **S. Goenezen**, V.K. Chivukula, M. Midgett, L. Phan, S. Rugonyi, "4D Subject-specific inverse modeling of the chick embryonic heart outflow tract hemodynamics," *Biomechanics and Modeling in Mechanobiology*, **15** 3, 2016.

18. V.K. Chivukula, **S. Goenezen**, A. Liu, S. Rugonyi, "Effect of outflow tract banding on embryonic cardiac hemodynamics," *Journal of Cardiovascular De-

velopment and Disease, Special Issue: *Development and Function of the Cardiac Conduction System in Health and Disease*, **3** 1, 2015.

19. Y. Mei*, S. Kuznetsov, and **S. Goenezen**, "Reduced boundary sensitivity and improved contrast of the regularized inverse problem solution in elasticity," *Journal of Applied Mechanics*, **83** 3, 2015.

20. M. Tyagi, **S. Goenezen**, P. E. Barbone, A. A. Oberai, "Algorithms for quantitative quasi-static elasticity imaging using force data," *International Journal for Numerical Methods in Biomedical Engineering*, **30** 12, 2014.

21. J.E. Zelaya, **S. Goenezen**, A.F. Azarbal, and S. Rugonyi, "Improving the efficiency of abdominal aortic aneurysm wall stress computations," *Public Library of Sciences (PLOS) ONE*, **9** 7, 2014.

22. M. Midgett, **S. Goenezen**, S. Rugonyi, "Blood flow dynamics reflect degree of outflow tract banding in Hamburger-Hamilton stage 18 chicken embryos," *Journal of the Royal Society Interface*, **11** 100, 2014.

23. L. Shi, **S. Goenezen**, S. Haller, M. Hinds, K.L. Thornburg, S. Rugonyi, "Alterations in pulse wave propagation reflect the degree of outflow tract banding in HH18 chicken embryos," *American Journal of Physiology - Heart and Circulatory Physiology*, 1522-1539, 2013.

24. **S. Goenezen**, M. Rennie, S. Rugonyi, "Biomechanics of early cardiac development," *Biomechanics and Modeling in Mechanobiology*, special issue devoted to the theme *Mechanics of Development*, **11** 8, 1187-1204, 2012.

25. **S. Goenezen**, J. F. Dord, Z. Sink, P. E. Barbone, J. Jiang, T. J. Hall, and A. A. Oberai, "Linear and nonlinear elastic modulus imaging: An application to breast cancer diagnosis," *Institute of Electrical and Electronics Engineers (IEEE) Transactions on Medical Imaging*, **31** 8, 1628-37, 2012.

26. **S. Goenezen**, A. A. Oberai, P. E. Barbone, "Solution of the nonlinear elasticity imaging inverse problem: the incompressible case," *Computer Methods in Applied Mechanics and Engineering*, **200** 13-16, 1406-1420, 2011.

27. T. J. Hall, P. E. Barbone, A. A. Oberai, J. Jiang, J. F. Dord, **S. Goenezen**, and T. G. Fisher, "Recent results in nonlinear strain and modulus imaging," *Current Medical Imaging Reviews*, **7** 313-327, 2011.

28. A. A. Oberai, N. H. Gokhale, **S. Goenezen**, P. E. Barbone, T. J. Hall, A. M. Sommer, and J. Jiang, "Linear and nonlinear elasticity imaging of soft tissue *in vivo*: demonstration of feasibilty," *Physics in Medicine and Biology*, **54** 1191-1207, 2009.

PEER REVIEWED
BOOK CHAPTERS

1. J. F. Dord, **S. Goenezen**, A. A. Oberai, P. E. Barbone, J. Jiang, T. J. Hall, T. Pavan, "Validation of quantitative linear and nonlinear compression elastography," *Ultrasound Elastography for Biomedical Applications and Medicine*, I. Nenadic, M.W. Urban, J.F. Greenleaf, J. Gennisson, M. Bernal, M. Tanter, Wiley 2018.

2. Y. Mei*, and **S. Goenezen**, "Spatially weighted objective function to solve the inverse problem in elasticity for the elastic property distribution," *Computational Biomechanics for Medicine: New Approaches and New Applications (6th ed)*, Editors: Doyle, B.J., K. Miller, A. Wittek and P.M.F. Nielson, Springer NY, 2015. ISBN:978-3-319-15502-9.

3. P.E. Barbone, A.A. Oberai, J.C. Bamber, G.P. Berry, J-F Dord, E.R. Ferreira, **S. Goenezen**, and T.J. Hall, "Nonlinear and poroelastic biomechanical imaging: elastography beyond Young's modulus," *CRC Handbook of Imaging in Biological Mechanics, CRC Press and Taylor & Francis*, Editors: Corey Neu and Guy Genin, October 2014.

PEER REVIEWED CONFERENCE PROCEEDINGS ARTICLES

1. **S. Goenezen**, P. Luo, B. J. Kim, M. Kotecha, Y. Mei, "Mechanics based tomography using camera images," *International Conference on Biomechanics and Medical Engineering (ICBME 2019)*, vol. 16, San Diego, CA, 2019.

2. Y. Mei*, S. Wang*, **S. Goenezen**, "Identifying the elastic property distribution of soft solids quantitatively from limited known displacements on boundaries: A theoretical study," *5-th International Conference on Computational and Mathematical Biomedical Engineering (CMBE2017)*, p.648-651 Pittsburgh, PA, 2017.

3. Y. Mei*, and **S. Goenezen**, "Spatially weighted objective function to solve the inverse problem in elasticity for the elastic property distribution," *MICCAI*, Boston, MA, 2014.

4. T. J. Hall, A. A. Oberai, P. E. Barbone, A. M. Sommer, N. H. Gokhale, **S. Goenezen**, J. Jiang, "Elastic nonlinearity imaging," *Institute of Electrical and Electronics Engineers (IEEE) Engineering in Medicine and Biology Society* 1967-70, 2009.

5. P. E. Barbone, C. E. Rivas, I. Harari, U. Albocher, A. A. Oberai, **S. Goenezen**, "Adjoint-weighted variational formulation for the direct solution of plane stress inverse elasticity problems," *Journal of Physics: Conference Series* **135** 012012, 2008.

OTHER CONFERENCE PROCEEDINGS ARTICLES

1. Y. Mei* and **S. Goenezen**, "Non-Destructive characterization of heterogeneous solids from limited surface measurements," *24th International Congress of Theoretical and Applied Mechanics*, Montreal, Canada, August 2016.

2. Y. Mei* and **S. Goenezen**, "Parameter identification via a modified constrained minimization procedure," *24th International Congress of Theoretical and Applied Mechanics*, Montreal, Canada, August 2016.

3. **S. Goenezen**, Y. Mei*, "Characterizing the elastic property distribution of soft materials non-destructively," *Society of Engineering Science 51st Annual Technical Meeting*, Purdue University, West Lafayette, Indiana, USA, October 2014.

4. **S. Goenezen**, A. A. Oberai, J. F. Dord, J. Sink, P. E. Barbone, "Nonlinear elasticity imaging," *Bioengineering Conference (NEBEC), Institute of Electrical and Electronics Engineers (IEEE) 37th Annual Northeast*, Troy, NY, 1-2 , April 2011.

5. T. J. Hall, P. E. Barbone, A. A. Oberai, A. M. Sommer, N. H. Gokhale, **S. Goenezen**, and J. Jiang, "Imaging the elastic nonlinearity of tissues," *Institute of Electrical and Electronics Engineers (IEEE) International Ultrasonics Symposium*, New York City, NY, 452-455, 2007.

CONFERENCE
PRESENTATIONS

1. **S. Goenezen**, "Utilizing surface displacement fields from a digital image correlation system and inverse algorithms to map the spatial distribution of the shear modulus in 3D," *American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition (IMECE)*, Pittsburgh, PA, November 2018.

2. **S. Goenezen**, "From macroscale to microscale: Inferring 3D model parameter distribution using digital cameras and inverse algorithms," *13th World Congress in Computational Mechanics (WCCM)*, New York, NY, July 2018.

3. **S. Goenezen**, "Non-destructive characterization of soft solids using a digital image correlation system and inverse algorithms," *American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition (IMECE)*, Tampa, Florida, November 2017.

4. **S. Goenezen**, "Monitoring the stiffness distribution of engineered tissues: A preliminary study," *Materials Research Society*, Boston, MA, December 2017.

5. **S. Goenezen**, "Non-Destructive characterization of heterogeneous solids from limited surface measurements," *24th International Congress of Theoretical and Applied Mechanics*, Montreal, Canada, August 2016.

6. **S. Goenezen**, "Elastography utilizing material nonlinearity and measured surface data," *ASME 2015 International Mechanical Engineering Congress & Exposition*, Houston, TX, November 2015.

7. **S. Goenezen**, S. Rugonyi, V. Chivukula, and M. Midgett, "Subject specific inverse modeling of the embryonic chick heart hemodynamics," *American Society of Mechanical Engineers (ASME) 2015 International Mechanical Engineering Congress & Exposition (IMECE)*, Houston, TX, November 2015.

8. **S. Goenezen**, "Estimating the non-homogeneous elastic modulus distribution from surface deformations," *Society of Engineering Science (SES), 52nd Annual Technical Meeting*, College Station, TX, October 2015.

9. **S. Goenezen**, S. Rugonyi, J. Zelaya, A. Azarbal, P. Dargon, "Wall stress computations in abdominal aortic aneurysms: a clinically feasible approach," *13th US National Congress on Computational Mechanics*, San Diego, CA, July 2015.

10. **S. Goenezen**, S. Rugonyi, J. Zelaya, A. Azarbal, P. Dargon, "Efficient computation of wall stresses in abdominal aortic aneurysms," *American Society of Mechanical Engineers (ASME) Applied Mechanics and Materials Conference (McMAT)*, Seattle, WA, June 2015.

11. **S. Goenezen**, Y. Mei, "Characterizing the elastic property distribution of soft materials non-distructively," *51st Society of Engineering Science (SES) Annual Technical Meeting*, West Lafayette, IN, October 2014.

12. **S. Goenezen**, Y. Mei, "Spatially weighted objective function to solve the inverse problem in elasticity for the elastic property distribution," *Medical Image Computing and Computer Assisted Interventions (MICCAI)*, Boston, MA, September 2014.

13. **S. Goenezen**, L. Shi, S. Rugonyi,"Pulse wave propagation in the embryonic chick heart"*12th U.S. National Congress on Computational Mechanics (US-NCCM), U.S. Association for Computational Mechanics*, Raleigh, NC, July 2013.

14. **S. Goenezen**, L. Shi, S. Rugonyi,"Propagation of pulse waves in the embryonic chick heart"*Heart Research Center Retreat, Oregon Health and Science University*, Portland, OR, 2013.

15. **S. Goenezen**, A. A. Oberai, J. F. Dord, Z. Sink, P. E. Barbone, "Nonlinear elasticity imaging,"*37th Annual Northeast Bioengineering Conference*, Troy, NY, 2011.

16. **S. Goenezen**, J. F. Dord, P. E. Barbone, A. A. Oberai, "Algorithms for quantitative nonlinear elasticity imaging in three dimensions," *9th International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity*, Snowbird, Utah, 2010.

17. **S. Goenezen**, Z. Sink, A. A. Oberai, P. E. Barbone, J. F. Dord, J. Jiang, T. J. Hall, "Breast cancer diagnosis using nonlinear elasticity imaging: some initial results," *9th International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity*, Poster presentation, Snowbird, Utah, 2010.

18. **S. Goenezen**, A. A. Oberai, P. E. Barbone, "Nonlinear elasticity imaging for incompressible solids," *10th US National Congress on Computational Mechanics*, Columbus, Ohio, 2009.

19. **S. Goenezen**, A. A. Oberai, P. E. Barbone, "Nonlinear elasticity imaging for incompressible solids," *Seventh International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity*, Austin, Texas, 2008.

Invited Talks

1. "Mapping the interior mechanical property distribution of solids from exterior camera images," *Research Seminar*, MINES Saint-Etienne, Centre for Biomedical and Healthcare Engineering, Saint Etienne, France, March 2019.

2. "Characterizing the heterogeneous material properties of solids non-destructively," *Graduate Seminar*, George Mason University, Fairfax, VA, May 2016.

3. "Non-invasive approaches to determine the material properties of heterogeneous tissues," *Society of Engineering Science (SES) 2015 Mechanobiology Symposium*, College Station, TX, October 2015.

4. "Biomechanical methods to non-invasively detect breast tumors," *Baylor Cancer Center, Texas Oncology*, Dallas, TX, October 2015.

5. "Novel methods in inverse problems to detect diseased tissues," *Graduate Seminar*, University of Alabama, Tuscaloosa, AL, March 2015.

6. "New directions in solving inverse problems in elasticity to detect diseased tissues," *Biomedical Imaging & Genomic Signal Processing*, Texas A&M University, College Station, TX, February 2015.

7. "Noninvasive material characterization of soft tissues for breast cancer diagnosis," *Breast Committee Site Meeting*, Baylor Health Cancer Center, Dallas, TX June 2014.

8. "Sensitivity of boundary conditions to the solution of the regularized inverse problem in finite elasticity," *Inverse Problems Seminar*, Texas A&M University, Department of Mathematics, College Station, TX, March 2014.

9. "Imaging the hyperelastic properties of soft tissues in-vivo and non-invasively," *Graduate Seminar*, Texas A&M University, Department of Biomedical Engineering, College Station, TX, January 2014.

10. "Novel diagnostic imaging technique utilizing the nonlinear elastic properties of soft tissues," *Graduate Seminar*, Texas A&M University, Department of Mechanical Engineering, College Station, TX, November 2013.

11. "Inverse problems in finite elasticity: An application to imaging the nonlinear elastic properties of soft tissues," *ME Seminar*, Baylor University, School of Engineering and Computer Science, Waco, TX, March 2013.

12. "Imaging the nonlinear elastic properties of soft tissues from subsurface displacement fields," *Graduate/Undergraduate Seminar*, SUNY University at Buffalo, Mechanical and Aerospace Engineering Department, Buffalo, NY, February 2013.

13. "Breast cancer diagnosis using nonlinear elastic modulus imaging," *Physics Journal Club*, Oregon Health & Science University, Department of Oncology, Portland, OR, November 2012.

14. "Nonlinear elasticity imaging of soft tissues: An application to breast cancer diagnosis," *Biomedical Engineering (BME) Seminar*, Oregon Health & Science University, Biomedical Engineering Department, Portland, OR, September 2011.

15. "Inverse problems in finite elasticity: An application to imaging the nonlinear elastic properties of soft tissues" *ME Seminar*, Southern Illinois University Edwardsville (SIUE), Department of Mechanical Engineering, Edwardsville, IL, March 2011.

1. M. Kotecha, **S. Goenezen**, "Characterizing heterogeneous anisotropic material parameter distribution in 2D using Mechanics Based Inverse Problems," *The International Conference for High Performance Computing, Networking, Storage, and Analysis*, Poster Presentation, Denver, CO, November 2019.

2. B. Kim, **S. Goenezen**, "Reconstructing 3D heterogeneous mechanical property distributions using surface displacements," *Third Annual Texas A&M Research Computing Symposium* Texas A&M University, College Station, TX, May 2019.

3. M. Kotecha, **S. Goenezen**, "On the feasibility of estimating 3D material parameters of transversely isotropic material using plane stress boundary value problems and Digital Image Correlation (DIC)," *Third Annual Texas A&M Research Computing Symposium*, Texas A&M University, College Station, TX, May 2019.

4. M. Kotecha, **S. Goenezen**, "Mapping the stiffness distribution of solids using digital cameras, mechanics based inverse algorithms, and high performance computing," *Second Annual Texas A&M Research Computing Symposium*, Texas A&M University, College Station, TX, June 2018.

5. Y. Mei, P. Luo, **S. Goenezen**, V. Sarin, "Novel Medical Imaging Preliminary Study: Optimization and Parallelization on Ada," *Texas A&M Research Computing Week*, Texas A&M University, College Station, TX, June 2017.

6. Y. Mei, S. Wang, **S. Goenezen**, "Identifying the elastic property distribution of soft solids quantitatively from limited known displacements on boundaries: A theoretical study," *5-th International Conference on Computational and Mathematical Biomedical Engineering – CMBE2017*, University of Pittsburgh, Pittsburgh, PA, April 2017.

7. S. Wang, Y. Mei, **S. Goenezen**, "Novel breast cancer screening modality: Parameter identification via surface deformations," *Annual MEEN Kick-off, Department of Mechanical Engineering, TAMU*, College Station, TX, poster presentation, September 2016.

8. Y. Mei and **S. Goenezen**, "Parameter identification via a modified constrained minimization procedure," *24th International Congress of Theoretical and Applied Mechanics*, Montreal, Canada, poster presentation, August 2016.

9. Y. Mei and **S. Goenezen**, "Characterizing non-homogeneous elastic properties non-destructively: A boundary sensitivity investigation," *52nd Society of Engineering Science (SES) Technical Meeting*, poster presentation, College Station, TX, October 2015.

10. S. L. Sridhar and **S. Goenezen**, "Elastic modulus reconstruction of breast tissues to identify tumors" *Society of Engineering Science (SES) 2015 Mechanobiology Symposium*, poster presentation, College Station, TX, October 2015.

11. Y. Mei and **S. Goenezen**, "Regularizing the inverse problem to solve the elastic property distribution of vascular tissues," *U.S. National Congress on Computational Mechanics (USNCCM)*, San Diego, CA, July 2015.

12. Y. Mei and **S. Goenezen**, "Novel regularization method to quantify the elastic property distribution of vascular tissues," *American Society of Mechanical Engineers (ASME) McMAT*, Seattle, WA, June 2015.

13. Y. Mei and **S. Goenezen**, "Evaluation of a weighted iterative method for elastic modulus imaging," *Student Research Week, GSC*, Texas A&M University, College Station, TX, April 2014.

14. Y. Mei and **S. Goenezen**, "Weighted iterative method for elastic modulus imaging," *Mechanical Engineering Day, MEGSO*, Texas A&M University, College Station, TX, May 2014.

15. R. Fulmer, Y. Mei, and **S. Goenezen**, "Feasibility study to determine the elastic modulus distribution of soft tissues from surface deformations," *Fall Kick Off Event, Mechanical Engineering*, Texas A&M University, College Station, TX, September 2014.

GRANTS

Total Awards: $2,303,928 , Pro-rated Awards: $652,914.
- National Institutes of Health (NIH) RO1, 2020-2024, PI: Ganesh Sankaranarayanan, collaborator: Sevan Goenezen, "Development and Validation of a Virtual Laparoscopic Hiatal Hernia Simulator (VLaHHS)" total: $1,800,000, pro-rated: $285,000
- NSF REU Supplement, Summer 2019, PI: Sevan Goenezen, total: $16,000, pro-rated: $16,000.
- National Science Foundation, 2017-2020, PI: Sevan Goenezen, "Multiscale Analysis of Residual Stresses with Novel Non-Destructive Approaches using In-complete Surface Displacement Measurements" total: $318,928, pro-rated: $318,928.
- Research Initiation Grant Award sponsored by the Haythornthwaite Foundation and organized by the American Society of Mechanical Engineers (ASME) Applied Mechanics Division, 2014, PI: Sevan Goenezen, total: $20k, pro-rated: $20k.
- National Science Foundation, 2014-2016, co-investigator: Sevan Goenezen, total: $140k, pro-rated: $8,986.
- TEES Seed Grant, 2014-2016, co-PI: Sevan Goenezen, total: $5,000, pro-rated: $0.
- Southeastern Conference (SEC) Visiting Faculty Travel Grant, 2015 total: $1,700, pro-rated: $1,700.
- Faculty Workstation Program, 2013, total: $1,500, pro-rated: $1,500.
- Travel Award for the 12th U.S. National Congress on Computational Mechanics (USNCCM12) in Raleigh, NC, 2013, total: $800.00, pro-rated: $800.00.

GRADUATE STUDENTS ADVISING

PhD Students Advised:
- Yue Mei, PhD degree in August 2017 (now a tenured Associate Professor at Dalian University of Technology, China).

MS Students Advised:
- Xuchen Liu, MS degree in May 2015.
- Michael Holtzclaw, MS degree in August 2016.

- Shankar Sridhar, MS degree in December 2016.
- Keeley Coburn, MS degree in August 2018.
- Benjamin Stover, MS degree in August 2020.

AWARDS
FOR MY
STUDENTS

- Travel Award, $2,000 for Yue Mei, College of Engineering, TAMU, 2015.
- Summer Scholarship $3,000 for Ryan Porter Fulmer, Department of Mechanical Engineering, TAMU, 2014.
- Travel Award, $500 for Yue Mei, American Society of Mechanical Engineers (ASME) McMAT 2015 conference.
- Annual MEEN Kick-off September 2016, Undergraduate Poster Competition, second place for Sicheng Wang.
- Travel Award, $2,000 for Yue Mei, College of Engineering, TAMU, 2016.
- Cain Undergraduate Excellence Award for Benjamin Stover, Mechanical Engineering Department, TAMU, 2017.

TEACHING
INSTRUCTOR

Design Studio, Introduction to Mechanical Engineering Design (MEEN 401) and ***Interdisciplinary Design* (ENGR 401)**, senior level undergraduate course, *Fall 2013*. Overseeing four teams composed of mechanical engineering and electrical engineering students, working on four distinct industry projects.

Mechanics of Materials (CVEN 305, section 505), *Spring 2014*. 72 students in class.

Theory of Elasticity (MEEN 603), *Fall 2014*. 22 students in class.

Mechanics of Materials (CVEN 305, section 507), *Spring 2015*. 30 students in class.

Theory of Elasticity (MEEN 603), *Fall 2015*. 16 students in class.

Solid Mechanics in Design (MEEN 368, section 503), *Spring 2016*. 40 students in class.

Theory of Elasticity (MEEN 603), *Fall 2016*. 23 students in class.

Solid Mechanics in Design (MEEN 368, section 503 and Honors section 203), *Spring 2017*. 81 students and 6 honors students in class.

Mechanics of Materials (CVEN 305, section 504), *Spring 2017*. 89 students in class.

Modeling and Analysis of Mechanical Systems (MEEN 602, section 300 and 700), *Summer 2017*. 11 students in class and 6 distance learning students.

Theory of Elasticity (MEEN 603, sections 600 and 700), *Fall 2017.* 23 students in class and 3 distance learning students.

Solid Mechanics in Design (MEEN 368, sections 501 and 503, including Honors sections 201 and 203), *Spring 2018.* 95 and 99 students in sections 501 and 201, respectively. 3 and 1 Honors students in sections 201 and 203, respectively.

Statics and Particle Dynamics (MEEN 221, section 503), *Fall 2018.* 49 students in class.

Statics and Particle Dynamics (MEEN 221, sections 503 and 505), *Spring 2019.* 98 and 99 students in sections 503 and 505, respectively.

Engineering Analysis for Mechanical Engineers (MEEN 357, section 501), *Fall 2019.* 63 students in class.

Dynamics and Vibration (MEEN 363, section 502), *Spring 2020.* 65 students in class.

Engineering Analysis for Mechanical Engineers (MEEN 357, section 501), *Spring 2020.* 27 students in class.

Introduction to Statistics (STAT 374, sections 2 and 3), *Fall 2022.* 17 and 16 students in sections 2 and 3, respectively.

Introduction to Statistics (STAT 374, sections 3 and 4), *Spring 2023.* 15 and 14 students in sections 3 and 4, respectively.

Engineering Graphics (ENGR 1304, sections 1 and 6), *Fall 2023.* 33 students in each section, totaling 66 students.

Statics (ENGR 2301, section 3), *Fall 2023.* 34 students in class.

Engineering Graphics (ENGR 1304, sections 251, 255, and 256), *Spring 2024.* 30 students in each section, totaling 90 students.

STUDENT TEACHING AND RESEARCH ASSISTANT	*Graduate Teaching Assistant at Rensselaer Polytechnic Institute* • Strength of Materials, ENGR-2530. • Machining Lab, School of Engineering.	**Fall 2009**
	Graduate Teaching Assistant at Rensselaer Polytechnic Institute • Dynamics, ENGR-2090.	**Spring 2007**
	Undergraduate Teaching Assistant at RWTH-Aachen, Germany	**Spring 2006**

- Numerical Mathematics, Institute for Geometry and Practical Mathematics.

Student Research Assistant at RWTH-Aachen **Fall 2003 - Spring 2005**
- Generating three dimensional grids for Navier Stokes and Euler computations.
- Completing computations with software Flower (developed by DLR in Germany).
- Post processing with TECPLOT.

Undergraduate Teaching Assistant at RWTH-Aachen, Germany **Fall 2002 - Spring 2003**
- Dynamics and Strength of Materials, Institute for General Mechanics.

MEMBERSHIPS
- American Heart Association: Council on Arteriosclerosis, Thrombosis and Vascular Biology - Council Member.
- Sigma Xi, The Scientific Research Society - Full Membership.
- American Society of Mechanical Engineers (ASME).
- Materials Research Society (MRS).

SERVICES
Services for external conferences:
- Session Chair at the *American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition (IMECE)* in Mini-Symposium "Symposium on Modeling of the Fracture, Failure and Fatigue in Solids," Pittsburgh, PA, November 2018.
- Organizing a Mini-Symposium at the *13th World Congress in Computational Mechanics (WCCM)* on "Computational Modeling of Structure-Function Relationships in Biological Systems" New York, NY, July 2018.
- Session Chair at the *American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition (IMECE)* in Mini-Symposium on "Advanced Manufacturing: Process Modeling", Tampa, FL, November 2017.
- Session Chair at the *American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition (IMECE)* in Mini-Symposium on "3rd Forum on Multiphase Flow with Bio-applications 2", Tampa, FL, November 2017.
- Session Chair at the *American Society of Mechanical Engineers (ASME) International Mechanical Engineering Congress and Exposition (IMECE)* in Mini-Symposium on "Mechanical Characterization of Soft Materials", Tampa, FL, November 2017.
- Session Chair at the *13th US National Congress on Computational Mechanics*, San Diego, CA, July 2015.
- Session Chair at the *American Society of Mechanical Engineers (ASME) McMAT*, Seattle, WA, June 2015.
- Organizing a Mini-Symposium at the *13th US National Congress on Computational Mechanics* on "Modeling of Vascular Tissues," San Diego, CA, July 2015.
- Organizing a Mini-Symposium at the *American Society of Mechanical Engineers (ASME) McMAT* on "Modeling of Vascular Tissues," Seattle, WA, June 2015.
- Session Chair at the Society of Engineering Science (SES) Annual Technical Meet-

ing, West Lafayette, IN, October 2014.

Reviewed articles in the following journals:
- Public Library of Sciences (PLOS) ONE
- Institute of Electrical and Electronics Engineers (IEEE) Transactions on Medical Imaging
- Additive Manufacturing
- Journal of Medical and Biological Engineering
- American Society of Mechanical Engineers (ASME) Journal of Biomechanical Engineering
- Inverse Problems in Science and Engineering
- Computational Biomechanics for Medicine
- Biomechanics and Modeling in Mechanobiology
- Microsystem Technologies
- Institute of Electrical and Electronics Engineers (IEEE) Transactions on Computational Imaging
- VII European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS Congress 2016)
- Current Medical Imaging Reviews
- Mathematical Biosciences and Engineering

PhD Committee Member for following students at TAMU:
- Biren Parmar, ECE Department (PhD Thesis Defense 06/2015).
- Huanlin Zhu, MEEN Department (PhD Thesis Defense 09/2015).
- Zhujiang Wang, MEEN Department (PhD Thesis Defense 02/2016).
- Junwei Xing, MEEN Department (PhD Thesis Defense 09/2016).
- Vahid Tajeddini, MEEN Department (PhD Thesis Defense 02/2016).
- Sanjay Nair, ECE Department (PhD Thesis Defense 03/2016).
- Anuj Chaudhry, ECE Department (PhD Thesis Defense, substitute 03/2016).
- Wooram Kim, MEEN Department (PhD Thesis Defense 04/2016).
- Hung-Chieh Chu, MEEN Department (PhD Thesis Defense 03/2017).
- Parisa Khodabakhshi, CVEN Department (PhD Thesis Defense, substitute 10/2017).
- Farzam Mortazavi, MEEN Department (PhD Thesis Defense, 09/2018).
- Lingnan Hu, MEEN Department (PhD Thesis Defense 10/2018).
- Peer Mohamed Shajudeen, ECE Department (PhD Thesis Defense 06/2018).
- Veysel Erel, MEEN Department (PhD Preliminary Exam 07/2017).
- Yiming Fan, MEEN Department (PhD Thesis Defense 06/2018).

MS Committee Member for following students at TAMU:
- Jason Kyle Murphy, MEEN Department (MS Thesis Defense 09/2014).
- Ruyue Song, MEEN Department (MS Thesis Defense 10/2015).
- Harika Prodduturu, CVEN Department (MS Thesis Defense 03/2016).
- Scott Lenfest, MEEN Department (to be determined).
- Nathaniel Schulz, CVEN Department (MS Thesis Defense 04/2016).
- Arnab Nanda, MEEN Department (MS Thesis Defense 03/2017).

- John Reis, MEEN Department (MS Thesis Defense 10/2017).
- Roshan Sharma, CVEN Department (MS Thesis Defense 10/2018).
- Brady Reed, MEEN Department (MS Thesis Defense 10/2018).
- Sofokli Cakalli, CVEN Department (MS Thesis Defense 03/2019).

SYNERGISTIC ACTIVITIES

- Organizing a 3D printing project of biological parts for the ENGAGE Summer Camp at Texas A&M University to motivate female and underrepresented high school students for an engineering degree program, 2015.
  `http://engineering.tamu.edu/easa/camps/engage-summer-camp`
- Motivating female high school students for an engineering degree program by demonstrating state of the art diagnostic imaging research using mechanics during the WE IDEAS Summer Camp at Texas A&M University, 2015.
  `http://engineering.tamu.edu/easa/camps/we-ideas-summer-camp`
- Mentoring high school students at EurekaFestival and Museum of Science's Wind Turbine Contest and setting new record time, 2011.
  `http://www.mos.org/nctl/news_article.php?r=5169`
- Development of inverse algorithms to diagnose breast cancer using ultrasound techniques with 90% accuracy tested on patients, 2011.
  `https://www.youtube.com/watch?v=TYZN3gyGceI`
- Reviewing journal articles in various biomechanical and mechanical engineering journals regularly, ongoing.