TERRENCE L. CHAMBERS, PH.D., P.E.

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1. **Academic Rank**
   Professor of Mechanical Engineering
   Tenured Fall 2003, Associate Professor in Fall 2005, Full Professor Fall 2017
   Donald and Janice Mosing BORSF Endowed Chair in Mechanical Engineering

2. **Education**
   B.S.   Mechanical Engineering
         Brigham Young University, August 1986
   Ph.D. Mechanical Engineering
         Brigham Young University, August 1994

3. **General Areas of Interest**

   Areas of interest include: solar energy, renewable energy, engineering design and optimization, virtual reality, artificial intelligence, genetic algorithms and genetic programming, engineering software development (C/C++, Visual Basic, Java, Fortran, HTML, JavaScript, VBScript), CAE, numeric and symbolic solutions to engineering problems.

4. **Engineering Experience**

   Director, Energy Efficiency and Sustainable Energy Center, Lafayette, LA (2016 – Present)

   Leading a group of faculty and students in the study of all forms of energy efficiency and sustainable energy technologies. Promoting joint research projects across disciplines and departments. Responsible for attracting over $10 M in externally-funded projects through center-related proposals. Promoting new technology development, workforce development, education, and outreach.

   Interim Department Head, Mechanical Engineering,
   University of Louisiana at Lafayette (Jan 2018 – Aug 2018)

   Served as Interim Department Head, which involved taking the lead in all areas of the MCHE Department, including: ABET, curriculum development, class scheduling, transfer students, and faculty development

   Professor of Mechanical Engineering, Fall 2017 – present

Donald and Janice Mosing BORSF Endowed Chair in Mechanical Engineering (Fall 2017 – present)

Promoting and facilitating multi-disciplinary research into sustainable power production and energy efficiency methods across campus. Promoting economic development by partnering with industry to either save energy or to develop or use alternative energy techniques. Performing education and outreach to inspire the next generation of alternative energy engineers and technologists.

Director, Louisiana Solar Technology Applied Research and Testing (START) Laboratory
University of Louisiana at Lafayette (October 2010 – present)

Investigating all aspects of solar energy technology, including concentrating solar thermal, concentrating photovoltaic, thermal energy storage, solar energy systems design, and operational testing. Design, installation and operation of the first solar thermal power plant in Louisiana, and the first university-owned solar thermal power plant in the nation.

Director of Undergraduate Research
University of Louisiana at Lafayette (July 2015 – present)

Coordinating the undergraduate research efforts of the university, including chairing the Undergraduate Research Council, managing the university's undergraduate research mini-grant program, and helping to organize the yearly Undergraduate Research Conference.

Associate Dean, College of Engineering
University of Louisiana at Lafayette (December 2008 – December 2014)

Overseeing for the College of Engineering most issues surrounding undergraduate affairs, administration and finance, accreditation, and faculty development. Also involved in graduate program development.

Interim Department Head, Mechanical Engineering,
University of Louisiana at Lafayette (Spring 2008 – Fall 2008)

Served as Interim Department Head, which involved taking the lead in all areas of the MCHE Department, including: ABET, curriculum development, class scheduling, transfer students, and faculty development.

Assistant/Associate Professor, Mechanical Engineering,
University of Louisiana at Lafayette, (Fall 1997 – Summer 2005, Promoted Fall
2005 – 8-2017)

Teaching and advising both undergraduate and graduate students. Courses
include Intro to Mechanical Engineering, Engineering Graphics, Finite Element
Analysis, Engineering Analysis, Design Optimization, Engineering Applications
of Artificial Intelligence, and Senior Projects. Currently performing research in
virtual reality, alternative energy, and design optimization.

Assistant Professor, Mechanical Engineering, Lamar University (1995 - 1997)

Taught a wide variety of undergraduate and graduate level classes (see list
below), advised Masters and Doctoral students, served as faculty advisor for Pi
Tau Sigma, served as the Novell system administrator for the department
computer lab and as a computer resource for entire department, performed
research on artificially intelligent design optimization algorithms, uni-pedal
robots, and ultra-lightweight reflux boiler tubes.

Adjunct Assistant Professor, Brigham Young University (1994 - 1995)

Taught a graduate level engineering optimization course, a graduate level
engineering software development class, and an introductory computer-aided
engineering class.

President, Design Synthesis, Inc. (1993 - 1995)

Experience at Design Synthesis covered all areas of engineering management,
including sales, marketing, personnel and engineering. The company is primarily
concerned with the development and marketing of an engineering optimization
software package. While at Design Synthesis, Dr. Chambers supervised a team of
software developers and engineers, and provided technical support to the software
development team and to end users.

Research Associate, Brigham Young University (1989 - 1994)

Performed research on symbolic and numeric optimization techniques.
Developed and implemented methods for the use of multiple knowledge
representations in the rapid prototyping and validation of engineering expert
systems. Developed a Large-Scale Sequential Quadratic Programming (SQP)
algorithm for the numeric optimization of very large models.

Mechanical Engineer, Naval Undersea Warfare Engineering Station (1986 - 1989)

NUWES responsibilities included conducting performance and reliability studies
on Navy torpedoes, and employing the principles of software engineering to the

design and Navy-wide deployment of a technical and logistical support database. In the course of these activities it was necessary to write user requirements documents, functional specifications, and interactive computer programs in a 4th generation computer language.

5. **Engineering Registration**

Registered P.E. in Louisiana (PE.0029746, issued 9/18/2001) and Texas (83889 – inactive status)

6. **Funded Research Grants**

1. Chambers, T. L., Zappi, M., 2020 – 2020, "Operation and Maintenance of the Cleco Alternative Energy Center," Cleco Power, LLC, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: $203,201).

2. Chambers, T. L., 2019 – 2020, "Planning Grant: Engineering Research Center for Communication-Free Autonomous Renewable Electrical Systems (CARE)," *National Science Foundation*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: $100,000. Consortium of Illinois Institute of Technology, Texas Tech University and UL Lafayette. UL Lafayette share with Chambers as PI: $24,000).

3. Raush, J., Chambers, T. L., Ritter, K. R., 2018 – 2018, "START Lab Field Test of Sun Trap Receiver," *Norwich Technologies/U.S. Department of Energy/DOE SunShot Solar Manufacturing Technology (SolarMat) 2*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $50,228).

4. Yin, P., Chambers, T. L., 2018 – 2019, "Energy audit on agricultural producers and rural small businesses in Louisiana for energy demand reduction and efficiency improvement," USDA EA-REDA, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: $99,887).

5. Stone, Heather, Ritter, Kenneth R. III, Chambers, Terrence L., 2018, "Virtual Reality Ecoliteracy Curriculum," Mozilla Foundation, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: $10,000).

6. Stone, H., Chambers, T. L. Ritter, K., 2017 – 2018, "Empowering through Knowledge: Exploring Social, Economic, and Environmental Sustainability in Louisiana through Oral History and Virtual Reality," *Board of Regents Support Fund*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: $120,000).

7. Chambers, T. L., 2016 – 2018, "Applied Research and Testing of Commercial-Scale Photovoltaic Power Production in Louisiana," *Louisiana*

Generating/NRG Renew, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $4,015,000).

8. Borst, C. W., Chambers, T. L., 2015 – 2017, "Equipment for Virtual and Augmented Reality Research for Education and Training Systems," *Board of Regents Support Fund*, Grant No: LEQSF(2015-16)-ENH-TR-30, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: $95,688).

9. Chambers, Tl L., Gottumukkala, R., Darby, P., McInerny, S. A., 2014 – 2017, "Smart and Secure Energy Assessment," *Louisiana Department of Natural Resources,* DNR Contract No. 2031-14-03, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $230,000).

10. Borst, C. W., Chambers, T. L., Gottumukkala, R., 2014 – 2017, "Collaborative Exploration in Networked VR Environments, and Application to Remotely-Guided Classroom," *NSF-EAGER, US Ignite Subprogram,* Grant No: 1451833, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $297,767).

11. Chambers, T. L., 2014 – 2014, "Powering a Better Tomorrow by Introducing Young Women to Careers in STEM," *Girl Scouts of Louisiana - Pines to the Gulf*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $5,699).

12. Liu, Y., Chambers, T. L., 2013 – 2014, "Build a Scale Model of the Hydroelectricity Barge and Evaluate its Electrical Generation Ability through Experimental Validation and Computer Simulation," *NSF EPSCOR OPT-IN Program*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $20,000).

13. Liu, Y., Chambers, T. L., 2012, "Student Participation in 4th IEEE Region Annual Green Technologies Conference," *ARPA-E/DOE CONNECT* Program, University of Louisiana at Lafayette, (Funded amount: $6,890).

14. Chambers, T. L., Raush, J., 2011 – 2019, "UL Lafayette/CLECO Solar Thermal Power Plant and Supplements," *CLECO Power LLC*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $2,286,228).

15. Chambers, T. L., Simon, W. E., Liu, Y., Massiha, G. H., 2011 – 2012, "Pilot Solar Thermal Power Plant Installation," *US Department of Energy, through the Louisiana Department of Natural Resources, Empower Louisiana – Renewable Energy Program*, RE-06, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $1,000,000).

16. Chambers, T. L., 2011, "Minority Research Scholarship," *NASA, through the LaSpace MRS Program*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $5,000).

17. Chambers, T. L., Kozman, T., Lee, J., 2010 - 2016, "LUS Smart Grid Project," *DOE Smart Grid Investment Program*, Lafayette Utilities System and University of Louisiana at Lafayette, Lafayette, LA, (Total funded amount: $11.63 million. UL Lafayette share with Chambers PI: $50,000).

18. Chambers, T. L., Emblom, W. J., 2010 – 2014, "Alliance to Promote Sustainability of the Environment through Energy Efficiency Across NAFTA," *US Department of Education, FIPSE Subprogram, Program for North American Mobility in Higher Education*, Grant No: P116N100006, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $190,000).

19. Chambers, T. L., 2009 - 2010, "Expanding Space Related Activity at UL Lafayette and the Surrounding Area," *NASA, through the LaSpace CSG Program*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $9,981).

20. Chambers, T. L., 2009 - 2010, "Minority Research Scholarship," *NASA, through the LaSpace MRS Program*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $5,000).

21. Chambers, T. L., 2009 - 2010, "Hosting the LaSpace Annual Meeting," *NASA, through the LaSpace URP Program*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $1,500).

22. Dwivedi, S. Chambers, T. L., 2009 - 2011, "Development of Multidisciplinary Lean Manufacturing Course Through Virtual Reality and Inquiry-Based Learning," *Board of Regents Support Fund*, (Funded amount: $139,957).

23. Reiners, D., Borst, C. W., Chambers, T. L., Cruz-Neira, C., 2007 – 2009, "Accelerated Welder Training Using Virtual Reality," *Louisiana Workforce Commission, and Lafayette Economic Development Authority and Lafayette Economic Development Authority*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $471,322).

24. Simon, W. W., Guillory, J. G., Chambers, T. L., 2000 – 2003, "Fuel Cell Power Generation with Waste Heat Recovery for Residential and Commercial Applications," *Louisiana Department of Natural Resources, PVE 29-01-07*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $230,000).

25. Dwivedi, S. Chambers, T. L., 2000 – 2003, "Development of Intelligent Knowledge-Based Engineering Modules for Injection-Molded Plastic Parts," *LEQSF (2000-03)-RD-B-09*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $153,000).

26. Chambers, T. L., 2000 – 2002, "Intelligent Symbolic Regression for Engineering Optimization Models," *NASA (2000-01)-DGAP-12*, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount $19,216).

27. Chambers, T. L., 1996, "Development of an Artificially Intelligent Optimization Algorithm," *Lamar University-Beaumont Research Enhancement Grant,* Lamar University, Beaumont, TX, April 8, 1996. (Funded Amount $5,000).

28. Simon, W. E., Chambers, T. L., 1996, "Analysis and Optimization of a Low-Gravity Two-Phase Heat Rejection Device for Planetary Thermal Energy Management," *NASA Grant NAG9-928,* Lamar University, Beaumont, TX, LA, (Funded Amount $16,763).

29. Simon, W. E., Chambers, T. L., 1996, "Analytical Investigation of a Reflux Boiler," *NASA Grant NAG9-839,* Lamar University, College of Engineering, Beaumont, TX, (Funded Amount $40,651).

7. Peer Reviewed Journal Articles

1. Peng Yin, Tanjebul Alam & Terrence Chambers (2021) Performance prediction of hydronic cooling coil with non-uniform air velocity (RP-1741), Science and Technology for the Built Environment, DOI: 10.1080/23744731.2021.1886533

2. Stone, H., Li, M., Ritter III, K. A., & Chambers, T. L. (2020). Virtual Reality: Authentic and Immersive Learning in the Science Classroom. International Journal for Innovation Education and Research, 8(8), 101-111. Available at: https://ijier.net/ijier/article/view/2498

3. Hosseini, M., Katragadda, S., Wojtkiewicz, J., Gottumukkala, R., Maida, A., Chambers, T.L., 2020, "Direct Normal Irradiance Forecasting Using Multivariate Gated Recurrent Units," *Energies* **2020**, 13, no. 15: 3194. Available at: https://www.mdpi.com/1996-1073/13/15/3914

4. Zappi, M.E.; Zappi, A.; Revellame, E.; Sharp, W.; Fortela, D.L.; Hernandez, R.; Chambers, T.; Ritter, K.; Gang, D., 2020, "An Assessment of the Potential to Produce Commercially Valuable Lipids on Highway Right-of-Way Land Areas Located Within the Southeastern United States," *Sustainability* 2020, 12, 5225. Available at: https://www.mdpi.com/2071-1050/12/13/5225#

5. Wojtkiewicz, Jessica, Hosseini, Matin, Gottumukkala, Raju, Chambers, Terrence L., 2019, "Hour-Ahead Solar Irradiance Forecasting Using Multivariate Gated Recurrent Units," *Energies*, 2019, Vol. 12., No. 21, 4055. Available at: https://www.mdpi.com/1996-1073/12/21/4055

6. Ben Hmida, J., Chambers, T., Lee, J., 2019, "Solving Constrained Optimal Power Flow With Renewables Using Hybrid Modified Imperialist Competitive Algorithm and Sequential Quadratic Programming," *Electric Power Systems Research*, 177 (2019) 105989. Available at: https://www.sciencedirect.com/science/article/pii/S0378779619303086?dgcid=coauthor

7. Kenneth A. Ritter III, Heather Stone, Terrence L. Chambers, 2019, "Empowering Through Knowledge: Exploring Place-based Environmental Education in Louisiana Classrooms Through Virtual Reality," *Computers in Education Journal*, Vol. 10, Issue 1, March 2019. Available at: http://asee-coed.org/index.php/coed/article/view/RitterIII_Empowering/pdf_31

8. Hmida, J. B., Morshed, M. J., Lee, J., Chambers, T.L., 2018, "Hybrid Imperialist Competitive and Grey Wolf Algorithm to Solve Multiobjective Optimal Power Flow with Wind and Solar Units," *Energies*, 2018, 11, pp. 2891. Available at: https://www.mdpi.com/1996-1073/11/11/2891

9. Ezeanya, E. K., Massiha, G. H., Simon, W. E., Raush, J. R., & Chambers, T. L., 2018, "System advisor model (SAM) simulation modelling of a concentrating solar thermal power plant with comparison to actual performance data," *Cogent Engineering*, 5(1), 1524051. Available at: https://www.cogentoa.com/article/10.1080/23311916.2018.1524051

10. Raush, J. R., Ritter, K, Prilliman, Matthew, Hebert, Myles, Pan, Z., Chambers, T.L., 2018, "Numerical Model and Performance Validation of a Small-Scale Concentrating Solar Thermal Power Plant in Louisiana," *Journal of Power and Energy Engineering*, 2018, 6, 112-140. Available at: http://file.scirp.org/Html/8-1770440_87674.htm

11. Ritter, Kenneth A., Borst, Christoph W., Chambers, T.L., 2018, "Virtual Solar Energy Center Case Studies," *ASEE Computers in Education (COED) Journal*, Vol 9, Issue 4, December 2018 pp. 1 – 7. Available at: http://asee-coed.org/index.php/coed/article/view/Ritter_Virtual

12. Ritter, K.R. III., Morgan, A., Taylor, C. Chambers, T., 2018, "Multilevel Performance Evaluation of Nvidia Grid VCA Using Iray and V-Ray Rendering Engines in 3DS Max Design," *Internet of Things and Cloud Computing*, Vol 6, No. 2, pp. 36 – 48. Available at:

http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=238&doi=10.11648/j.iotcc.20180602.11

13. Ritter, K.A. III, Prilliman, M. J., Chambers, T. L., Raush, J.R., 2017, "Maintenance of a Small-Scale Parabolic Trough Concentrating Solar Power Plant in Louisiana," *International Journal of Sustainable and Green Energy*, Vol. 6, No. 6, 2017, pp. 104-111. Available at: http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=169&doi=10.11648/j.ijrse.20170606.12

14. Tayagi, S., Chambers, T.L., and Yang, K., 2017, "Enhanced Fuzzy-Analytic Hierarchy Process," *Soft Computing, A Fusion of Foundations, Methodologies and Applications (2017)*, DOI 10.1007/s00500-017-2639-y.

15. Raush, J. R., Chambers, T.L., Russo, B., Crump, K., 2016, "Assessment of Local Solar Resource Measurement and Predictions in South Louisiana," *Energy, Sustainability and Society* (2016) 6:18, DOI 10.1186/s13705-016-0083-y, Available at: http://rdcu.be/um5E

16. Ritter, K.A. III, Borst, C. W., Chambers, T. L., 2015, "Overview and Assessment of Unity Toolkits for Virtual Reality Applications," *International Journal for Innovation in Education and Research*, Vol. 3, No. 7, pp. 88 – 105. Available at: http://ijier.net/index.php/ijier/article/view/154

17. Akinyemi, O., Chambers, T. L., Liu, Y., 2015, "Evaluation of the Power Generation Capacity of Hydrokinetic Generator Device using Computational Analysis and Hydrodynamic Similitude," *Journal of Power and Energy Engineering*, Vol. 3, No. 8, pp. 71 – 82. Available at: www.scirp.org/journal/PaperDownload.aspx?DOI=10.4236/jpee.2015.38007

18. Tyagi, S., Cai, X., Yang, K., Chambers, T. L., 2015, "Lean Tools and Methods to Support Dynamic Knowledge Creation," *International Journal of Information Management*, Vol. 35, 2015, pp. 204 - 214. Available at: http://www.sciencedirect.com/science/article/pii/S0268401214001273

19. Raush, J., Chambers, T., 2014, "Initial Field Testing of a Concentrating Solar Photovoltaic (CSPV) Thermal Hybrid Solar Energy Generator Utilizing Large Aperture Parabolic Trough and Spectrum Selective Mirrors," *International Journal of Sustainable and Green Energy*, Vol. 3, No. 6, pp. 123 – 131, 2014. Available at: http://www.sciencepublishinggroup.com/journal/paperinfo.aspx?journalid=169&doi=10.11648/j.ijrse.20140306.12

20. Chambers, T. L., Raush, J. R., Russo, B., 2014, "Installation and Operation of Parabolic Trough Organic Cycle Solar Thermal Power Plant in South

Louisiana," *Energy Procedia*, Vol. 49, 2014, pp. 1107 – 1116. Available at: http://www.sciencedirect.com/science/article/pii/S1876610214005748.

21. Ritter, K.A. III, Chambers, T., 2014, "Educational Gaming and Use for Explaining Alternative Energy Technologies," *International Journal for Innovation in Education and Research,* Vol. 2-03, 2014, pp. 30 – 42. Available at: *http://www.ijier.net/index.php/ijier/article/download/154/85*

22. Raush, J., Chambers, T., Russo, B. 2013, "Demonstration of Pilot Scale Large Aperture Parabolic Trough Organic Rankine Cycle Solar Thermal Power Plant in Louisiana," *Journal of Power and Energy Engineering*, Vol. 1, No. 7, pp. 29 – 39. Available at: http://dx,doi.org/10.4236/jpee.2013.17006.

23. Chambers, T. L., Raush, J. R., Massiha, G. H., 2013, "Pilot Solar Thermal Power Plant Station in Southwest Louisiana," *International Journal of Applied Power Engineering (IJAPE)*, Vol. 2, No. 1, April 2013, pp. 31 – 40. ISSN: 2252-8792. Available at: http://www.iaesjournal.com/online/index.php/IJAPE/article/view/1941/0

24. Chambers, T. L., Aglawe, A., Reiners, D., White, S., Borst, C., Prachyabrued, M., Bajpayee, A., 2012, "Real-Time Simulation for a Virtual Reality-based MIG Welding Training System," *Virtual Reality*, Special Issue in Manufacturing and Construction, Volume 16, No. 1 (2012), pp 45-55. Available at: http://link.springer.com/article/10.1007%2Fs10055-010-0170-x

25. Lui, Y., Artigue, A., Sommers, J., Chambers, T., 2011, "Theo Jansen Project in Engineering Design Course and a Design Example," *European Journal of Engineering Education*, Volume 36, Issue 2, May 2011, pp. 187 - 198.

26. White, S., Prachyabrued, M., Chambers, T. L., Reiners, D., Borst, C., 2011, "Low Cost Simulated MIG Welding for Advancement in Technical Training," *Virtual Reality*, Special Issue in Manufacturing and Construction, Volume 15, No. 1 (2011), pp 69 – 81. Available at: http://link.springer.com/article/10.1007/s10055-010-0162-x?no-access=true

27. Santosh Mungale, Sumait Saurav, M.K. Tiwari, Suren N. Dwivedi, and Terrence Chambers, 2011, "Ant Colony Based Adaptive Setup Planning Towards Integration of Process Planning and Scheduling", *International Journal of Advanced Manufacturing Systems*, Vol.13, No. 1, 2011, pp. 27-46.

28. Reinhardt, J. R., Chambers, T. L., 2008, "Solving Phase Equilibrium Problems," *Chemical Engineering Progress*, September 2008, Vol. 104, No. 9, pp 40 - 44.

29. Chambers, T. L., 2008, "Teaching Engineering Analysis Using VBA for Excel," *Computers in Education Journal*, Vol. 18, No. 1, April – June, 2008, pp. 71 – 81.

30. Chambers, T. L., 2002, "A Peircian Approach to Professional Ethics Instruction," *IEEE Transactions on Professional Communication*, Vol. 45, No. 1, March, 2002.

31. Chambers, T. L., Simon, W. E., Young, F. M., 2001, "Optimization of a Low-Gravity Two-Phase System for Lunar Heat Rejection," *Journal of Spacecraft and Rockets*, Vol. 38, No. 6, Nov. – Dec. 2001, pp. 937 - 940.

32. Chambers, T. L., Parkinson, A. R., 1998, "Knowledge Representation and Conversion for Hybrid Expert Systems," *Transactions of the ASME, Journal of Mechanical Design,* Vol. 120, No. 3, September 1998, pp. 468 – 474.

8.   Peer Reviewed Conference Publications

1. Brambles, O., Ritter, K., Johnson, L. McBride, T., Snyder, S., Stettenheim, J., Chambers, T., Raush, J., "Field Testing of Manufacturable Advanced Low-Cost Receiver for Parabolic Trough Solar Power," *2019 IEEE Green Technologies Conference (GreenTech)*, April, 2019, Lafayette, LA. DOI: 10.1109/GreenTech.2019.8767118. Available at: https://ieeexplore.ieee.org/document/8767118

2. Ekong, S., Borst, C. W., Woodworth, J., Chambers, T.L., 2016, "Teacher-Student VR Telepresence with Networked Depth Camera Mesh and Heterogeneous Displays," *Advances in Visual Computing, Vol. 10073 of the series Lecture Notes in Computer Science, pp. 246 – 258. Proceedings of the 12th International Symposium, ISVC 2016, Las Vegas, NV, USA, December 12-14, 2016, Proceedings, Part II*, Springer International Publishing, Available at: http://link.springer.com/chapter/10.1007/978-3-319-50832-0_24

3. Ritter, K.A., Chambers, T.L., Borst, C.W., 2016, "Work in Progress: Networked Virtual Reality Environment for Teaching Concentrating Solar Power Technology," *Proceedings of the ASEE Gulf-southwest Annual Conference*, Texas Christian University, Fort Worth, TX, March 6 - 8, 2016.

4. Ritter, K.A., Chambers, T.L., Borst, C.W., 2016, "Work in Progress: Networked Virtual Reality Environment for Teaching Concentrating Solar Power Technology," *Proceedings of the ASEE Annual Conference*, New Orleans, LA, June 26 - 29, 2016.

5. Borst, C.W., Ritter, K.A., Chambers, T.L., 2016, "Virtual energy center for teaching alternative energy technologies," *Proceedings of the 2016 IEEE Virtual Reality (VR) Conference*, 157-158.

6. Chambers, T. L., Corder, P., Friedman, J., Roy, G., 2014, "Creation of an International Engineering Student Exchange Program," *Proceedings of the ASEE Gulf-southwest Annual Conference*, Tulane University, New Orleans, LA, April 2 – 4, 2014.

7. Chambers, T. L., Raush, J. R., Russo, B., 2013, "Installation and Operation of Parabolic Trough Organic Cycle Solar Thermal Power Plant in South Louisiana," *Proceedings of the 2013 SolarPACES International Conference*, Las Vegas, NV, Sept. 17 - 20.

8. Chambers, T. L., 2012, "Reduced Credit Hours and Engineering Licensure: A Proposal to Break the Impasse," *Proceedings of the ASEE Annual Conference*, Paper No. AC 2012-3121, San Antonio, TX, June 10 – 13, 2012.

9. Artigue, A., Chambers, T. L., and Liu, Yucheng, 2010, "Achieve Objectives of Engineering Design Course Through Theo Jansen Project and A Design Sample," *Proceedings of ASEE Southeastern Annual Conference*, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA, April 18 – 20, 2010.

10. Chambers, T., Simon, W. E., 2010, "A Proposed Set of Rubrics for Program Educational Objectives," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, McNeese State University, Lake Charles, LA, March 24 - 26, 2010.

11. White, S., Reiners, D., Borst, C., Chambers, T., Prachyabrued, M., 2010, "Virtual Reality Welder Training," in SPIE Electronic Imaging, Proceedings of SPIE Volume 7525, The Engineering Reality of Virtual Reality, January 2010.

12. Chambers, T., Simon, W. E., 2007, "Closing the Loop: Demonstrating Positive Program Changes as Part of the Continuous Improvement Process," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, University of Texas, Pan-Am, TX, March 28 - 30, 2007.

13. Chambers, T., 2006, "Teaching Engineering Analysis Using VBA for Excel," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Southern University, Baton Rouge, LA, March 15 – 17, 2006. (Note: this paper won the "Best Paper Award" at the above-named conference.)

14. Thota, R., Chambers, T. L., 2006, "An Enhanced Natural Language Interface for Engineering Expert Systems," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Southern University, Baton Rouge, LA, March 15 – 17, 2006.

15. Simon, W.E., Chambers, T.L., Guillory, J.L., Ventrapragada, V., Angelle, J. R., Gulati, T., "Fuel Cell Integrated Energy System for Residential and Commercial Applications," *Proceedings of the 2005 ASME International Engineering Congress and Exposition*, Nov. 2005, Orlando FL., Paper No. IMECE2005-81784.

16. Bhatia, P., Chambers, T. L., 2004, "Use of the Genetic Algorithm to Solve Large Transshipment-Location Problems," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Texas Tech University, Lubbock, TX, March 10 - 12, 2004.

17. Bhatia, P., Chambers, T. L., 2004, "Computer-Aided Process Planning Revolutionize Manufacturing," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Texas Tech University, Lubbock, TX, March 10 - 12, 2004.

18. Simon, W. E., Chambers, T. L., 2004, "Building the Assessment and Measurement Foundation for Continuous Improvement in Engineering Programs," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Texas Tech University, Lubbock, TX, March 10 - 12, 2004.

19. Chambers, T. L., Simon, W. E., 2003, "An Extension Service Approach to Industry-Sponsored Senior Design Projects," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, University of Texas at Arlington, Arlington, TX, March 19 - 21, 2003.

20. Shahbazuddin, M., Chambers, T. L., 2003, "Supply Chain Management Simulation Model," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, University of Texas at Arlington, Arlington, TX, March 19 - 21, 2003.

21. Simon, W. E., Chambers, T. L., 2003, "Continuous Improvement of the Assessment and Measurement Process for Engineering Education," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, University of Texas at Arlington, Arlington, TX, March 19 - 21, 2003.

22. Dwivedi, S.N., Kumbakonam, A., Yammada, J., Tadikonda, V., Chambers, T.L., 2003, "Intelligent Knowledge Based Engineering Modules for Producing Plastic Injection Molded Parts," *CE: The Vision for the Future Generation in Research and Applications*, J. Cha et al., editors, Swets and Zeitlinger, Lisse, ISBN 90 5809 622 X.

23. Gaudet E., Chambers, T. L., Simon, W. E., 2002, "Continuous Parameters in Dreamy Genetic Algorithms," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Lafayette, LA, March 20 - 22, 2002.

24. Yammada, J., Chambers, T. L., Dwivedi, S. N., 2002, "Intelligent Mold Design Tool for Plastic Injection Molding," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Lafayette, LA, March 20 - 22, 2002.

25. Nallamottu, U. B., Chambers, T. L., Simon, W. E., 2002, "Comparison of Genetic Algorithms to Simulated Annealing in Solving Transportation-Location Problems with Euclidean Distances," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Lafayette, LA, March 20 - 22, 2002.

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9.   Other Publications

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3. Chambers, T. L., Simon, W. E., 1999, "Engineering Curriculum Reduction in an Era of Expanding Technology," *Proceedings of the ASEE Gulf-Southwest Annual Conference*, Dallas, Texas, March 7 - 9, 1999.

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6. Chambers, T. L., Smith, S. A. Jr., 1997, "Towards an Intelligent Tutor for the Fundamentals of Engineering Exam," *Proceedings of the Ninth Annual Conference of the Technology-Based Engineering Education Consortium*, Vanderbilt University School of Engineering, Nashville, TN, November 19 – 22, 1997.

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11. Chambers, T. L., Simon, W. E., 1996, "Using the Internet in the Engineering Design Classroom," *Proceedings of the ASEE Gulf-Southwest Section Meeting,* The University of Texas at San Antonio, March 27 - 29, 1996, pp. 476 - 481.

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10. Graduate Students

1. Rahaman, Atiqur, "Performance Modeling of Floating Solar Power Plants," PhD in Systems Engineering, Expected, May, 2022.

2. Veerendra Kumar, Deepak, "Albedo Effect on Bi-Facial Solar Modules," *University of Louisiana at Lafayette*, *University of Louisiana at Lafayette*, Co-Advisor, PhD in Systems Engineering, Expected, May, 2021.

3. Vidrine, Amy, "Integrated System Reliability Model for Aniline Production," *University of Louisiana at Lafayette*, Co-Advisor, PhD in Systems Engineering, Expected, May, 2021.

4. Mahmoud, Mounirat, "Day Ahead Forecasting of Net Energy Consumption for a MW-Scale Solar Facility at a University Campus," Master of Science in Mechanical Engineering, May, 2019.

5. Ben Hmida, Jalel, "A Hybrid Metaheuristics to Solve Multi-Objective Optimal Power Flow Problem with Renewable Energy Sources," *University of Louisiana at Lafayette*, Co-Advisor, PhD in Systems Engineering, May, 2019.

6. Mann, Michael, "Wind Power Potential in Louisiana – a Parametric Study of Wind Farm Simulations for Louisiana," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, Non-Thesis Option, December, 2017.

7. Gossen, William, "A Case Study Using Thermal Energy Storage and Smart Meter Data in a University setting to Reduce Utility Costs Using a Day-Ahead

Time-of-Use Pricing Model," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, Non-Thesis Option, December, 2017.

8. Mayur Srinath, Suthesan, "Augmented Reality for Explaining Alternative Energy Technologies," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, Expected August, 2018.

9. Ezeanya, Kelvin Emeka, "System Advisor Model (SAM) Simulation Modeling of a Concentrating Solar Thermal Power Plant, with Comparison to Actual Performance Data," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2017.

10. Domec, Brennen, "Borochromizing of AISI 8620 Alloy Steel: Process Optimization and Resulting Properties," *University of Louisiana at Lafayette*, PhD in Systems Engineering, May, 2017.

11. Hebert, Myles, "Simulation Modeling of a Concentrating Solar Thermal Power Plant, with Comparison to Actual Performance Data," Master of Science in Mechanical Engineering, Non-thesis Option, December, 2016.

12. Ritter, Kenneth III, "Virtual Solar Energy Center: A Case Study of the Use of Advanced Visualization Techniques for the Comprehension of Complex Engineering Products and Processes," PhD in Systems Engineering, Graduated, August, 2016. Dissertation available at: http://search.proquest.com/docview/1844988461?pq-origsite=gscholar

13. Akinsoyinu, Batunde., "Design of a Wave Energy Converter for the Gulf of Mexico," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, Non-thesis Option, December, 2015.

14. Akinyemi, Oladapo, "Similitude and Computational Fluid Dynamics (CFD) Simulation of the Model of a Hydropower System for Generating Clean Electricity from Water Flow," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, August, 2015.

15. Sampath, Sushajith, "Development of New Beam Element for Impact and Crash Analysis," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, Non-thesis Option, December, 2014.

16. Azad, Sudhendu, "Development of Phase Diagrams Showing Possible Phase Regions through Application of an Optimization Based Approach with a Focus on Solving the Vapor-Vapor-Liquid-Liquid Equilibrium Problem," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, May, 2013.

17. White, Steven, "Impact of Visualization Augmentation on Welder Training: a Case Study with the Simulated Welder Lab," *University of Louisiana at Lafayette*, Co-Advisor, Ph.D. in Computer Engineering, 2013.

18. Mehare, H., "Technology Assessment for Solar Thermal Cooling," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, Non-thesis Option, December, 2012.

19. Pan, Z., "Modeling and Performance Analysis of a Small-Scale Concentrated Solar Thermal Power Plant in Louisiana," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, May, 2012.

20. Nepal, A., "Solar Water Heater for Beausoliel Home," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2010.

21. Ilawe, N., "An Optimization-Based Approach for Solving Vapor-Vapor-Liquid-Liquid Phase Equilibrium Problems," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2009.

22. Aglawe, A., "Virtual MIG Welding Simulation," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2009.

23. Betha, A., "Immersive Visualization Techniques for Engineering Design Optimization," ," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2008.

24. Thota, R., "An Enhanced Natural Language Interface for Engineering Expert Systems," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2006.

25. Bhatia, P., "The Use of the Genetic Algorithm to Solve Large Transshipment-Location Problems, *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2004.

26. Shahbazuddin, M., "An Improved Genetic Algorithm Using Intelligent Symbolic Regression," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, May, 2004.

27. Vojjala, N., "The Use of Simulated Annealing to Solve Large Transshipment – Location Problems," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, May, 2004.

28. Comeaux, R., "Modified Branch and Bound Optimization Procedure for Sequencing Multiple Capital Constrained Projects with Loan Down Payment Considerations," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2003.

29. Tong, K. M., "Function-Based Knowledge Acquisition for Engineering Expert Systems," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, December, 2003.

30. Denduluri, C., "A CAD System Interface for an Intelligent Manufacturing Process System for Plastic Injection Molding," Master of Science in Mechanical Engineering, May, 2003.

31. Manda, S. K. "A Comparative Study of Genetic Algorithms for Engineering Design," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, May, 2002.

32. Gaudett, E. J., III, "Continuous Parameters in Dreamy Genetic Algorithms," *University of Louisiana at Lafayette*, Master of Science in Mechanical Engineering, May, 2002.

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35. *Chowdhury, H., 2001, "The Use of Simulated Annealing to Solve Large Transportation-Location Problems With Euclidean Distances," *Lamar University*, Beaumont, TX, Co-Advisor, Doctor of Engineering, August, 2001.

36. *Wang, G. T., "Application of Genetic Programming and Artificial Neural Networks to Improve Engineering Optimization," *Lamar University*, Beaumont, TX, Co-Advisor, Doctor of Engineering, August, 1998.

*Note: I was the primary doctoral advisor for these students until I left Lamar University in 1997. I remained on the committees at Lamar and continued to serve as the de facto advisor even after I left, although another professor at Lamar (Dr. Victor Zaloom) was the official advisor.

11.   Economic Development

I have actively supported economic development in the state of Louisiana, by providing reduced cost engineering services to clients of the Manufacturing Partnership of Louisiana (MEPoL) and in my capacity as Director of the Energy Efficiency and Sustainable Energy Center. We have worked with about 10 companies so far to help develop new alternative energy technologies.

12. Scientific and Professional Societies

American Society of Mechanical Engineers (ASME)
       Past VP and Webmaster for the Acadiana Subsection of ASME
American Society of Engineering Education (ASEE)
       Past Chair ASEE Gulf-Southwest Section
       Past Webmaster for ASEE Gulf-Southwest Section
       Past Campus Representative for UL Lafayette
National Society of Professional Engineers (NSPE)
Louisiana Engineering Society (LES)
       Past Member of Engineer Selection Board for State of Louisiana

13. Courses Taught

Solar Energy System Design
Sustainable Energy Systems
Linear and Non-Linear Programming or Engineering Design Optimization
Engineering Applications of AI/Expert Systems
Computer-Aided Engineering Software Design
Engineering Analysis (Numerical Methods)
Fluid Mechanics
Finite Element Analysis
Control Systems
Computer-Aided Engineering
Engineering Design Projects
Kinematics
Thermodynamics
Dynamics
Statics and Dynamics
Engineering Graphics / Solids Modeling
Introduction to Engineering

13. Professional Recognition

Appointed by Gov. John Bel Edwards to the State of Louisiana Climate Initiatives Task Force.

ACEC of Louisiana Engineering Excellence Awards, 2020, Grand Award Category Winner for Category K: Energy, for the Photovoltaic Applied Research & Testing (PART) Lab project.

Eminent Scholar Leadership Service Award, University of Louisiana at Lafayette, 2018

"Engineering Faculty Professionalism Award," 2018, Louisiana Engineering Foundation.

Mosing Endowed Chair of Energy, University of Louisiana at Lafayette, College of Engineering, 2016

"Student Outreach Faculty Mentor of the Year," University of Louisiana at Lafayette, College of Engineering, 2016.

"Researcher of the Year Award," University of Louisiana at Lafayette, College of Engineering, 2015.

BORSF Professor of Advanced Computer-Integrated Manufacturing, University of Louisiana at Lafayette, College of Engineering, 2014

Fellow, Computation and Visualization Enterprise (CAVE), 2010 – 2012.

"Outstanding Undergraduate Research Mentor," University of Louisiana at Lafayette, College of Engineering, 2014.

"Engineering Faculty Professionalism Award," 2011, Louisiana Engineering Foundation.

"Favorite Teacher Award," University of Louisiana at Lafayette, Mechanical Engineering Department, 2007.

Board of Regents Professorship in Mechanical Engineering (2002 – 2007).

"Best Paper Award," 2006, for the paper entitled, "Teaching Engineering Analysis Using VBA for Excel," at the ASEE Gulf-Southwest Annual Conference, Southern University, Baton Rouge, LA, March 15 – 17, 2006.

"Outstanding Service Award," 2006, ASEE Gulf-Southwest Section, presented at the ASEE Gulf-Southwest Annual Conference, Southern University, Baton Rouge, LA, March 15 – 17, 2006.

"Engineering Faculty Professionalism Award," 2001, Louisiana Engineering Foundation.

Best Paper Award, "Honorable Mention" for the paper entitled, "Curriculum Reduction in an Era of Advancing Technology," at the ASEE Gulf-Southwest Annual Conference, March 7 - 9, 1999, Dallas TX.

14. References Available Upon Request