

Extended Academic Curriculum Vitae

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Contents

A.	EDUCATIONAL BACKGROUND	2
B.	PROFESSIONAL EMPLOYMENT HISTORY	2
C.	AWARDS AND HONORS	3
D.	SCHOLARLY WORK	4
E.	SCHOLARLY PRESENTATIONS	11
F.	GRANTING ACTIVITIES.....	16
G.	TEACHING ACTIVITIES	20
H.	LIST OF STUDENTS MENTORED	21
I.	SERVICE ON GRADUATE COMMITTEES	26
J.	SERVICE ACTIVITIES.....	29



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A. EDUCATIONAL BACKGROUND

- 2011 Ph.D. **Texas Tech University, Ph.D. in Industrial Engineering** (GPA 4.0). Dissertation Title: "A Strategic Model for Supply Chain Network Design Including Quality."
- 2012 Sc.D. **Monterrey Institute of Technology and Higher Education (Monterrey Tech), Sc.D. in Engineering Sciences** (GPA 4.0). Dissertation Title: "The Impact of the Cost of Quality on Supply Chain Network Design."
- 2008 M.S. **Monterrey Tech, M.S. in Quality and Productivity Systems** (GPA 4.0). Thesis Title: "Performance Improvement in the Glass Melting Process Through Statistical Analysis."
- 2006 B.S. **Monterrey Tech, B.S. in Industrial and Systems Engineering, Summa Cum Laude** (GPA 4.0).

B. PROFESSIONAL EMPLOYMENT HISTORY

- 09/2017- Present **Associate Professor**, Mechanical Engineering Department at the University of Texas at San Antonio (UTSA).
- Cyber Manufacturing Innovation Institute, VP in Energy Efficiency.
 - Co-director of the Manufacturing Systems and Automation Laboratory at UTSA.
 - Core Faculty of the Center of Advanced Manufacturing and Lean Systems (CAMLS).
 - Core Faculty of the Center for Simulation, Visualization, and Real-Time Prediction (SiViRT).
 - Core Faculty of the Open Cloud Institute (OCI)
- 05/2017- Present **Director**, The Texas Sustainable Energy Research Institute (TSERI).
- 09/2015- Present **GreenStar Endowed Professorship in Energy**, University of Texas at San Antonio (UTSA).
- 08/2012- 08/2017 **Assistant Professor** in the Mechanical Engineering Department at the University of Texas at San Antonio (UTSA).
- 01/2011- 05/2012 **Doctoral Research Assistant**. Full-time. Quality and Manufacturing Center, Monterrey Tech, Monterrey, Mexico.
- Conducted research on computational logistics and metaheuristics.
 - Participated in numerous research projects in computational logistics, including supervising undergraduate students, scoping and framing the research work,

collecting and analyzing data, and generating and disseminating research findings.

- 01/2009-12/2011 **Doctoral Research Assistant.** Full-time. Department of Industrial Engineering, Texas Tech University.
- Created new mathematical models to quantify quality costs in integrated supply chain networks and developed novel solution procedures.
 - Participated in research proposal writing, scoping and framing the research work, collecting and analyzing data, and generating and disseminating research findings.
- 01/2007-12/2008 **Graduate Research Assistant.** Full-time. Quality and Manufacturing Center, Monterrey Tech, Monterrey, Mexico.
- Investigated statistical quality control techniques to enhance a glass melting process.

C. AWARDS AND HONORS ([Hyperlinks in Blue](#))

- 05/2020 Recipient of the College of Engineering Faculty Research Award 2019-2020, San Antonio, Texas.
- 01/2020 Led the College of Engineering in research expenditures with \$559,603 (Jan-Dec 2019).
- 11/2019 Selected to participate in [the National Academy of Engineering's \(NAE\) 2019 E.U.-U.S. Frontiers of Engineering Symposium](#), November 18-20, Stockholm, Sweden. Sixty-one of the brightest young engineers in the European Union and the U.S. were invited.
- 01/2019 Led the College of Engineering in research expenditures with \$571,603 (Jan-Dec 2018).
- 10/2018 [2018 HENACC Award Winner in Education](#), October 19, 2018, Pasadena, California.
- 01/2018 Led the College of Engineering in research expenditures with \$699,195 (Jan-Dec 2017).
- 10/2017 [2017 INFORMS MIF Early Career Award](#), INFORMS Annual Conference, October 22, 2017, Houston, Texas.
- 09/2017 Recipient of NSF Assist Travel Support to attend SACNAS Conference, October 18 – 21, 2017, Salt Lake City, Utah.
- 03/2017 [2017 President's Distinguished Achievement Award for Research Achievement](#) (tenure-track faculty - STEM), The University of Texas at San Antonio, April 13, 2017.
- 03/2017 [2017 Outstanding Young Faculty](#), American Society of Engineering Education (ASEE) – Gulf South West Region, March 14, 2017, University of Texas at Dallas, TX.
- 02/2017 [A winner of the San Antonio Business Journal 2017 40 Under 40 Award](#), February 16, 2017, San Antonio, TX.
- 09/2016 Recipient of NSF Assist Travel Support to attend the Engineering Early-Career Faculty Development Symposium in the 28th HENAAC Conference, October 5 - 9, 2016, Anaheim, CA.
- 06/2015 [GreenStar Endowed Professorship in Energy](#), College of Engineering, The University of Texas at San Antonio, June 15, 2015.
- 06/2015 Selected participate in [the National Academy of Engineering's \(NAE\) 2015 U.S. Frontiers of Engineering Symposium \(USFOE\)](#). Eighty-nine of the nation's brightest young engineers were selected to take part in the NAE 21st annual USFOE symposium, September 9-11, Irvine, CA.
- 06/2015-08/2015 [Summer Faculty Fellowship, Air Force Research Laboratory](#), Summer 2015, WPAFB, Dayton, Ohio.

- 05/2015 Kika de la Garza Fellowship, U.S. Department of Agriculture, Summer 2015, Washington, D.C. (Declined).
- 05/2015 [Faculty Award for Excellence in Research 2014](#), College of Engineering, The University of Texas at San Antonio.
- 06/2014-07/2014 [Summer Faculty Fellowship, Air Force Research Laboratory](#), Summer 2014, WPAFB, Dayton, Ohio.
- 01/2014 NSF Stipend to attend the Faculty Development Needs for Advanced Manufacturing in the USA Workshop, Arlington, Virginia, Jan 9-10, 2014.
- 09/2013 Member of the National System of Researchers (Level 1). National Council of Science and Technology (CONACyT).
- 05/2013 NSF Stipend to attend the Summer Institute Course on Additive Manufacturing, Evanston, Illinois. May 29-31, 2013.
- 04/2013 Selected to participate in the 2013 NSF Career Proposal Writing Workshop, Tampa, Florida (only 150 participants were selected out of more than 270 applications).
- 01/2009-05/2012 Ph.D. Stipend and Excellence Scholarship, National Council of Science and Technology- CONACyT (NSF's Mexico)/Monterrey Tech, Monterrey, Mexico.
- 12/2009 Alpha Pi Mu. Industrial Engineering Honor Society. Chapter at Texas Tech University.
- 12/2008 Diploma of Excellence for being the best student of the generation in the academic program of Master in Sciences with specialization in Quality and Productivity Systems, Monterrey Tech, Monterrey, Mexico.
- 01/2007-12/2008 Master Stipend and Excellence Scholarship, National Council of Science and Technology- CONACyT (NSF's Mexico)/Monterrey Tech, Monterrey, Mexico.
- 12/2006 Diploma of Excellence for being the best student of the generation in the academic program of Bachelor in Industrial and Systems Engineering, Monterrey Tech, Mexico.

D. SCHOLARLY WORK

*In the following subsections * means student/advisee*

Published in Peer-Reviewed Journals [31 journal papers, 651 citations since 2013, i10-index: 18]

Google Scholar: <https://scholar.google.com/citations?user=S8ZEY6IAAAAJ&hl=en&oi=ao>

1. Jin, T.; Subramanian, V.; **Castillo-Villar, K. K.**; Sun, F. (2020) Optimal Sizing of a Renewable Microgrid for Flow Shop Production under Island Operations. *Procedia Manufacturing* (In Press) [Q2]
2. Nu, F., Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, & Marufuzzaman, M. (2020). A Two-stage Stochastic Programming Model for Biofuel Supply Chain Network Design with Biomass Quality Implications. *IISE Transactions*. DOI: 10.1080/24725854.2020.1751347 [Q1]
3. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, & Roni, M. S. (2020). A decomposition approach based on meta-heuristics and exact methods for solving a two-stage stochastic biofuel hub-and-spoke network problem. *Journal of Cleaner Production*, 247, 119176, DOI: 10.1016/j.jclepro.2019.119176 [Q1]
4. Chen, Y. *, **Castillo-Villar, K. K.**, & Dong, B. (2019). Stochastic control of a micro-grid using battery energy storage in solar-powered buildings. *Annals of Operations Research*, DOI: 10.1007/s10479-019-03444-3 [Q1]
5. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, & Eksioglu, S. D. (2019). Modeling and optimization of biomass quality variability for decision support systems in biomass supply chains. *Annals of Operations Research*. DOI: 10.1007/s10479-019-03477-8 [Q1]
6. Stankus, S. E.*, & **Castillo-Villar, K. K.** (2018). An Improved multivariate generalised likelihood ratio control chart for the monitoring of point clouds from 3D laser

- scanners. *International Journal of Production Research*, 1-12. DOI: 10.1080/00207543.2018.1518600 [Q1]
7. Aranguren, M.*, **Castillo-Villar, K.**, Aboytes-Ojeda, M.*, & Giacomoni, M. (2018). Simulation-Optimization Approach for the Logistics Network Design of Biomass Co-Firing with Coal at Power Plants. *Sustainability*, 10(11), 4299 [Q2]
 8. Chavez, H.*, **Castillo-Villar, K.K.** (2018). Simulation-based model for the optimization of machining parameters in a metal-cutting operation, *Simulation Modelling Practice and Theory*, 84,204-221. DOI: 0.1016/j.simpat.2018.02.008 [Q1]
 9. Quader, S.*, **Castillo-Villar, K.K.** (2018). Design of an Enhanced Multi-aisle Order-picking System Considering Storage Assignments and Routing Heuristics, *Robotics and Computer-Integrated Manufacturing*, 50, 13-29. DOI: 10.1016/j.rcim.2015.12.009 [Q1]
 10. Chavez, H.*, **Castillo-Villar, K.K.**, Webb, E. (2017). Development of the IBSAL-SimMOpt Method for the Optimization of Quality in a Corn Stover Supply Chain. *Energies*. 10 (1137). DOI: 10.3390/en1008113 [Q1]
 11. **Castillo-Villar, K.K.**, Eksioglu, S., Taherkhorsandi, M*. (2017). Integrating biomass quality variability in stochastic supply chain modeling and optimization for large-scale biofuel production. *Journal of Cleaner Production*. 149, 904-918. DOI: 10.1016/j.jclepro.2017.02.123 [Q1]
 12. Chavez, H.*, **Castillo-Villar, K.K.**, Herrera, L., and Bustos, A. (2017). Simulation-based Multi-Objective Model for Supply Chains with Disruptions in Transportation. *Robotics and Computer-Integrated Manufacturing*, 43, 39-49. DOI: 10.1016/j.rcim.2015.12.008 [Q1]
 13. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, Yu, T.E., Boyer, C., English, B., Larson, J., Kline, L., Labbé N. (2016). A Principal Component Analysis in Switchgrass Chemical Composition. *Energies*. 9(11), 913. DOI:10.3390/en9110913 [Q1]
 14. **Castillo-Villar, K. K.**, Minor-Popocatl, H., & Webb, E. (2016). Quantifying the Impact of Feedstock Quality on the Design of Bioenergy Supply Chain Networks. *Energies*, 9(3), 203. DOI: 10.3390/en9030203 [Q1]
 15. Treviño-Garza, G., **Castillo-Villar, K. K.**, & Cárdenas-Barrón, L. (2015). Joint Determination of the Lot Size and Number of Shipments for a Family of Integrated Vendor-buyer Systems Considering Defective Products, *International Journal of Systems Science*, 46(9), 1705-1716. DOI: 10.1080/00207721.2014.886750 [Q2]
 16. Mahmoodabadi, M.J., Taherkhorsandi, M.*, Maafi, R.A. and **Castillo-Villar, K.K.** (2015). A novel multi-objective optimisation algorithm: artificial bee colony in conjunction with bacterial foraging, *Int. J. Intelligent Engineering Informatics*, Vol. 3, No. 4, pp. 369-386. DOI: 10.1504/IJIEI.2015.073088
 17. Herbert-Acero, J. F., Probst, O., Rivera-Solorio, C. I., **Castillo-Villar, K. K.**, & Méndez-Díaz, S. (2015). An Extended Assessment of Fluid Flow Models for the Prediction of Two-Dimensional Steady-State Airfoil Aerodynamics. *Mathematical Problems in Engineering*, Special Issue: Computational Methods for Engineering Science, Article ID 854308. DOI: 10.1155/2015/854308 [Q2]
 18. Kibria A.*, **Castillo-Villar, K. K.**, & Millwater, H. (2015). Minimizing the Discrepancy between Simulated and Historical Failures in Turbine Engines: A Simulated Annealing-based Optimization Method, *Mathematical Problems in Engineering*, Special Issue: Mathematical Applications to Reliability and Maintenance Problems in Engineering Systems, Article ID 813565. DOI: 10.1155/2015/813565 [Q2]
 19. Yu, T.E., Larson, J. A., English, B. C., Boyer, C. N., Tyler, D. D., & **Castillo-Villar, K. K.** (2015). Influence of Particle Size and Packaging on Storage Dry Matter Losses for Switchgrass, *Biomass & Bioenergy*, 73, 135-144. DOI: 10.1016/j.biombioe.2014.12.009 [Q1]

20. **Castillo-Villar, K. K.** (2014). Metaheuristics Applied to Biorefinery Supply Chain Problems: Theory, Review, Challenges, and Future. *Energies*, 7, 7640-7672. DOI: 10.3390/en7117640 [Q1]
21. Herbert-Acero, J. F., Probst O., Réthoré P-E., Larsen, G. C., & **Castillo-Villar K. K.** (2014). A Review of Methodological Approaches for the Design and Optimization of Wind Farms. *Energies*, 11, 6930-7016. DOI: 10.3390/en7116930 [Q1]
22. **Castillo-Villar, K. K.**, & Herbert-Acero J. F. (2014). A Metaheuristic-based Approach for the Capacitated Supply Chain Network Design Problem Including Imperfect Quality and Rework, *IEEE Computational Intelligence Magazine*, 9(4), 31-45. DOI: 10.1109/MCI.2014.2350934 [Q1]
23. Taherkhorsandi, M.*, Mahmoodabadi, M. J., Talebipour, M., & **Castillo-Villar, K. K.** (2014). Pareto Design of an Adaptive Robust Hybrid of PID and Sliding Control for a Biped Robot via Genetic Algorithm Optimization, *Nonlinear Dynamics*, 1-13. DOI:10.1007/s11071-014-1661-1 [Q1]
24. Herbert-Acero, J. F., Martinez-Lauranchet, J., Probst, O., Mendez-Diaz, S., & **Castillo-Villar, K. K.**; Valenzuela-Rendón, M. and Réthoré, P.-E. (2014). A Hybrid Metaheuristic-Based Approach for the Aerodynamic Optimization of Small Hybrid Wind Turbine Rotors, *Mathematical Problems in Engineering*, vol. 2014, Article ID 746319, 18 pages. DOI: 10.1155/2014/746319 [Q2]
25. Mahmoodabadi, M. J., Taherkhorsandi, M.*, Talebipour, M., & **Castillo-Villar, K. K.** (2014). Adaptive Robust PID Control Subject to Supervisory Decoupled Sliding Mode Control Based upon Genetic Algorithm Optimization, *Transactions of the Institute of Measurement and Control*. 1-10, DOI: 10.1177/0142331214543295 [Q2]
26. **Castillo-Villar, K. K.**, Smith, N. R., & Herbert-Acero, J. F. (2014). Design and Optimization of Capacitated Supply Chain Networks Including Quality Measures, *Mathematical Problems in Engineering*, vol. 2014, Article ID 218913, 17 pages. DOI: 10.1155/2014/218913 [Q2]
27. **Castillo-Villar, K. K.**, González, R. G., Miranda, P. A., & Smith, N. R. (2014). A Heuristic Procedure for a Ship Routing and Scheduling Problem with Variable Speed and Discretized Time Windows, *Mathematical Problems in Engineering*, vol. 2014, Article ID 750232, 13 pages. DOI: 10.1155/2014/750232 [Q2]
28. **Castillo-Villar, K. K.**, & Herbert-Acero J. F. (2013). The Effect of Individual Representation on the Performance of a Genetic Algorithm applied to a Supply Chain Network Design Problem. *International Journal of Supply Chain Management*, 2(3), 17–24.
29. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. (2012). The Impact of the Cost of Quality on Serial Supply Chain Network Design. *International Journal of Production Research*, 50(19), 5544-5566. DOI: 10.1080/00207543.2011.649802 [Q1]
30. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. (2012). A Model for Supply Chain Design Considering the Cost of Quality. *Applied Mathematical Modelling*, 36(12), 5920-5935. DOI: 10.1016/j.apm.2012.01.046 [Q1]
31. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. (2011). Heuristic Procedure for a Combinatorial Optimization Problem in Supply Chain Design Incorporating Cost of Quality. *Int. Journal of Biomedical Soft Computing and Human Sciences*, 17(2), 19-26.

Papers Submitted to Peer-Reviewed Journals [6]

1. Shahvari, Omid; Marufuzzaman, M.; Ekşioğlu, S.D., **Castillo-Villar, K. K.** (2020). Designing a Reliable Electric Vehicle Charging Station Expansion under Uncertainty. Submitted to International Journal of Electrical Power and Energy Systems.
2. Aranguren, M. *; **Castillo-Villar, K. K.**; Aboytes-Ojeda, M.* (2020). A Two-Stage Stochastic Model for Co-firing Biomass Supply Chain Network. Submitted to the International Journal of Cleaner Production.

3. Aboytes-Ojeda, M.*; **Castillo-Villar, K. K.**; Cardona-Valdes, Y. (2020). Robust Stochastic Model for the Design of Biofuel Supply Chains. Submitted to the Computers and Industrial Engineering.
4. Keith, K. *; **Castillo-Villar, K. K.**; Aboytes-Ojeda, M.* (2020). Stochastic programming model integrating pyrolysis byproduct in the design of bioenergy supply chains. Submitted to Energies.
5. **Castillo-Villar, K. K.** (2020). A survey on Modeling and Optimization Techniques for Quantifying Biomass Quality Variability in Biofuel Logistics Networks. To be submitted to Renewable & Sustainable Energy Reviews.
6. **Castillo-Villar, K. K.**; Ekşioğlu, S.D., (2020). A Case Study on Hub-and-Spoke Biofuel Supply Chains: Student Case competition Process, Best Practices and Lessons Learned. To be submitted to *Informations Transactions in Education*.

Book

1. **Castillo-Villar, K. K.** (2012). Supply Chain Network Design Including Cost of Quality: A Strategic model and metaheuristics. Germany: Lambert Academic Publishing. ISBN: 978-3-659-17723-1, pp. 212.

Peer-Reviewed Book Chapters [6]

1. Aboytes-Ojeda, M.*, & **Castillo-Villar, K. K.** (2019). Hybrid Method to Solve a Two-Stage Stochastic Biofuel Hub-and-Spoke Network Problem. In *Renewable Energy and Sustainable Buildings* (pp. 641-652). Springer, Cham. ISBN 978-3-030-18487-2
2. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, (2018). Chapter 3: Modeling and Optimization of Quality Variability for Decision Support Systems in Biofuel Production. Chapter in *Advances in Biofuels and Bioenergy*. InTech, Nageswara-Rao, M. and Soneji, Jaya R. DOI: 10.5772/intechopen.73111
3. Taherkhorsandi, M.*, **Castillo-Villar, K. K.**, Mahmoodabadi, M. J., Janaghahi, F., & Mortazavi Yazdi, S. M. (2014). Optimal Sliding and Decoupled Sliding Mode Tracking Control by Multi-objective Particle Swarm Optimization and Genetic Algorithms. *Advances and Applications in Sliding Mode Control systems*, Springer-Verlag. A. Taher Azar and Q. Zhu. DOI: 10.1007/978-3-319-11173-5_2
4. Sahnehsaraei, M. A., Mahmoodabadi, M. J., Taherkhorsandi, M.*, **Castillo-Villar, K. K.**, & Yazdi, S. M. (2014). A Hybrid Global Optimization Algorithm: Particle Swarm Optimization in Association with Genetic Algorithm Optimization. *Complex System Modelling and Control through Intelligent Soft Computations*, Springer-Verlag. A. Taher Azar and Q. Zhu. DOI: 10.1007/978-3-319-12883-2_2
5. **Castillo-Villar, K. K.** (2014). Metaheuristics applied to Biorefinery Supply Chain Problems: a Review of Selected Methods and Applications. Chapter 6 in *Soft Computing Applications for Renewable Energy and Energy Efficiency*. Garcia-Cascales, Sánchez-Lozano, Masegosa, Cruz-Corona. USA: IGI Global. DOI: 10.4018/978-1-4666-6631-3.ch002
6. **Castillo-Villar, K. K.**, & Smith, N. R. (2013). Supply Chain Design including Quality Considerations: Modeling and Solution Approaches based on Metaheuristics. Chapter 4 in *Handbook of Research on Novel Soft Computing Intelligent Algorithms: Theory and Practical Applications*. Pandian M. Vasant. USA: IGI Global, August, pp.1329. ISBN13: 9781466644502. DOI: 10.4018/978-1-4666-4450-2

Peer-Reviewed Conference Papers [34]

In the following section, presenter is underlined.

1. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, Stochastic Programming Model Integrating Pyrolysis Byproducts in Biofuel Supply Chains. In proceedings of the Virtual 2020 IISE Annual Conference & Expo. November 1-3, 2020.
2. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, Cardona, Y., Stochastic Risk-averse Supply Chain for the Production of Biofuel. In proceedings of the Virtual 2020 IISE Annual Conference & Expo. November 1-3, 2020.
3. Jauregui, J., Herbert, F., **Castillo-Villar, K. K.**, A Shape-morphing Subsystem for Small Wind Energy Conversion Systems. In proceedings of ASME Turbo Expo 2020. London, England, June 22-26, 2020.
4. Nur, F., Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, Marufuzzaman, M. Biofuel Supply Chain Network Design with Biomass Quality Considerations. In proceedings of the 2019 IISE Annual Conference & Expo. Orlando Florida, May 19-22, 2019.
5. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, Metaheuristic for Solving a Two-stage Stochastic Biofuel Hub-and-Spoke Network Problem. In proceedings of the 2019 IISE Annual Conference & Expo. Orlando Florida, May 19-22, 2019.
6. Aranguren M.*, Castillo-Villar, K. K., Stochastic Model for Biomass Cofiring Network Design Integrating Climate Variability. In proceedings of the 2019 IISE Annual Conference & Expo. Orlando Florida, May 19-22, 2019.
7. Aboytes-Ojeda, M.*, Castillo-Villar, K. K., Tabu Search and Simplex Based Algorithm to Solve a Two-Stage Stochastic Hub-and-Spoke Network Problem. In proceedings of the World Renewable Energy Conference 2018, Kingston, UK, July 30 - August 3, 2018.
8. Aranguren, M.*, Castillo-Villar, K. K., Aboytes-Ojeda, M.*, An Optimization Model for Biomass Co-firing in Coal-fired Power Plants Considering Supply Variability under Climate Change Scenarios. In proceedings of the 2018 IISE Annual Conference, Orlando, FL, May 19-22, 2018.
9. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, Eksioğlu, S., Roni, M. Modeling and Optimization of Biomass Quality Variability in Biofuel Production. In proceedings of the 2018 IISE Annual Conference, Orlando, FL, May 19-22, 2018.
 - **Third Place in Best Student Paper Award: Energy Systems Division.**
10. Shiple, H., **Castillo-Villar, K. K.**, Guo, R., Brizios, R., A Multidisciplinary Approach to Support Undergraduate Students and Improve Retention and Success. In proceedings of the 2018 ASEE Annual Conference & Exposition, Salt Lake City, UT, June 24-27, 2018.
11. Piper, M., Bhounsule, P.A., **Castillo-Villar, K. K.** How to beat Flappy Bird: A Mixed-integer Model Predictive Control Approach, ASME-Dynamics Systems and Controls Conference, Tysons Corner, Virginia, USA, October 11-13, 2017.
12. Chavez, H.*; **Castillo-Villar, K.**; Webb, E. Simulation-based approach for the optimization of a biofuel supply chain. In proceedings of the 2017 IISE Annual Conference, Pittsburgh, PA, May 20-23, 2017.
13. Aboytes, M.*; Chavez, H.*; Krishnaiyer, K.; Stankus, S.*; Taherkhorsandi, M.*; **Castillo-Villar, K.**; and Chen, F. Improving Radio Frequency Identification Accuracy in a Warehouse Setting. In proceedings of the 2016 IIE Engineering Lean and Six Sigma Conference, San Antonio, TX, September 14-16, 2016.
 - **Third Place in Best Track Paper Award.**
14. **Castillo-Villar, K. K.**, Cabrera-Rios, M., Persans, M.W., DeYoe, H.R. Engaging Minority Students in Sustainable Bioenergy and Water Quality through an Education and Research Network. In proceedings of the ASEE's 123rd Annual Conference and Exposition, New Orleans, LA, June 26-29, 2016. 10.18260/p.26966. <https://peer.asee.org/26966>

15. Chávez, H.*, **Castillo-Villar, K. K.**, Stochastic Multi-objective Simulated Annealing for the Optimization of Machining Parameters. In proceedings of the *2016 Industrial and Systems Engineering Research Conference (ISERC)*, Anaheim, California, May 21-24, 2016.
- **Best Track Paper Award: Manufacturing and Engineering Design.**
16. Chávez, H.*, Stankus, S.*, Castillo-Villar, K. K., & Feng, Y. A Simulation-based Optimization Approach to Modeling a Fast-track Emergency Department. In proceedings of the *2015 Industrial and Systems Engineering Research Conference (ISERC)*, Nashville, Tennessee, May 30 - June 2, 2015.
17. Vásquez-Doria, J., Chen, F. F., Wan, H., & **Castillo-Villar, K. K.** Improving Order Processing Workflow through Value Stream Mapping: A Case. Abstract accepted in the *2015 Industrial and Systems Engineering Research Conference (ISERC)*, Nashville, Tennessee, May 30 - June 2, 2015.
18. **Castillo-Villar, K. K.**, & Turek, S. Assessing Measurement Uncertainty in 3D Laser-Based Scanners through Experimental Design and Analysis. In proceedings of the *2015 Industrial and Systems Engineering Research Conference (ISERC)*, Nashville, Tennessee, May 30 - June 2, 2015.
19. Chávez, H.*, & Castillo-Villar, K. K. A Preliminary Simulated Annealing for Resilience Supply Chains. In proceedings of the *2014 IEEE Symposium Series on Computational Intelligence*, Orlando, Florida, USA, December 12, 2014. IEEE Catalog Number: CFP14ADP-USB, ISBN: 978-1-4799-4553-5.
20. Smith, N. R., Manzano, M., Castillo-Villar, K. K., & Rivera-Morales, L*. A Bi-objective Model for Local and Global Green Supply Chain. In proceedings of the *2014 IEEE Symposium Series on Computational Intelligence*, Orlando, Florida, USA, December 12, 2014. IEEE Catalog Number: CFP14ADP-USB, ISBN: 978-1-4799-4553-5.
21. González-Ramírez, R. G., Miranda, P., Voss, S., **Castillo-Villar, K. K.**, & Bearzotti, L. A Continuous Berth Allocation and Quay Crane Assignment. In proceedings of the *2014 CiLOG, International Congress of Logistics and Supply Chain*, Mexico City, Mexico, November, 2014.
22. Kibria, A.*, **Castillo-Villar, K. K.**, & Millwater, H. A Simulation-based Optimization Method for Modeling of Turbine Engine Sustainment. In proceedings of the *2014 INFORMS Workshop on Data Mining and Analytics*, San Francisco, USA, November 8, 2014.
23. Chukukere, A.*, Castillo-Villar, K. K., & Wan, H. Improving Operations through Dynamic Value Stream Mapping and Discrete-Event Simulation. In proceedings of the *2014 Industrial and Systems Engineering Research Conference (ISERC)*, Institute of Industrial Engineers, Montreal, Canada, May 31- June 3, 2014.
24. Hernando-Marquez, G.*, **Castillo-Villar, K. K.**, & Herrera, L. A Column Generation Approach to Schedule Constrained Routing Parcels in Megacities. In proceedings of the *2014 Industrial and Systems Engineering Research Conference (ISERC)*, Institute of Industrial Engineers, Montreal, Canada, May 31- June 3, 2014.
25. Sadia, Q.*, & Castillo-Villar K. K. A Study of the Performance of Bucket Brigades when dealing with Multiple Aisles in Warehouses. In proceedings of the *Flexible Automation and Intelligent Manufacturing (FAIM) Conference 2014*, San Antonio, TX, May 20-23, 2014.
26. **Castillo-Villar, K. K.**, & Herbert-Acero, J. F. A Preliminary Study of the Impact of the Genotype Representation of a Genetic Algorithm on the Supply Chain Design Performance. In proceedings of the *Flexible Automation and Intelligent Manufacturing (FAIM) Conference 2014*, San Antonio, TX, May 20-23, 2014.
27. Chávez, H.*, **Castillo-Villar, K. K.**, Herrera, L., & Bustos, A. Simulation-based Optimization Model for Supply Chains with Disruptions in Transportation. In proceedings of the *Flexible Automation and Intelligent Manufacturing (FAIM) Conference 2014*, San Antonio, TX, May 20-23, 2014.

28. Herbert-Acero, J. F., Martínez-Torres, J., Probst, O., Méndez-Díaz, S., Valenzuela, M., Réthoré, P-E., & **Castillo-Villar, K. K.** Aerodynamic Optimization of Small Wind Turbine Rotors Based on NACA 4-Digit Airfoils by Computational Intelligence Algorithms. In proceedings of the *European Wind Energy Conference and Exhibition 2014*. The European Wind Energy Association (EWEA), Barcelona, Spain. March 10-13, 2014.
29. Sadia, Q.*, & **Castillo-Villar K. K.** A State-of-the-Art Matrix Analysis of Bucket Brigade. In proceedings of the *2013 Industrial and Systems Engineering Research Conference*, Institute of Industrial Engineers, San Juan, Puerto Rico, May 18-22, 2013.
30. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. Enhancing performance through statistical analysis: a case study in the glass industry. In proceedings of the *32nd Annual National Conference of the American Society for Engineering Management*, Lubbock, Texas, USA, October 19-22, 2011.
31. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. Cost of Quality in supply chain design: A preliminary study. In proceedings of the *31st Annual National Conference of the American Society for Engineering Management*, Rogers, Arkansas, USA, October 13-16, 2010.
32. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. Toward Integrating Cost of Quality in Supply Chain Network Modeling. In proceedings of the *2010 Industrial Engineering Research Conference*, Institute of Industrial Engineers, Cancún, Q.R., México, June 5-9, 2010.
33. **Castillo-Villar, K. K.**, & Simonton, J. L. Cost of Quality: Interdisciplinary Cooperation Between Accounting and Quality Function. In proceedings of the *30th Annual Conference of the American Society for Engineering Management*, Springfield, MO, USA, October 14-17, 2009.
34. **Castillo-Villar, K. K.**, Simonton, J. L., & Smith, N. R. Performance Improvement in the Glass Melting Process Through Statistical Analysis. In proceedings of the *30th Annual Conference of the American Society for Engineering Management*, Springfield, MO, USA, October 14-17, 2009.

Non-refereed Publications

1. **Castillo-Villar, K. K.** (2012). The Impact of the Cost of Quality on Supply Chain Network Design. Sc.D. Dissertation, Monterrey Institute of Technology and Higher Education, Monterrey, Mexico: Monterrey Tech Library.
2. **Castillo-Villar, K. K.** (2011). A Strategic Model for Supply Chain Network Design Including Quality. Ph.D. Dissertation, Texas Tech University, Lubbock, TX: Texas Tech Library.

Technical Reports [7]

1. Stankus, S.*, **Castillo-Villar, K.K.** (2015). Fast-Track Emergency Room Project, San Antonio, TX: The University of Texas at San Antonio, Technical Report, August 2015, 16 pages (Medical Data Analytics and Visualization Cluster: SALSI Clusters in Research Excellence).
2. **Castillo-Villar, K.K.**, Chavez, H.*, Rogers, D. (2015). Fleet Replacement Optimization Strategy (San Antonio Water Systems and Austin Public Transit – Capital Metro), San Antonio, TX: The University of Texas at San Antonio/Texas Sustainable Energy Research Institute, Technical Report, July 27, 2015, 81 pages (In Support of Department of Energy Award - DE-EE0006078, The Central Texas Fuel Independence Project).
3. **Castillo-Villar, K. K.**, Millwater, H., Iglesias, E.*, & Kibria, A.* (2014). Probabilistic Modeling of Turbine Engine Sustainment, San Antonio, TX: The University of Texas at San Antonio, Technical Report, December 2014, 85 pages (General Dynamics Information Technology Final Project Report).
4. **Castillo-Villar, K.K.**, & Chávez, H*. Simulation-based Optimization Model for Supply Chains with Disruptions in Transportation, San Antonio, TX: The University of Texas at San Antonio,

Technical Report, August 2014, (Mexico Center Educational Research Fellowship - International Study Fund funded by UTSA Mexico Center).

5. **Castillo-Villar, K.K.**, & Chávez, H*. (2014). Reliability Project in Toyota Manufacturing from Reactive to Proactive Maintenance, San Antonio, TX: The University of Texas at San Antonio, Technical Report, June 2014, 68 and 21 pages (Toyota Motor Manufacturing Texas Final Project Report).
6. **Castillo-Villar, K.K.**, & Quader, S.* (2014). A Model to Simulate the Mobility and Charging Behavior of Electric Vehicles and Quantify the Energy Required from the Grid. Electrification of Transportation in the Alamo Region, San Antonio, TX: The University of Texas at San Antonio, Technical Report, January 2014, 140 pages (Texas Sustainable Energy Research Institute and CPS Energy Final Project Report).
7. Saygin, C., **Castillo-Villar, K.K.**, Wan, H., Alaeddini, A., & Chen, F. F. (2013). Predictive Maintenance – Phase 1: A Roadmap for Intelligent Maintenance, San Antonio, TX: The University of Texas at San Antonio, Technical Report, November 2013, 25 pages (Harland Clarke Final Project Report).

E. SCHOLARLY PRESENTATIONS

In the following subsections, presentations are refereed by abstract, presenter is underlined and * means student.

Abstracts/Posters and Conference Presentations [43]

1. Kucuksayaciogil, F., Roni, M., Eksioglu, S.D., Chen, Q., **Castillo, K. K.** Optimization of Biomass Process Design in an Integrated Biorefinery. Abstract and presentation at: 2020 INFORMS Annual Meeting, National Harbor, MD, November 8-11, 2020.
2. Keith, K., Castillo, K.K., Aboytes-Ojeda, M., De Leon, L., Stochastic Model For The Design Of Biofuel Supply Chains Integrating Pyrolysis Byproducts. Abstract and presentation at: 2020 INFORMS Annual Meeting, National Harbor, MD, November 8-11, 2020.
3. Eksioglu, S.; Chen, Q., Roni, M., Dooley, J., Castillo-Villar, K. K. Integrated Process Optimization for Biochemical Conversion: Project Overview. 2020 ASABE Annual International Meeting. July 13-15, 2020.
4. Eksioglu, S., Gulcan, B.*, Roni, M., **Castillo-Villar, K. K.** Integrated Process Optimization for Biochemical Conversion. Abstract and presentation at: 2019 INFORMS Annual Meeting, Seattle, WA, October 20-23, 2019.
5. Aboytes-Ojeda, M.*, Castillo-Villar, K. K. Stochastic Modeling of Biomass Quality Variability in Biofuel Supply Chain Network Design. Abstract and presentation at: 2019 INFORMS ALIO International Conference, Cancun, Mexico, June 9-12, 2019.
6. Gulcan, B.*, Eksioglu, S., Roni, M., **Castillo-Villar, K. K.**, Integrated Process Optimization for Biochemical Conversion. Abstract and presentation at 2019 IISE Annual Conference & Expo. Orlando Florida, May 19-22, 2019.
7. Aranguren, M. F.*, Castillo-Villar, K. K. A Meta-heuristic Approach to Biomass Co-firing Supply Chain Optimization. Poster presented at: 2019 American Association of Hispanics in Higher Education Conference, Costa Mesa, CA, February 27- March 2, 2019.
8. Chen, Y.*, **Castillo-Villar, K. K.**, Dong, B. Optimal Sizing and Stochastic Control of a Micro-grid using Behind-the-meter Battery Storage and Photovoltaic Panels. Abstract and presentation at: 2018 INFORMS Annual Meeting, Phoenix, Arizona, November 4-7, 2018.
9. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.** Tabu Search and Simplex Based Algorithm to Solve a Two-stage Stochastic Hub-and-Spoke Network Problem. Poster presented at the 2018 SACNAS Conference, San Antonio, Texas, October 11-13, 2018.

10. Aranguren, M. F.*, **Castillo-Villar, K. K.**, Aboytes-Ojeda, M., Giacomoni, M. H. An Optimization Model for Co-Firing Biomass in Coal-Fired Power Plants Considering Climate Variability. Poster presented at the 2018 SACNAS Conference, San Antonio, Texas, October 11-13, 2018.
11. **Castillo-Villar, K. K.**; Aboytes-Ojeda, M*. Modeling and Optimization of Integrated Biomass Logistics Networks for Biofuel Production. Poster presented at the 26th European Biomass Conference & Exhibition, Copenhagen, Denmark, May 14-17, 2018.
12. Tapia-Carrillo, A.*, **Castillo-Villar, K. K.**, Schomberg, H. Agricultural Sustainability Through Cover Crops. Poster presented in the 2018 American Society for Engineering Education (ASEE) – Gulf-Southwest Section, Austin, TX, April 4-6, 2018.
13. Aranguren, M. F.*, Tapia-Carrillo, A.*, Schier, B.*, Olazaba, D.*, Vazquez, R.*, Case, J.*, **Castillo-Villar, K. K.**, Giacomoni, M. Increasing Awareness Through the Development of a Web-based Education Tool to Reduce Greenhouse Gas Emissions in Coal Power Plants. Poster presented in the 2018 American Society for Engineering Education (ASEE) – Gulf-Southwest Section, Austin, TX, April 4-6, 2018.
14. Schier, B.*, Chavez, L., Pena, M., Hinojosa, G., Ly, A., Garcia, E., **Castillo-Villar, K.K.**, Persans, M., DeYoe, H. Optimizing Algae Growth and Lipid Accumulation for Biofuel Production – A Statistical Analysis. Poster presented in the 2018 American Society for Engineering Education (ASEE) – Gulf-Southwest Section, Austin, TX, April 4-6, 2018.
15. Aranguren M.*, **Castillo-Villar, K. K.** Logistics Network Optimization for Co-firing Coal-fired Power Plants with Biomass. Poster presented at 2018 USDA Meeting, Washington, D.C., March 2018.
16. Cardona, Y., **Castillo-Villar, K. K.** Robust Stochastic Model for Enhanced Biofuel Production. Abstract and presentation in the CSMIO 2017 (6th Conference of the Mexican Society of Operations Research), Guadalajara, Mexico, October 4-6, 2017.
17. **Castillo-Villar, K. K.**, Aboytes-Ojeda, M.*, Eksioglu, S. Cloud-based Decision Support System Integrating Biomass Quality and Uncertainty to Optimize the Production of Biofuels. Abstract and presentation in the 21st Conference of the International Federation of Operational Research Societies Conference, Quebec, CA, July 17-21, 2017.
18. Aboytes-Ojeda, M.*, **Castillo-Villar, K. K.**, Eksioglu, S., Roni, M. Stochastic Hub-and-Spoke Model for the Production of Biofuels considering Biomass Quality Variability. Abstract and presentation in 2017 IISE Annual Conference, Pittsburgh, PA, May 20-23, 2017.
19. Schier, B.*, Cruz-Rivera, Y., Garcia, E., Chavez, L., Ly, A., **Castillo-Villar, K.K.**, Persans, M., DeYoe, H., Cabrera-Rios, M. Optimizing Algae Growth and Lipid Accumulation for Biofuel Production, Workforce Diversity and Career Opportunities within the USDA for Current and Recent Graduates Annual Meeting, Albuquerque, NM, February 16-18, 2017.
20. Tapia-Carrillo, A.*, **Castillo-Villar, K.K.**, Steven Mirsky. Agricultural Sustainability through Cover Crops. Poster presented at the 22nd Undergraduate Research and Creative Inquiry Showcase. San Antonio, TX, April 20, 2017.
21. Olazaba, D.*, **Castillo-Villar, K.K.**, Steven Mirsky. Sustainable Agricultural Systems. Poster presented at the 22nd Undergraduate Research and Creative Inquiry Showcase. San Antonio, TX, April 20, 2017.
22. **Castillo-Villar, K. K.**, Stankus, S.* and Stadick, J.* Enhancing the Monitoring of 3D Scanned As-built Components through a Spatiotemporal Quality Control Method, *Defense Manufacturing Conference*, Denver, CO, November 28-30, 2016.
23. Stadick, J.*; **Castillo-Villar, K.K.**; Turek, S. Laser Measurements: Repeatability and Reproducibility. Poster presented at 2016 RX Summer Student Researcher Poster Session of the *Air Force Research Laboratory Materials and Manufacturing Directorate* (RX). Wright Patterson Air Force Base, OH, August 5, 2016.

24. Chavez, H.*; Webb, E.; **Castillo-Villar, K.K.**; Ebadian, M.; Sokhansanj, S. Modeling Cost of Quality in a Discrete Event Biomass Supply Chain. Poster presented at *IBSS (Southern Partnership for Integrated Biomass Supply Systems) Annual Meeting*. Oak Ridge, TN, July 27, 2016.
25. Chavez, H.*; Webb, E.; **Castillo-Villar, K.K.**; Ebadian, M.; Sokhansanj, S. Modeling Cost of Quality in a Discrete Event Biomass Supply Chain, Poster presented at *ORISE (Oak Ridge Institute for Science and Education) Poster Session*. Oak Ridge, TN, August 9, 2016.
26. **Castillo-Villar, K.K.**, Gatsis, N., Taherkhorsandi, M.*, Bazrafshan, M. A Robust Optimization Model for Biofuel Supply Chain Planning Incorporating Biomass Quality Uncertainties. Abstract and presentation in *INFORMS 2016 International Conference*, Waikoloa, Hawaii, USA, June 12-15, 2016.
27. Tapia-Carrillo, A.*, **Castillo-Villar, K.K.**, Holt, G., Pelletier, M. Study of Mycelium based Acoustic Absorbers Grown with Agricultural By-product Substrates. Poster presented at *21st Undergraduate Research and Creative Inquiry Showcase*. San Antonio, TX, April 21, 2016.
28. Stankus, S.*, **Castillo-Villar, K.K.**, Feng, Y., Adams, B., Marriot, K., Govea Ramos, R. A. Simulation-based Optimization Approach for Learning to Reduce Patient Risk and Higher Memory Load Scenarios. Poster presented at *2015 AMSUS Annual Continuing Education Meeting, Federal Health: the new normal*. San Antonio, TX, December 1-4, 2015.
29. Stankus, S.*, **Castillo-Villar, K.K.** Repeatability and Reproducibility of 3D Laser Measurements. Abstract and presentation in *Defense Manufacturing Conference 2015*, Phoenix, AZ, USA, November 30-December 3, 2015.
30. **Castillo-Villar, K.K.**, Eksioglu, S.D., Taherkhorsandi, M.* An Integrated Biofuel Supply Chain Design Stochastic Model Including Biomass Quality Variability. Abstract and presentation in *2015 INFORMS Annual Meeting*, Philadelphia, PA, USA, November 1-4, 2015.
31. Wan, H., Saygin, C., Alaeddini, A., & **Castillo-Villar, K. K.** The Lean Perspectives of Maintenance in High-speed Printing Industry. Abstract accepted in the *2015 Industrial and Systems Engineering Research Conference (ISERC)*, Nashville, Tennessee, May 30 - June 2, 2015.
32. Shiple, H., **Castillo-Villar, K. K.**, Giacomoni M., Chen, F. "An Interdisciplinary Approach to Embedding a Renewable Energy, Water and Sustainability Concentration in Engineering Curriculum", Association of Environmental Engineering & Science Professors (AEESP) National Conference, June 2015, New Haven, CT.
33. **Castillo-Villar, K. K.** and Shiple, H. Embedding a Renewable Energy and Sustainability Concentration in Engineering: An intersidciplinary Approach. Abstract and presentation in *2015 American Society for Engineering Education (ASEE-GSW) Annual Conference*, San Antonio, Texas, March 26, 2015.
34. **Castillo-Villar, K. K.** *Metaheuristics applied to Biorefinery Supply Chain Problems*. Abstract and presentation in *INFORMS 2014*, San Francisco, California, USA, Nov 12, 2014.
35. **Castillo-Villar, K. K.**, & Webb, E. *Bioenergy Supply Chain Network Design Model to Enhance Biomass Quality Characteristics*. Abstract and presentation in *INFORMS 2014*, San Francisco, California, USA, Nov 11, 2014.
36. **Castillo-Villar, K. K.** , & Herbert-Acero, J. F. *Improved Methodology for the Construction of Large-Scale Wind Turbine Power Curves*. Abstract and presentation in *INFORMS 2013*, Minneapolis, Minnesota, October 9, 2013.
37. Millwater, H., **Castillo-Villar, K. K.**, Kibria, A.*, & Iglesias, E. *System Reliability Optimization by using Monte Carlo Simulation and a Metaheuristic Algorithm*. Abstract and presentation in *INFORMS 2013*, Minneapolis, Minnesota, October 6, 2013.
38. **Castillo-Villar, K. K.**, & Herbert-Acero, J. F. *Preliminary Study of the Impact of Individual Representation of a Genetic Algorithm in a Logistics Problem*. Abstract and presentation in the

4th International Conference on Computational Logistics, Copenhagen, Denmark, September 25-27, 2013.

39. **Castillo-Villar, K. K.**, & **Smith, N. R.** *The Impact of the Cost of Quality on Serial Supply Chain Network Design*. Abstract and presentation in the *43 Congreso de Investigación y Desarrollo*, Monterrey Institute of Technology and Higher Education, Monterrey, N.L., México, January 30-31 and February 1, 2013.
40. **Castillo-Villar, K. K.**, & **Smith, N. R.** *Capacitated model for supply chain network design including the cost of quality*. Abstract and presentation in the *First National Congress of the Mexican Society of Operations Research (SMIO)*, Zapopan, Jalisco, México, October 24-26, 2012.
41. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. *Heuristic Procedure for a Combinatorial Optimization Problem in Supply Chain Design Incorporating Cost of Quality*. Abstract and presentation in the *42 Congreso de Investigación y Desarrollo*, Monterrey Institute of Technology and Higher Education, Monterrey, N.L., México, January 18-20, 2012.
42. **Castillo-Villar, K. K.**, Smith, N. R., & Simonton, J. L. *Toward Integrating Cost of Quality in Supply Chain Network Modeling*. Abstract and presentation in the *41 Congreso de Investigación y Desarrollo*, Monterrey Institute of Technology and Higher Education, Monterrey, N.L., México, January 19-21, 2011.
43. **Castillo-Villar, K. K.**, **Smith, N. R.**, & Simonton, J. L. *Toward integrating the Cost of Quality in supply chain network modeling: A preliminary study*. Abstract and presentation in the *II Encuentro Iberoamericano de Investigación Operativa y Ciencias Administrativas*, Monterrey, N.L., México, July 21-23, 2010.

Invited Presentations/Seminars [28]

1. **Castillo-Villar, K. K.** Integrated Data Analytics Scheme to Enable Data Driven Decision Making in Bioenergy Supply chain Network Design. Distinguished Speaker in the College of Engineering Seminar Series of the University of Nebraska-Lincoln, October 6, 2020.
2. **Castillo-Villar, K. K.** Integrated Data Analytics Scheme to Enable Data Driven Decision Making in Clean Energy and Cyber Manufacturing. Pacific Northwest National Laboratory (PNNL) Mathematics for Artificial Reasoning in Science (MARS) Seminar Series, September 21, 2020.
3. **Castillo-Villar, K. K.** Baselineing, Measurement and Verification, Quantitative Metrics for Secure Energy-Efficient Digital Manufacturing, The Cybersecurity Manufacturing Innovation Institute Team, Washington D.C., September 7, 2019.
4. **Castillo-Villar, K. K.** UTSA Approach and Capabilities to Devise Secure Energy-Efficient Digital Manufacturing, The Cybersecurity Manufacturing Innovation Institute Team, Washington D.C., April 1, 2019.
5. **Castillo-Villar, K. K.** Integrated Scheme for Linking Quality Control and Stochastic Modeling in Bioenergy Supply Chain Network Design, Transportation Working Group, Mississippi State University, Starkville, MS, November 9, 2018.
6. **Castillo-Villar, K. K.** *Integrated Data Analytics, Experimental and Theoretical Scheme to Enable Data-Driven Decision Making in Clean Energy and Defense Manufacturing*, University of Tennessee, Knoxville, TN, January 19, 2018.
7. **Castillo-Villar, K. K.** *Robust Optimization Model for the Enhanced Production of Second Generation Biofuels*, Applied Mathematics Center, Universidad Autonoma de Coahuila, Saltillo, MX, June 2, 2017.
8. **Castillo-Villar, K. K.** *Integrated Computational and Theoretical Scheme for Linking Quality Control and Stochastic Modeling in Bioenergy Supply Chain Network Design*, School of Industrial and Systems Engineering, University of Oklahoma, Norman, OK, April 14, 2017.

9. **Castillo-Villar, K. K., Stankus, S.* and Stadick, J.*** *Big Data Analytics: Quantification of Dimensional Measurement Uncertainty using 3D Laser Scanners for the Assessment of Manufacturing Variability*, Minority Leaders - Research Collaboration Program Review, University of Dayton, Dayton, OH, September 21, 2016.
10. **Castillo-Villar, K. K.** *Integrated Computational Tool for the Production of Second-generation Biofuel*, Bioenergy Technologies Office of the Energy Department's Office of Energy Efficiency and Renewable Energy, Washington, D.C., March 24, 2016.
11. **Castillo-Villar, K. K.** *Modeling and Optimization of Second-generation Biofuel Production Systems*, U.S. Department of Agriculture – National Institute of Food and Agriculture, Washington, D.C., March 23, 2016.
12. **Castillo-Villar, K. K.** *Integrating Biomass Quality Variability in Stochastic and Robust Supply Chain Modeling for Second-generation Biofuel Production*, Idaho National Laboratory, Idaho Falls, Idaho, March 3, 2016.
13. **Castillo-Villar, K. K.** *Unified Computational and Theoretical Scheme for Linking Quality Control and Stochastic Modeling in Bioenergy Supply Chain Network Design*, Auburn University, Auburn, Alabama, October 26, 2015.
14. **Castillo-Villar, K. K., Stankus S.*** *Assessing Measurement Uncertainty in 3D Laser-Based Scanners through Experimental Design and Simulation*. Technical briefing presented at Air Force Research Laboratory, Wright Patterson Air Force Base, August 11, 2015.
15. **Castillo-Villar, K. K.** *International Supply Chains: Modeling and Optimization Techniques*. Seminar presented at Institute for Supply Management, San Antonio, TX, September, 2014
16. **Castillo-Villar, K. K.** *3D Laser-based Scanner Measurement Uncertainty Study*. Technical briefing presented at Air Force Research Laboratory, Wright Patterson Air Force Base, July 31, 2014.
17. **Castillo-Villar, K. K.** *Probabilistic Modeling of Turbine Engine Sustainment through Simulation-based Optimization*. Technical briefing presented at Air Force Research Laboratory, Wright Patterson Air Force Base, July 10, 2014.
18. **Castillo-Villar, K. K.** *Supply Chain Optimization, Design and Management*. Seminar presented at Monterrey Institute of Technology and Higher Education, Campus Santa Fe, Mexico City, Mexico, November 7, 2013.
19. **Castillo-Villar, K. K.** *Supply Chain Modeling for Enterprise Analysis and Simulation Methods for Alternative Transportation Initiatives*. Seminar presented at Oak Ridge National Laboratory, National Transportation Center, Knoxville, Tennessee, September 12, 2013.
20. **Castillo-Villar, K. K.** *Supply Chain Modeling and Optimization including Quality-related Characteristics*. Seminar presented at Oak Ridge National Laboratory, Bioenergy Resource & Engineering Systems Group, Oak Ridge, Tennessee, September 11, 2013.
21. **Millwater, H., Castillo-Villar, K. K., Kibria, A.* & Iglesias, E.** *Probabilistic Modelling of Turbine Engine Sustainment*. Presentation in the Minority Leaders Program, Air Force Research Laboratory, Materials & Manufacturing Directorate Air Force Research Laboratory, September 23, 2013.
22. **Castillo-Villar, K. K.** *Supply Chain Network Design Including Quality-related Issues: Models and Solution Procedures*. Presentation in the Operations Research and Industrial Engineering Graduate Seminar, Department of Mechanical Engineering, The University of Texas at Austin, Austin, TX, February 15, 2013.
23. **Castillo-Villar, K. K.** *Enhancing Performance through Statistical Techniques: A Case Study in the Glass Container Industry*. Presentation in the Management Science and Statistics Seminar, College of Business, The University of Texas at San Antonio, San Antonio, TX, November 2, 2012.

24. **Castillo-Villar, K.K.** *Enhancing Performance through Statistical Techniques: A Case Study in the Glass Container Industry*. Presentation in the Continuous Improvement Meeting, The University of Texas at San Antonio, San Antonio, TX, October 5, 2012.
25. **Castillo-Villar, K. K.** *The impact of the Cost of Quality on supply chain design*. Presentation in the Engineering Management and Systems Engineering Graduate Seminar, Department of Engineering Management and Systems Engineering, Missouri University of Science and Technology, Rolla, MO, March 12, 2012.
26. **Castillo-Villar, K. K., & Smith, N. R.** *Supply Chain Design including the Cost of Quality*. Presentation in the Graduate Program in Economics Research Seminar, Universidad Autonoma de Nuevo Leon, Monterrey, Mexico, October 25, 2011.
27. **Castillo-Villar, K. K.** *A strategic model for serial supply chain design integrating the Cost of Quality*. Presentation in the Supply Chain Research Group Seminar, Quality and Manufacturing Center, Monterrey Institute of Technology and Higher Education, Mexico, October 11, 2011.
28. **Castillo-Villar, K. K.** *Response Surface Analysis applied to a glass making process*. Presentation in the Applied Statistics Seminar from the MS in Applied Statistics, Monterrey Institute of Technology and Higher Education, Mexico, October, 2008.

F. GRANTING ACTIVITIES

Funded Grants

As Director of TSERI, I have managed the Strategic-Alliance between UTSA and CPS Energy. The support from CPS Energy to advance research has been **~\$4M** since September 2017. Besides CPS energy, TSERI has also diversified its portfolio by securing external funding in AY 2018-2019 for an amount of \$4.05M. *The highest productivity since the institute's inception in 2010.*

Moreover, TSERI actively participated in the proposal writing stage of the recently awarded Cyber Manufacturing Innovation Institute (CyManII) funded by Department of Energy (\$70M; \$111M including cost share). TSERI serves as the energy efficiency platform of CyManII. For more information, refer to the Service section under Administrative Positions.

Dr. Castillo's group has received a total of **~\$3,961,206 M** in grant funding as principal investigator and **~\$76,259,856 M** as co-principal investigator.

Dr. Castillo has **led the College of Engineering for the past three years in research expenditures** with \$692,241 (FY2017), \$571,603 (FY18), and \$559,603 (FY19).

The following table shows the funded research grants conducted by my research group.

Project Dates	Title of Research Grant or Contract	Granting Agency	Total Amount (\$) and Status	Principal Investigator and Co-Principal Investigator in order
9/1/2012-12/28/2014	Probabilistic Modeling of Turbine Engine Sustainment	General Dynamics Information Technology/ Air Force Research Lab	\$152,444 (Completed)	Harry R. Millwater (PI), Krystel Castillo (Co-PI) .
Spring 2013-Spring 2014	The Impact of Transportation Disruptions in Supply Chains in the U.S.-Mexico Border (Fellowship)	UTSA Mexico Center Educational Research Fellowship	\$3,500 (Completed)	Krystel Castillo (PI) .

03/01/2013-5/1/2014	Predictive Maintenance - Phase 1: A Roadmap for Intelligent Maintenance	Harland Clarke	\$108,784 (Completed)	Can Saygin (PI), Co-PI: Krystal Castillo , F. Frank Chen, HungDa Wan, Adel Alaeddini.
02/01/2013-08/31/2013	CPS Energy: Alternative Transportation Initiatives	City Public Service (CPS) through the Texas Sustainable Energy Research Institute	\$153,335 (Completed)	<u>Dwain Rogers (PI)</u> , Krystal Castillo (Co-PI) .
09/01/2013-01/31/2014	CPS Energy: Alternative Transportation Initiatives	City Public Service (CPS) through the Texas Sustainable Energy Research Institute	\$397,774 (Completed)	<u>Dwain Rogers (PI)</u> , Co-PI: Krystal Castillo , Donghoon Han.
09/01/2013-08/31/2014	Feedstock Logistics in the Bioenergy Industry: Biomass-to-biorefinery Supply Chain Model	UTSA Tenure-Track Award Competition (TRAC), The Office of the Vice President for Research	\$27,500 (Completed)	Krystal Castillo (PI) .
Summer 2013-Spring 2014	Reliability Project in Assembly Process	Toyota Motor Manufacturing Texas	\$13,860 (Completed)	Krystal Castillo (PI) .
7/1/2013-6/30/2015	Continuous Improvement and Sustainability at Harland Clarke	Harland Clarke	\$33,000 (Completed)	Hung-Da Wan (PI), Co-PI: Krystal Castillo , Fengshan Chen, Can Saygin, Adel Alaeddini, and Hazem Rashed-Ali.
8/1/2013-5/31/2017	Supply Chain Modeling and Optimization in the Bioenergy Industry (Fellowship)	National Council of Science and Technology (Mexican NSF)	\$135,241 (\$82,000 in tuition) (Completed)	Krystal Castillo (PI) .
9/1/2014-8/31/2015	Integrated Modeling and Optimization of Supply Chain Design for Sustainable Bioenergy Systems	Office of the Vice President for Research, GREAT Award	\$20,000 (Completed)	Krystal Castillo (PI) .
9/1/2014-8/31/2018	Scheduling and Routing Optimization for Supply Chains with Disruption in Transportation (Fellowship)	National Council of Science and Technology (Mexican NSF)	\$133,020 (\$77,360 in tuition) (Completed)	Krystal Castillo (PI) .
9/1/2014-8/31/2019	Opportunities for Higher Education and Research Experience in Renewable Energy and Water Quality to Enable STEM Hispanic Leaders	U.S. Department of Agriculture/National Institute of Food and Agriculture	\$290,000 (Completed)	Krystal Castillo (PI) , Co-PI: Heather Shipley, F. Frank Chen, and Marcio Giacomoni.
9/1/2014-8/31/2015	Big Data Analytics Cluster	San Antonio Life Sciences Institute (SALSI)	\$300,000 (\$150,000 UTSA part) (Completed)	Yusheng Feng (PI), Co-PI: Krystal Castillo , Yufei Huang, John Quarles, Craig Sisson, Bruce Adams, Yidong Chen, Ed Sako, John Calhoon, Laura Rosenkranz.
4/15/2015-8/31/2015	A Fleet Analysis Demonstration in Collaboration with Austin Energy's Central Texas	Austin Energy's Central Texas Fuel Independence Project (CTFIP)	\$20,000 (Completed)	Dwain Rogers (PI), Co-PI: Krystal Castillo

	Fuel Independence Project (CTFIP)			
8/1/2015 – 12/31/2016	Predictive Maintenance - Phase 2: From Data to Performance Metrics	Harland Clarke	\$90,000 (Completed)	Can Saygin (PI), Co-PI: Krystel Castillo , HungDa Wan, Adel Alaeddini.
9/1/2015-8/31/2016	Development of a Low-Cost Robust Circulating Fluidized Technology for Integration into a Novel Mathematical Model to Promote the Sustainable Production of Biofuels and Biobased Products	Office of the Vice President for Research, CONNECT award.	\$125,000 (\$50,000 UTSA part) (Completed)	Krystel Castillo (PI) , Jimell Erwin and Monica Medrano (PIs at SwRI).
8/1/2015-7/31/2020	Scholarship Program for Undergraduates' Retention and Success (SPURS)	NSF S-STEM	\$626,890 (Completed)	Heather Shipley (PI), Krystel Castillo (Co-PI) , Ruyan Guo, and Rena Bizios
8/1/2015-7/31/2017	Process Excellence and Continuous Improvement at Harland Clarke	Harland Clarke Corp.	\$62,000 (Completed)	Hung-Da Wan (PI), Co-PI: Krystel Castillo , Fengshan Chen, Can Saygin, Adel Alaeddini.
9/1/2015-8/31/2020	BioEnergy And Water for Agriculture Research and Education (BE AWARE) Network	U.S. Department of Agriculture/National Institute of Food and Agriculture	\$1,000,000 (Completed)	Krystel Castillo (PI) ,_Co-PI: Mauricio Cabrera (UPR-M), Michael Persans (UTRGV).
9/28/2015-9/30/2017	Biomass Logistics Simulations	Oak Ridge National Laboratory (Department of Energy) managed by UT Battelle	\$60,000 (Completed)	Krystel Castillo (PI) .
11/1/2015-12/15/2018	Big Data Analytics: Quantification of Dimensional Measurement Uncertainty using 3D Laser Scanners for the Assessment of Manufacturing Variability	Air Force Research Laboratory through Clarkson Aerospace Corp.	\$164,274 (Completed)	Krystel Castillo (PI) .
3/29/2016–9/30/2020	U-GREAT (UnderGraduate Research, Education And Training) program in Bioenergy, Natural Resources, Agriculture Economics and Rural Communities	National Institute of Food and Agriculture	\$275,760 (Completed)	Krystel Castillo (PI, 50%) ,_Hatim Sharif (Co-PI)
9/1/2016–3/31/2019	Cloud-based Decision Support System Integrating Biomass Quality, Uncertainty and Risk to Optimize the Production of Second-generation Biofuels	USDA/NIFA Sun Grant Program – South Central Region (passed through Oklahoma State University)	\$150,000 (Completed)	Krystel Castillo (PI) , Sandra Eksioglu (Co-PI)
11/1/2016–10/31/2017	Increasing Awareness through the Development of a Web-based Educational Tool to Reduce Greenhouse Gas	Environmental Protection Agency (EPA)	\$15,000 (Completed)	Krystel Castillo (PI, 50%) ,_Marcio Giacomoni (Co-PI)

	Emissions in Coal Power Plants			
9/1/2017-8/31/2018	Dual-Mode Rotors for Small Horizontal-Axis Wind Turbines	ConTex – Postdoctoral Fellowship	\$47,476 (Completed)	Krystel Castillo (PI)
9/1/2017-8/31/2020	A Cloud-based Expert System to Support the Production of Clean Energy	ConTex – PhD Fellowship	\$149,875 (Completed)	Krystel Castillo (PI)
9/1/2017-12/31/2018	Cloud-based Data Analytics To Support Sustainable Clean Energy Production	Open Cloud Institute Fellowship	\$30,000 (Completed)	Krystel Castillo (PI)
9/1/2017-8/31/2019	An Open Source Based Proactive Energy Management System (PEMS) for Integrated Control of Battery Energy Storage System (BESS) and Solar-Powered Buildings	City Public Service (CPS) through the Texas Sustainable Energy Research Institute	\$356,631 (Completed)	Bing Don (PI), Krystel Castillo (co-PI, 30%) , Jeff Xu (co-PI)
4/1/2018-3/31/2021	Integrated Process Optimization for Biochemical Conversion	Department of Energy and Department of Agriculture	\$1.89 M \$150,000 (My share) (Active)	Sandra Eksioglu (Arkansas' PI) Krystel Castillo (UTSA's PI)
09/01/2018 – 08/31/2020	Conference Grant: Innovations in Data Analytics for Smart Agriculture (iDASA)	US Department of Agriculture	\$46,000 (Active)	Krystel Castillo
09/01/2018-03/31/2018	A Cloud-based Decision Support System Integrating Biomass Quality, Uncertainty and Risk to Optimize the Production of Second-Generation Biofuels (Supplement)	USDA/NIFA Sun Grant Program – South Central Region (passed through Oklahoma State University)	\$120,000 (Completed)	Krystel Castillo (PI) , Sandra Eksioglu (Co-PI)
09/01/2018 – 02/29/2020	Shape-Morphing Blades Coupled with Tailored Aerodynamic Add-Ons for Enhanced Wind Energy Conversion	ConTex	\$85,000 (Completed)	Krystel Castillo (PI at UTSA, 50%) and Juan C. Jauregui (PI at UAQ)
10/01/2018 – 09/30/2022 (Estimated)	Transforming STEM Undergraduate Education through Academic Literacy, Mentoring and Professional Development	National Science Foundation	\$1.5 M (Active)	Heather Shipley (PI), Juliet Langman (co-PI), Jorge Solis (co-PI), Kelly Nash (co-PI), Mark Appleford (co-PI), Harry Millwater (Senior Personnel), Krystel Castillo (Senior Personnel, 12%) , Orlando Graves-Bolanos (Senior Personnel)
9/1/2019 – 12/31/2020	Planning Grant: Engineering Research Center for Sustainable Urban Ecosystems	National Science Foundation	\$100,000 (Active)	Adolfo Matamoros (PI), Christopher Reddick (co-PI), Ravi Sandhu (co-PI), David Akopian (co-PI), Krystel Castillo (co-PI) ,

				20%).
9/1/2019 – 8/31/2021	Secure, Resilient and Smart Grid Cyber-Physical Situational Understanding using Data Driven Decision-Making and AI	City Public Service (CPS Energy) through the Texas Sustainable Energy Research Institute	\$468,998 (Active)	Peyman (Paul) Najafirad (PI), Krystal Castillo (co-PI, 33%), Kim-Kwang (Raymond) Choo(co-PI)
9/23/2019 – 6/11/2020	Minimizing Model Uncertainty Through Advanced Multi-Modal Full-Volume Metrology	US Department of the Air Force	\$69,700 (Active)	Krystal Castillo (PI), Christopher Saldana (co-PI at Georgia Tech)
9/1/2020-8/31/2025	BioEnergy And Water for Agriculture Research and Education (BE AWARE 2) Network 2	U.S. Department of Agriculture/National Institute of Food and Agriculture	\$1,000,000 (Active)	Krystal Castillo (PI), Co-PI: Felix Roman (UPR-M), Michael Persans (UTRGV).
9/1/2020-8/31/2025	Cybersecurity and Manufacturing Innovation Institute (CyManII)	U.S. Department of Energy	\$70 M (\$111 M with cost share) (Active)	Howard Grimes (PI) , Co-PIs (UTSA, 10%): Krystal Castillo, Bernard Arulanandam

Pending Proposals

NSF Future Manufacturing Research Grant (FMRG) Lead Institution: Georgia Tech. 9/1/2020-8/1/2025. \$415,513 (my share).

AFRI USDA. Engineering for Agricultural Production Systems. Lead Institution: Mississippi State University from 9/1/2020-8/1/2024. \$124,282 (my share).

G. TEACHING ACTIVITIES

Courses Taught

- Applied Engineering Analysis, EGR 2323, Undergraduate, 88 students, Fall 2012.
- Advanced Quality Control (***New course, first time taught at UTSA***), EGR 4953/5233, Undergraduate/Graduate, 15 students, Spring 2013.
- Applied Engineering Analysis, EGR 2323, Undergraduate, 103 students, Fall 2013.
- Applied Engineering Analysis, EGR 2323, Undergraduate, 83 students, Spring 2014.
- Advanced Quality Control, EGR 5233, Graduate, 22 students, Fall 2014.
- Advanced Enterprise Process Engineering, ME 4583/5583, Undergraduate/Graduate, 10/14 students, Fall 2014.
- SP: Analytical Techniques in Engineering Analysis II (***New course in optimization, first time taught at UTSA***), ME6973, Graduate, 20 students, Spring 2015.
- Advanced Quality Control, EGR 5233, Graduate, 8 students, Fall 2015.
- Advanced Enterprise Process Engineering, ME 4583/5583, Undergraduate/Graduate, 19/14 students, Fall 2015.
- Advanced Quality Control, EGR 5233, Graduate, 14 students, Fall 2016.
- Mixed Integer and Linear Optimization, ME6973, Graduate, 14 students, Spring 2017.
- Advanced Quality Control, EGR 5233, Graduate, 15 students, Fall 2017.
- Advanced Quality Control, EGR 5233, Graduate, 15 students, Fall 2018.
- Advanced Quality Control, EGR 5233, Graduate, 13 students, Fall 2019.
- Advanced Quality Control, EGR 5233, Graduate, 8 students, Fall 2020.

Mentoring of Teaching Assistants

- Muhammad Haaris Shahid (sections 4, 5, and 6), Applied Engineering Analysis, EGR 2323, Undergraduate, Fall 2012.
- Soham Gupta (section 4) and Mohamed Meddouri (sections 5 and 6), Applied Engineering Analysis, EGR 2323, Undergraduate, Fall 2013.
- Soham Gupta (sections 1 and 2) and Carlos Acosta-Berlinghieri (section 3), Applied Engineering Analysis, EGR 2323, Undergraduate, Spring 2014.

WeARE Course Concentration

Led the creation of an *interdisciplinary concentration* in Water Quality and Treatment, Agricultural Logistics and Renewable Energy (WeARE) Systems granted by two centers: Center for Advanced Manufacturing and Lean Systems and Water Institute of Texas.

This multidisciplinary course concentration provides engineering students with the theoretical foundations and data analytics techniques needed to conduct research projects in clean energy and water systems.

H. LIST OF STUDENTS MENTORED

Current Ph.D. Students [Total: 4]

Gonzalo Martinez, Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Topic: Optimization of secure energy-efficient supply chains. Started in Fall 2020- Expected Spring 2024.

Werner Osorio, Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Topic: Optimization of secure energy-efficient supply chains. Started in Fall 2020- Expected Spring 2024.

Maria Aranguren (Hispanic, Female), Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Topic: Stochastic Modeling and Optimization of Clean Energy Systems. Started in Fall 2016- Expected Spring 2020.

Kolton Keith, Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Topic: Wind Energy Modeling and Optimization. Started in Fall 2018- Expected Fall 2021.

Current MS Students [Total: 3]

Diana Goettsch Melendez, MS in AMEE, UTSA

- Topic: Modeling and optimization of byproducts from pyrolysis. Started in Fall 2019- Expected: Spring 2021.

Hector Cruz, MS in AMEE, UTSA

- Topic: Uncertainty Quantification in Defense Manufacturing Metrology Systems. Started in Fall 2018- Expected: Spring 2021.

Emilio Hernandez (Hispanic), MS in ME, UTSA

- Topic: Modeling of Quality Characteristics in the Production of Biocrude through Designed Experiments. Expected: Fall 2020. Co-advised with Dr. Christopher Combs.

Current Undergraduates [Total: 2]

- Jose Hernandez, Undergraduate, Electrical and Computer Engineering, UTSA. Supported by USDA-NIFA U-GREAT program. Summer 2019, Fall 2019, Spring/Summer 2020.
- Christopher Munoz, Undergraduate, Electrical and Computer Engineering, UTSA. Supported by USDA-NIFA U-GREAT program. Summer 2019, Fall 2019, Spring/Summer/Fall 2020

Ph.D. Dissertation Directed [3]

Mario Aboytes, Ph.D. in Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Dissertation: “Stochastic Programming Models to Integrate Biomass Quality Variability in the Design of Biofuel Logistics Networks.” Graduated in May 2019.

Sue E. Stankus, Ph.D. in Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Dissertation: “A Novel Spatiotemporal Statistical Quality Control Scheme using 3D Point Cloud Data.” Graduated in December 2017.

Hernan Chavez, Ph.D. in Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Dissertation: “Simulation-based method for the optimization of multi-criteria stochastic models.” Chair: Krystel Castillo. Graduated in May 2017. Available from Dissertations & Theses @ University of Texas - San Antonio; ProQuest Dissertations & Theses Global. (10279661). Retrieved from <https://search-proquest-com.libweb.lib.utsa.edu/docview/1903629289?pq-origsite=summon&accountid=7122>

M.S. Thesis/Special Projects Directed [12]

Samuel Armendariz (Hispanic), MS in AMEE, UTSA

- Special Project: Design of a CUSUM Control Chart to predict the end of a quarantine caused by COVID-19. Chair: Krystel Castillo. Graduated Spring 2020.

Luvín De Leon, MS in Advanced Manufacturing Enterprise Engineering, UTSA

- Special Project: Stochastic Programming Model Integrating Pyrolysis Byproducts in the Design of Biofuel Supply Chains. Chair: Krystel Castillo. Graduated in Fall 2019.

Dana Schultz, MS in Advanced Manufacturing Enterprise Engineering, UTSA

- Special Project: Feature Analysis and Prediction of Logistics Service Demand with Correspondence Analysis. Chair: Krystel Castillo. Graduated in Fall 2019.

Samer Baraz, MS in Advanced Manufacturing Enterprise Engineering, UTSA

- Special Project: Overall Equipment Effectiveness (OEE) of Foam Press. Chair: Krystel Castillo. Graduated in Fall 2019.

Amanda Hydar, MS in Advanced Manufacturing Enterprise Engineering, UTSA

- Thesis: Exploring Biomass Quality within the Biomass-to-biofuel Supply Chain using Principal Component Analysis. Chair: Krystel Castillo. Graduated in May 2019.

Mario Chapa, MS in Mechanical Engineering, UTSA

- Thesis: A cyberinfrastructure platform for the modeling and optimization of biomass logistics. Chair: Krystel Castillo. Graduated in November 2018.

Alyssa Daniel, MS in Advanced Manufacturing Enterprise Engineering, UTSA.

- Special Project: “Design Verification and Validation of a Nonparametric EWMA Control Chart Using the Wilcoxon Sign Rank Statistic.” Chair: Krystel Castillo. Graduated in March 2018.

Brittany Schier, MS in Advanced Manufacturing Enterprise Engineering, UTSA.

- Thesis: “Analyzing the Social Cost of Carbon of Co-firing Biomass in Coal-fired Power Plants through a Mixed-Integer Linear Programming Model.” Chair: Krystel Castillo. Graduated in March 2018.

James Stadick, MS in Advanced Manufacturing Enterprise Engineering, UTSA.

- Thesis: “Exponentially Weighted Moving Average Chart for the Quantification of Dimensional Measurement Variability using 3D Laser Scanners.” Chair: Krystel Castillo. Graduated in July 2017.

Jonathan Hart, MS in Advanced Manufacturing Enterprise Engineering, UTSA. Currently, USAA, San Antonio, TX.

- Thesis: “Biomass Supply Chain Logistics for Co-firing Coal Power Plants.” Chair: Krystel Castillo. Graduated in May 2016. Available from Dissertations & Theses @ University of Texas - San Antonio; ProQuest Dissertations & Theses Global. (1793669181). Retrieved from <https://login.libweb.lib.utsa.edu/login?url=http://search.proquest.com.libweb.lib.utsa.edu/docview/1793669181?accountid=7122>

Sadia Quader, MS in Advanced Manufacturing Enterprise Engineering, UTSA. Currently, Supply Chain Engineer at Ruvati USA, San Antonio, TX.

- Thesis: “A Preliminary Study of the Performance of Bucket Brigades when dealing with multiple Aisles in Warehouses.” Chair: Krystel Castillo. Graduated in December 2013. Available from Dissertations & Theses @ University of Texas - San Antonio; ProQuest Dissertations & Theses Global. (1493902521). Retrieved from <https://login.libweb.lib.utsa.edu/login?url=http://search.proquest.com.libweb.lib.utsa.edu/docview/1493902521?accountid=7122>

Azubuike Chukukere, MS in Advanced Manufacturing Enterprise Engineering, UTSA. Currently, Quality Manager at CoorsTek Engineered Products, Houston, TX.

- Special Project: “Improving Operations through Dynamic Value Stream Mapping and Discrete-Event Simulation.” Chair: Krystel Castillo. Graduated in December 2013. Grade A.

Past Undergraduate Research Supervision [Total: 16]

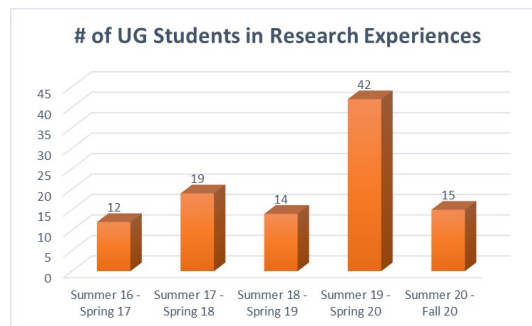
1. Mario Rodriguez, Undergraduate, Mechanical Engineering, UTSA. Supported by USDA-NIFA U-GREAT program and COE UG Research Program. Fall 2018 - Fall 2019.
2. Brandon Ard, Undergraduate, Mechanical Engineering, UTSA. Supported by COE UG Research Program. Spring 2019.
3. Hector Tenorio, Undergraduate, Mechanical Engineering, UTSA. Supported by USDA-NIFA U-GREAT program and CPS Energy Project. Summer/Fall 2018.
4. Benjamin Contreras, Undergraduate, Mechanical Engineering, UTSA. Supported by USDA-NIFA U-GREAT program. Summer/Fall 2018.
5. Ramon Vasquez-Campero, Undergraduate, Mechanical Engineering, UTSA. Supported by USDA-NIFA U-GREAT program. Conducted a summer internship at the USDA Agricultural Research Service (ARS) laboratory located in Lubbock, TX in summer 2016, performed research at my research group in Spring 2017 (\$3,500) and summer 2017 (\$3,600).

6. James McGehee, Undergraduate, Mechanical Engineering, UTSA. Supported by USDA-NIFA U-GREAT program. Conducted a summer internship at the USDA Agricultural Research Service (ARS) laboratory located in Lubbock, TX in summer 2016, performed research at my research group in Spring 2017 (\$3,500) and summer 2017 (\$3,600).
7. Andres Tapia-Carrillo, Undergraduate, Mechanical/Electrical Engineering, UTSA. Supported by LSAMP in the Fall 2014. Conducted a summer internship at the USDA Agricultural Research Service (ARS) laboratory located in Lubbock, TX during summer 2015 and at the laboratory located in Beltsville MD during summer 2016, \$4,500 (spring/summer 2015) and \$7,065 (summer 2016).
8. David Olazaba, Undergraduate, Mechanical Engineering, UTSA. Conducted a summer internship at the laboratory located in Beltsville, MD during summer 2016, \$4,000 (spring 2016) and \$7,065 (summer 2016).
9. Kenny Hidalgo, Undergraduate, Mechanical Engineering, UTSA. Conducted a summer internship at the USDA Agricultural Research Service (ARS) laboratory located in Lubbock, TX during summer 2016, \$3,000 (spring 2016) and \$4,500 (summer 2016).
10. Cristian Sánchez, Undergraduate, Mechanical Engineering, UTSA. Conducted a summer internship at the USDA Forest Service, Forest Products Laboratory located in Madison, WI during summer 2016, \$4,500 (summer 2016).
11. Hector Martinez, Undergraduate, Mechanical Engineering, UTSA. Conducted a summer internship at the USDA Agricultural Research Service (ARS) laboratory located in Lubbock, TX during summer 2016, \$4,500 (summer 2016).
12. Job Macias, Undergraduate, Mechanical Engineering, UTSA. Conducted a summer internship at the USDA Agricultural Research Service (ARS) laboratory located in Lubbock, TX during summer 2016, \$4,500 (summer 2016).
13. Joshua Naranjo, Alamo Community College. Supported by U-GREAT funded by NIFA. Topic: Computational Tool to Enhance the Analysis of Biomass Chemical Composition, Summer 2016.
14. Jessica Chong-Macias, Undergraduate: Junior, Mechanical Engineering, UTSA. Supported by Louis Stokes Alliances for Minority Participation (LSAMP) and SiVIRT. Topic: Inventory Modeling and Management, Spring and Fall 2013.
15. Omar Medina, Undergraduate: Sophomore, UTEP. Supported by LSAMP. Topic: Modeling disruptions in transportation in the US-Mexico border, Summer 2013.
16. Guillermo Teyechea-Marquez and Roger D. Escobedo-Arzapalo who participated in a Research Experience for Undergraduates Program supported by CONACyT. Topic: Optimization of supply chain networks, Summers 2010 and 2011.

Research Experiences for Undergraduates

I have coordinated and facilitated paid summer internships at USDA agricultural research services laboratories for the following (1) UTSA students: Stephanie Silvia (USDA laboratory in Temple, TX during summers 2015 and 2016), Iris Ozuna (Temple, TX during summer 2015), Jonathan Hart (Temple, TX during summer 2015), Alex Lara (Lubbock, TX during summer 2015), Andrea Russie (Temple, TX during summer 2016) and James Case (Temple, TX during summer 2016). (2) Alamo College students: Diana Magana, James McGehee, Ramon Vazquez and Kristen Villanueva. (Lubbock, TX during summer 2016). (3) University of Puerto Rico student: Yazeli E. Cruz Rivera (Beltsville, Maryland during summer 2016). (4) University of Texas-Rio Grande Valley student: Evelyn Garcia (Beltsville, Maryland during summer 2016).

As project director of USDA/NIFA Undergraduate Research, Education And Training (U-GREAT) program, I have coordinated research experiences for undergraduates from summer 2016 to fall 2020. In total, 102 had participated in this program (refer to the figure for the breakdown).



Graduate Internship Supervision

- Sue Stankus (Ph.D. student) conducted a summer internship at Air Force Research Laboratory (AFRL) at Wright Patterson Air Force Base, Dayton, OH, June-August, 2015.
- Hernan Chavez (Ph.D. student) conducted a summer internship at DOE's Oak Ridge National Laboratory through the ASTRO program, June-August, 2016.
- James Stadick (M.S. student) conducted a summer internship at the Air Force Research Laboratory (AFRL) at Wright Patterson Air Force Base, Dayton, OH, June-August, 2016.
- Mario Aboytes (Ph.D. student) conducted a summer internship at DOE's Idaho National Laboratory, Idaho, ID, July-August, 2017.
- Hernan Chavez (Ph.D. student) conducted a summer internship at DOE's Oak Ridge National Laboratory, June-August, 2017.
- Maria Aranguren (Ph.D. student) conducted a summer internship at USDA's Beltsville Laboratory, Maryland, June-July 2018.
- Maria Aranguren (Ph.D. student) conducted a summer internship at DOE's Idaho National Laboratory, Remote, June-August, 2020 and September-December 2020.
- Kolton Keith (Ph.D. student) conducted a summer internship at DOE's Idaho National Laboratory, Remote, June-August, 2020 and September-December 2020.

Past Pos-doctoral Supervision

- Ying Chen, 2018, Project: Stochastic control of a micro-grid using battery energy storage in solar-powered buildings.
- Francisco Herbert, Fall 2017-Spring 2018. Project: Dual-Mode Rotors for Small Horizontal-Axis Wind Turbines.

Past Visiting Scholar

- Dr. Yajaira Cardona, 2016 summer research stay fellowship for young investigators, supported by the FUMEC (Fundación México - Estados Unidos para la Ciencia).

Past Visiting Ph.D. Students

I perform as external co-advisor in the following dissertations:

- Luis Rivera, Industrial Engineering, Monterrey Tech, Campus Monterrey.
 - Topic: Bi-objective model for global bioenergy supply chains. Chair: Neale Smith and Co-chair: Krystel Castillo, graduation date: May 2016.
- Guillermo Hernando-Marquez, Industrial Engineering, Monterrey Tech, Campus Toluca.
 - Topic: A Column Generation Approach Based on Partial Paths to Schedule Constrained Routing Parcels in Megacities, Chair: Luis Herrera and Co-chair: Krystel Castillo, expected graduation date: December 2017.

I. SERVICE ON GRADUATE COMMITTEES

Ph.D. Students [Total: 7]

1. Rajitha Meka, Ph.D. in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Dissertation: Efficient Estimation and Optimization of Expensive to Evaluate Black-Box Functions. Chair: Adel Alaeddini, graduation date: Fall 2020.
2. Krishnan Krishnaiyer, Ph.D. in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Dissertation: An Adaptable and Scalable Cloud-based Kanban Decision Support system for Operations Engineering. Chair: Frank Chen, graduation date: May 2018.
3. Amin Mirakhorli, Ph.D. in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Dissertation: Behavior Predictive Energy Management System for Residential Buildings within a Smart Grid. Chair: Bing Dong, graduation date: December 2017.
4. Olufunso (Sylvester) Ogidan, Ph.D. in Environmental Science and Engineering, Civil and Environmental Department, University of Texas at San Antonio, Dissertation: Multiobjective Evolutionary Computation for Sanitary Sewer Overflow Reduction Optimization, Chair: Marcio Giacomoni, graduation date: December 2016.
5. Quintana-Kuether, Carolina, Ph.D. in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Dissertation: A variance reduction sampling method to efficiently estimate the probability-of-failure for damage-tolerant structures, Chair: Harry Millwater, graduation date: August 2016.
6. Motasemi, M. Abed, Ph.D. in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Dissertation: Spatiotemporal Outlier Detection Methodologies for Image-based Process Monitoring, Chair: Adel Alaeddini, graduation date: May 2016.
7. Garza, Jose, Ph.D. in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Dissertation: Applications of Complex Variable Differentiation Methods in Probabilistic Analysis and Structural Dynamic Systems of Finite Elements, Chair: Harry Millwater, graduation date: December 2014.

M.S. Students [Total: 36]

1. Legette, S. MS in Mechanical Engineering (MS in ME), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "Finite Element Analysis of Embedded Pavement Components used to Mitigate Hear Urban Island Effect," Chair: Arturo Montoya, graduation summer 2019.
2. Phillips, F., MS in Mechanical Engineering (MS in ME), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Compression Work Reduction Study with Exergetic Analysis using Organic Rankine Cycle for Compressed Air Energy Storage Systems," Chair: Randall Manteufel, graduation: May 2019
3. Naveenkumar P., MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Using Lean Six Sigma to Improve yield Measurement System in a Snack Manufacturing Plant," Chair: F. Frank Chen, graduation: May 2019.
4. Ortiz, S., MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Senior Leadership Commitment to Continuous Process Improvement for a Culture Change: A Case Study of a U.S. Air Force Organization," Chair: F. Frank Chen, graduation: May 2019.
5. Lascurain-Escalante, S., MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special

- Project: "Service Quality Improvement: Introducing Quality Benchmarks in a Tutoring Center to Reduce Variability between Tutors' Knowledge," Chair: HungDa Wan, graduation: May 2018.
6. Benjamin Horner, MS in Mechanical Engineering (MS in ME), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "A Parameter Study of the Performance of Atmospheric Water Generators and their Forecasting Models," Chair: Zhi-Gang Feng, graduation: December 2017.
 7. Jeffrey Anderson, MS in Electrical Engineering, Electrical and Computer Engineering Department, University of Texas at San Antonio, Thesis: "Characterization of RedFlow's ZBM2 zinc-Bromide Flow Battery," Chair: Hariharan Krishnaswami, graduation: Summer 2017.
 8. Michael Nardone, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "A Feasibility Study of Fused Filament Fabrication for Improving Industrial Manufacturing," Chair: Frank Chen, graduation: May 2017.
 9. Matthew Piper, MS in Mechanical Engineering (MS in ME), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "How to Beat Flappy Bird: a Mixed-Integer Model Predictive Control Approach," Chair: Pranav Bhounsule, graduation: May 2017.
 10. Mohammad Shahin, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "The State of Lean Education in Secondary and Higher education: a Qualitative Review and Analysis," Chair: F. Frank Chen, graduation: May 2017.
 11. Deveshkumar R. Jariwala, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "A Study of the Lean Six Sigma Application in Public Service and Government Organizations," Chair: F. Frank Chen, graduation: December 2016.
 12. Tyler Bailey, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Spar-10 Innovations, USA Inc.; EZ-Torque: Improving the Economics of Torqueing Fasteners," Chair: F. Frank Chen, graduation: December 2016.
 13. Mahmoud Nagi, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Six Sigma and Lean Manufacturing Implementation in Engine Assembly Line," Chair: Chair: F. Frank Chen, graduation: December 2016.
 14. Cyril Jose, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Application of Lean Six Sigma Methodology to Improve an Engine Assembly Line," Chair: Chair: HungDa Wan, graduation: December 2016.
 15. Michael Lasch, MS in Mechanical Engineering (MS in ME), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "Design Optimization of a Centrifugal Pump for an Emergency Rescue Medical Device," Chair: Yusheng Feng, graduation: May 2016.
 16. Octavio Zavala, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Lean Manufacturing Tools Implemented in a 3D Printing Lab," Chair: HungDa Wan, graduation: May 2016.
 17. Nihar Gupta, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "The Desired Dynamics of Selected Lean Tools and Framework for Effective Design of Lean Simulation Games," Chair: HungDa Wan, graduation: May 2016.

18. Emma E. Flores, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: "A Study of the Uniqueness of Lean Methodologies when applied to Public Service Organizations," Chair: F. Frank Chen, graduation date: December 2015.
19. Bianca Juarez, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Comprehensive Exam, Chair: HungDa Wan, graduation date: December 2015.
20. Brendan Gallagher, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Comprehensive Exam, Chair: HungDa Wan, graduation date: May 2015.
21. Sandeep Kumar Gottumukla, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Project: Applying Lean and Six Sigma Methodology, Concepts and Tools for Sustainability, Chair: Frank Chen, graduation date: May 2015.
22. Vazquez-Doria, Jorge, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Comprehensive Exam, Chair: HungDa Wan, graduation date: December 2014.
23. Mancha Jr., Jesus, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: Literature Review on the Environmental Waste known as Emission, Chair: F. Frank Chen, graduation date: December 2014.
24. Iglesias, Eliseo, MS in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Thesis: Sensitivity Analysis of Turbine Engine Sustainment, Chair: Harry Millwater, graduation date: December 2014.
25. Meddouri, Mohamed, MS in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Special Project: Variance Reduction using Enhanced Sampling Method, Chair: Harry Millwater, graduation date: May 2014.
26. Gupta, Tushar, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: Optimization of Die storage location considering travel distance and time: A Case study of an Automotive Stamping Shop, Chair: F. Frank Chen, graduation date: May, 2014.
27. Nguyen, Luong Hanh, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: Make-to-Stock or Make-to-Order Scheduling Based on Incremental Cost Resource Smoothing Heuristic Algorithm for Single Product Lot Sizing. Chair: HungDa Wan, graduation date: May, 2014.
28. Sims, Trumone, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Thesis: Applying Theory of Constraints as a Continuous Improvement Tool in a Lean Environment. Chair: HungDa Wan, graduation date: May, 2014.
29. Vedala, Avanija, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: Facilitate Lean Implementation in Healthcare by Clustering Job Functions. Chair: HungDa Wan, graduation date: Summer, 2013.

30. Ramin Soujoudi, MS in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, "Estimation of Surface Temperature, Surface Heat Flux and Heat Transfer Coefficient in the Platform of Inverse Heat Conduction Problems", Chair: Antonio Campo, graduation date, May, 2013.
31. Madana, Venkata K., MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Value Stream Mapping for Lean Manufacturing Implementation – A case study at Helmet Chin Strap Manufacturing Unit", Chair: HungDa Wan, graduation date: May, 2013.
32. De la Riva-Canizales, Jose Luis, MS in Industrial Engineering and Manufacturing, Corporación Mexicana de Investigación en Materiales (COMIMSA), "Dynamic Analysis to Determine the Reliability of Just in Sequence Systems ", Chair: Miguel G. Cedillo-Campos, January 18, 2013.
33. Chris Bain, MS in Advanced Manufacturing and Enterprise Engineering (MS in AMEE), Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Lean Metrics and Value Stream Income Statement Implementation", Chair: Dr. F. Frank Chen, graduation date: November, 2012.
34. Javier Carrera, MS in AMEE, Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Simulation Analysis of Mixed Model Assembly Line", Chair: Dr. F. Frank Chen, graduation date: November, 2012.
35. Aziz Akbarali Maredia, MS in Mechanical Engineering, Mechanical Engineering Department, University of Texas at San Antonio, Special Project: "Voxel Point Representation of 3-Dimensional Objects", Chair: Dr. Hung-Da Wan, graduation date: November, 2012.
36. Joel Rolando Guillén-Celedón, MS in Quality Systems and Productivity, Tecnológico de Monterrey, Campus Monterrey, "Diagnostic tool to reduce the ground transportation logistic cost for micro, small, and medium companies in Mexico", Chair: Dr. Jorge Limón, graduation date: May 2012.

J. SERVICE ACTIVITIES

1. Administrative Positions

5/2017-Present Director of the Texas Sustainable Energy Research Institute (TSERI) - <http://texasenergy.utsa.edu/>

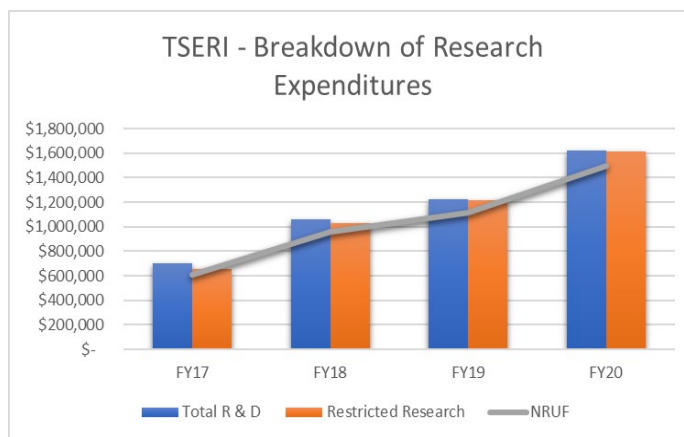
CPS Energy – TSERI Strategic Alliance

Since I took the leadership in 2017, TSERI reenergized the strategic relationships with CPS Energy and the City of San Antonio by implementing a flexible approach to collect concept papers from UTSA faculty members and provide CPS decision makers with a wide range of innovative ideas/technologies. CPS supported five new research initiatives to enhance clean energy reduction/integration, improve air quality and reduce greenhouse gas emissions with close to \$1.5 million in academic year 2017-2018 (<https://www.utsa.edu/today/2017/10/story/TSERIALliance.html>), \$1M in AY 2018-2019, \$750K in AY 2019-2020 and \$750K in the current AY in 2020-2021 (<https://www.utsa.edu/today/2019/09/story/CPS-TSERI.html>). The original CPSE-TSERI Strategic Alliance agreement expired in August 2020, a bridge and new agreements are in place to continue our partnership for the next decades.

The Institute has diversified its portfolio by aggressively pursuing external funding. The table below shows the **proposal funded in AY 2018-2019 for an amount of \$4.05M**. *The highest productivity since the institute's inception in 2010*. In AY 2019-2020, despite of the pandemic, TSERI secured \$1.57M in funding.

	Proposals Submission #	Proposals Submission \$	Proposals Funded #	Proposals Funded \$
FY19	20	\$ 6,320,596	12	\$ 4,051,147
FY20 (12 mn)	20	\$ 6,270,319	5	\$ 1,573,507

The figure below shows the breakdown of the research expenditures, which have considerably increased since 2017.



In early Spring 2019, **TSERI led the energy efficiency component of the proposal for a Cyber Manufacturing Innovation Institute (CyManII) – a proposal for \$111M** (including cost share). In May 2020, **Department of Energy awarded \$70M to establish CyManII at UTSA** (https://www.utsa.edu/today/2020/05/story/DOE_selects_UTSA_CyManII.html). TSERI serves as the platform for multi-institutional efforts on baselining and Secure Measurement and Verification innovations. This will elevate the national and international recognition of TSERI as a leading institute in energy efficiency to reposition US manufacturing in the global competitive environment.

2. Service at Department Level

- 8/2012-5/2013 Organized of the Mechanical Eng. Seminar in conjunction with Dr. Xiaowei Zeng. Activities: Invite speakers and host their visit.
- 1/2013-5/2013 Served as member of the ME Department’s Promotion Committee in conjunction with Dr. Victor Maldonado. Main activities: create brochures for the Ph.D. program and give talks at foreign universities to recruit international students.
- 8/2013-8/2014 Served as member of the ME Faculty Search Committee for the Computational Materials Position. Chair: Dr. Xiaodu Wang. Main activities: conduct search of faculty position, evaluate applications, and coordinate the online interviews with candidates.
- 3/2015 Served in the 2015 Texas Science and Engineering Fair as fair judge, senior division, energy and transportation. San Antonio, TX, March 28, 2015

1/2015-12/2015	Served as member of the F&A Committee. Main activities: analyze and recommend how to use the Mechanical Engineering F&A allocation. Chair: Dr. Yusheng Feng.
9/2015-12/2015	Served as member of the ME Faculty Search Committee for the Energy Position. Chair: Dr. Randall Manteufel. Main activities: conduct search of faculty position, evaluate applications, and coordinate the online interviews with candidates.
1/2016-5/2017	Served as member of the F&A Committee. Main activities: analyze and recommend how to use the Mechanical Engineering F&A allocation. Chair: Dr. Yusheng Feng.
9/2016-8/2020	Served as member of the PhD Exam Committee. Main activities: write and grade the Math PhD exam.
9/2017-8/2020	Served as member of the DFRAC Committee. Main activities: evaluation third year review and tenure cases.
9/2017-3/2018	Served as member of the ME Faculty Search Committee for the Manufacturing (Associate Professor). Chair: Dr. Can Saygin. Main activities: conduct search of faculty position, evaluate applications, and coordinate the online interviews with candidates.
9/2020-2/2021	Served as member of the Faculty Search Committee for the Mechanical Engineering Department Chair. Chair: Dr. Eric Brey. Main activities: conduct search, evaluate applications, and coordinate the interviews with candidates.

3. Service at College Level

12/2012	Served as banner for the College of Engineering, Commencement Ceremony.
5/2014	Served as banner for the College of Engineering, Commencement Ceremony.
5/2015	Served as banner for the College of Engineering, Commencement Ceremony.
4/2015-5/2015	Served as member in the COE Faculty Workload Policy Task Force, Chair: Mark Appleford.
5/2015	Served as reviewer in the UTSA seed grants. Activities: Evaluate CoE proposals.
9/2015	Served as reviewer in the UTSA Limited Submission panel review. Activities: Evaluate internal pre-proposals.
2/2016-4/2016	Served in the CoE Research Strengths Committee. Chair: Anson Ong.
5/2016	Served as reviewer in UTSA seed grants. Activities: Evaluate CoE proposals.
9/2017-3/2018	Served as member of the ECE Faculty Search Committee for the Machine Learning and Data Analytics Position (Associate Professor). Chair: Dr. David Akopian. Main activities: conduct search of faculty position, evaluate applications, and coordinate the online interviews with candidates.
9/2017-12/2017	CoE faculty coordinator for the Dreamer Resource Center.
12/2018-12/2019	CoE Faculty advisor of (Mexican American Engineering society) MAES – Latinos In Science and Engineering. President: Ilse Garza.
9/2019-2/2020	Served as member of the ECE Faculty Search Committee for the Assistant, Associate, Full Professor - Power/Energy Systems or Hardware Security Position. Chair: Dr. David Akopian. Main activities: conduct search of faculty position, evaluate applications, and coordinate the online interviews with candidates.

4. Service at University Level

11/2014	Participated in the marketing campaign of the Faculty Center. Activities: Provide testimonial and picture for the creation of marketing material.
5/2014	Served as reviewer in the UTSA Limited Submission panel review. Activities: Evaluate internal pre-proposals.

3/2015	Served in the development of the UTSA 2020 Blueprint. Pillar: Innovative Research and Discovery. Initiative Topic: Expand Internal Collaborations. Chair: Dan Hollas.
1/2016	Served in the Revision of HOP 2.41 - Endowed Chairs, Professorships and Faculty Fellowships. Chair: Jesse Zapata.
2/2017	Served as committee member in the President's Distinguished Achievement Award for Advancing Globalization. Chair: Sonia Alconini.
10/2017-5/2018	Finance and Budget Model Task Force. Chair: Kathryn funk-Baxter (Vice President for Business Affairs) and co-chairs: Mauli Agrawal and Sam Gonzales.
9/2018-12/2018	Served as Diversity Access and Equity Advocate in the Demography (Artificial Intelligence Cluster) Faculty Search Committee. Chair: Corey Sparks.
9/2018-12/2018	Served as Committee Member in the Department of Physics & Astronomy Chair Search Committee. Chair: John H. Frederick.
9/2018-12/2018	Served as Committee Member in the Vice Provost and Dean of Graduate School Search Committee. Chair: Heather Shipley.
9/2019-11/2019	Served as Committee Member in the Search for Vice President for Research, Economic Development And Knowledge Enterprise. Chair: Kimberly Espy.
9/2018-8/2020	Served as Committee Member in the Open Cloud Institute Director Search Committee. Chair: Bernard Arulanandam.
1/2019-8/2020	Served as a team member in UTSA Aspire's Institutional Change (IC) Network. NSF INCLUDES Aspire: The National Alliance for Inclusive & Diverse STEM Faculty. Chair: Heather Shipley.
9/2019-8/2020	Served as Committee Member in VPREDKE's strategic planning efforts for Accelerate 2030: UTSA's Research Strategic Plan. Chair: Bernard Arulanandam.
4/2020-11/2020	Served as Committee Member in the Integrated Design Initiative Task Force. Chair: JoAnn Browning.

5. Professional Service

Editorial Board

- Associate Editor of the Energy Systems Journal, Springer. Editor in Chief: Panos M. Pardalos and Qipeng Phil Zheng.

Leadership Positions in Professional Societies

- President-elect, Logistics and Supply Chain (LSC) Division of the Institute of Industrial and Systems Engineering from 2020-Present.
- Assistant Webmaster, American Society of Engineering Education, Women in Engineering Education, 2020-Present.
- Member of board of directors (Awards Director) at the Logistics and Supply Chain (LSC) Division of the Institute of Industrial and Systems Engineering from 2017-2019 (Re-elected)
- Member of board of directors (Awards Director) at the Logistics and Supply Chain (LSC) Division of the Institute of Industrial and Systems Engineering from 2015-2017.

Awards Committee Member/Judge.

- 2020 ENRE Best Student Paper, INFORMS, National Harbor, MD, November 2020. Committee Chair.
- 2019 Nicholson Prize, INFORMS, Seattle, October 2019. Committee Member.
- 2019 ENRE Best Student Paper, INFORMS, Seattle, October 2019. Committee co-chair with Boris Defourny (Lehigh University)

- 2018 Best Teacher Award – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE). Committee Chair.
- 2018 Outstanding Industry Practitioner – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE). Committee Chair.
- 2018 Student Case Competition – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE). Committee Chair.
- 2017 Best Teacher Award – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE). Committee Chair.
- 2017 Outstanding Industry Practitioner – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE). Committee Chair.
- 2017 Student Case Competition – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE). Committee Chair.
- 2016 INFORMS ENRE Best Publication Award in Environment and Sustainability, INFORMS, Nashville, TN, November 2016. Committee Member.
- 2016 Institute of Industrial Engineering (IIE) Logistics and Supply Chain Division, Teaching Award, ISERC, Anaheim, CA, May 2016. Committee Chair.
- 2016 Best Track Paper, Logistics and Supply Chain Track, ISERC, Anaheim, CA, May 2016. Committee Member.
- 2016 Best Student Paper, Logistics and Supply Chain Track, ISERC, Anaheim, CA, May 2016. Committee Member.
- 2015 INFORMS ENRE Best Publication Award in Environment and Sustainability.
- Member of the Organizing Committee in the Railway Applications Section (RAS) Problem Solving Competition at 2015 INFORMS, Chair: Dr. Francesco Corman.

Panelist/Research Proposal Reviewer

- Department of Energy – ARPA-E (2015 and 2018)
- ORAU, Ralph Powe Award Program, 2018, 2019
- UTSA VPR – Seed Grants
- ConTex – 2018, 2019

Paper Reviewer. Computers and Industrial Engineering, Transportation Research Part E: Logistics and Transportation Review, International Journal of Systems Science, Institute of Industrial and Systems Engineering (IISE) Transactions, IEEE CIM (Institute of Electrical and Electronics Engineers-Computational Intelligence Magazine); European Journal of Operations Research; International Journal of Production Economics; International Journal of Production Research; Computers and Industrial Engineering; Robotics and Computer-Integrated Manufacturing; Journal of Cleaner Production; Energies; Processes; Mathematical Problems in Engineering; Energy Systems; American Society for Engineering Management Conference; Industrial and Systems Engineering Research Conference (ISERC); FAIM (24th International Conference on Flexible Automation and Intelligent Manufacturing); ASEE Annual Conference; ASME Manufacturing Science and Engineering Conference; 2014 IEEE Symposium Series on computational Intelligence; International Conference in Computational Logistics; among others.

Professional Memberships

- IIE (Institute of Industrial Engineers), ASEM (American Society of Engineering Management), INFORMS (Institute for Operations Research and the Management Sciences), and ASEE (American Society for Engineering Education).
- Member of the Southeastern Partnership for Integrated Biomass Supply Systems (IBSS, <http://www.se-ibss.org/>).

Conference Organization

Conference Chair/Co-Chair

- Chair in the Innovations in Data Analytics for Smart Agriculture (iDASA) Conference, summer 2020, San Antonio, TX, USA.
- Co-Chair in the Flexible Automation & Intelligent Manufacturing 24th International Conference (FAIM 2014), May, 2014, San Antonio, TX, USA.

Track Chair/Co-Chair

- Co-chair in the Sustainability Track, 2019 Industrial and Systems Engineering Research Conference (ISERC), May, 2019, Orlando, Florida, USA.
- Co-chair in the Energy Systems Track, 2018 Industrial and Systems Engineering Research Conference (ISERC), May, 2018, Orlando, Florida, USA.
- Co-chair in the Logistics and Supply Chain Track, 2016 Industrial and Systems Engineering Research Conference (ISERC), May, 2016, Anaheim, California, USA.
- Co-Chair in the 2014 ASME International Conference on Manufacturing Science & Engineering (MSEC2014), Quality & Reliability Symposium, June 9-13, 2014, MI, USA.

Special Session Chair

- Chair of the invited session: Energy Aspects towards a Smart City, 2018 INFORMS Annual Meeting, November 4-7, Phoenix, AZ, USA.
- Chair of the special session, Integrated Biofuels Supply Chain Design, Environment-Sustainability cluster of ENRE division, 2015 INFORMS Annual Meeting, November 1-4, 2015, Philadelphia, USA.
- Chair of the special session, Supply Chain Design, Optimization, and Management. 2014 IEEE Symposium on Computational Intelligence in Production and Logistics Systems, December 9-12, 2014, Orlando, Florida, USA.

Member

- Member of the Scientific Committee of the International Conference on Computational Logistics (ICCL), September 24-26, 2014, Chile.
- Member of the Scientific Committee of CiLOG 2013 (International Congress on Logistics & Supply Chain), October 24-25, 2013, Queretaro, Mexico.
- Member of the Scientific Committee of IV Latin-American Conference in Operation Research and Management Sciences. April 25-26, 2013, Santa Cruz, Bolivia.