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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).

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## B. PROFESSIONAL EMPLOYMENT HISTORY

- 09/2017- Present **GreenStar Endowed Associate Professor in Energy**, Mechanical Engineering Department at the University of Texas at San Antonio (UTSA).  
**Director of the Texas Sustainable Energy Research Institute (TSERI)**  
[texasenergy.utsa.edu](http://texasenergy.utsa.edu)
- 08/2012-08/2017 **Assistant Professor** in the Mechanical Engineering Department at the University of Texas at San Antonio (UTSA).
- 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)

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

- 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, 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 as a [Young Engineer](#) (30-45 years old) to 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 have been 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.

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## D. PUBLICATIONS

*In the following subsections \* means student. Impact factors reported by JCR of 2014.*

**Published in Peer-Reviewed Journals** [Total Citations since 2012: 253, h-index: 8]

1. 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 [Impact Factor: 2.072].
2. **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. [Impact Factor: 5.315].
3. 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 [Impact Factor: 2.305]
4. Quader, S.\*, **Castillo-Villar, K.K.** (In Press). Design of an Enhanced Multi-aisle Order-picking System Considering Storage Assignments and Routing Heuristics, *Robotics and Computer-Integrated Manufacturing*, In Press. DOI: 10.1016/j.rcim.2015.12.009 [Impact Factor: 2.305]
  5. 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 [Impact Factor: 2.072].
  6. **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 [Impact Factor: 2.072]
  7. 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 [Impact Factor: 2.1]
  8. 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
  9. 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 [Impact Factor: 0.762]
  10. 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 [Impact Factor: 0.762]
  11. 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 [Impact Factor: 3.394]
  12. **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 [Impact Factor: 2.072]
  13. 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 [Impact Factor: 2.072]
  14. **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, *Computational Intelligence Magazine, IEEE*, 9(4), 31-45. DOI: 10.1109/MCI.2014.2350934 [Impact Factor: 2.571]
  15. 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 [Impact Factor: 2.849]
  16. 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 [Impact Factor: 0.762]

17. 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 [Impact Factor: 0.962]
18. **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 [Impact Factor: 0.762]
19. **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 [Impact Factor: 0.762]
20. **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.
21. **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 [Impact Factor: 1.477]
22. **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 [Impact Factor: 2.251]
23. **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.

## 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.

## Referred Book Chapters

1. Taherkhorsandi, M.\*, **Castillo-Villar, K. K.**, Mahmoodabadi, M. J., Janaghaei, 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
2. 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
3. **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

4. **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

## Refereed Conference Papers

In total, 24 refereed conference papers.

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## E. SCHOLARLY PRESENTATIONS

In total, 28 presentations refereed by abstract and presented in conferences.

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## F. GRANTING ACTIVITIES

### Funded Grants

Dr. Castillo has received a total of ~\$2.62 M in grant funding as principal investigator and ~\$2.3 M as co-principal investigator. The following table show the funded research grants.

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), <b>Krystal Castillo (Co-PI).</b>
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)	<b>Krystal Castillo (PI).</b>
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: <b>Krystal Castillo</b> , 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> , <b>Krystal Castillo (Co-PI).</b>
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: <b>Krystal Castillo</b> , 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)	<b>Krystal Castillo (PI).</b>
Summer 2013-Spring 2014	Reliability Project in Assembly Process	Toyota Motor Manufacturing Texas	\$13,860 (Completed)	<b>Krystal Castillo (PI).</b>
7/1/2013-6/30/2015	Continuous Improvement and Sustainability at Harland Clarke	Harland Clarke	\$33,000 (Completed)	Hung-Da Wan (PI), Co-PI: <b>Krystal Castillo</b> , 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 (NSF's Mexico)	\$135,241 (\$82,000 in tuition) (Active)	<b>Krystel Castillo (PI).</b>
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)	<b>Krystel Castillo (PI).</b>
9/1/2014-8/31/2018	Scheduling and Routing Optimization for Supply Chains with Disruption in Transportation (Fellowship)	National Council of Science and Technology (NSF's Mexico)	\$133,020 (\$77,360 in tuition) (Active)	<b>Krystel Castillo (PI).</b>
9/1/2014-8/31/2018	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 (Active)	<b>Krystel Castillo (PI),</b> 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: <b>Krystel Castillo</b> , Yufei Huang, John Quarles, Craig Sisson, Bruce Adams, Yidong Chen, Ed Sako, John Calhoun, Laura Rosenkranz.
4/15/2015-8/31/2015	A Fleet Analysis Demonstration in Collaboration with Austin Energy's Central Texas Fuel Independence Project (CTFIP)	Austin Energy's Central Texas Fuel Independence Project (CTFIP)	\$20,000 (Completed)	Dwain Rogers (PI), Co-PI: <b>Krystel Castillo</b>
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: <b>Krystel Castillo</b> , 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)	<b>Krystel Castillo (PI)</b> , 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 (Active)	Heather Shipley (PI), <b>Krystel Castillo (Co-PI)</b> , 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: <b>Krystel Castillo</b> , Fengshan Chen, Can Saygin, Adel Alaeddini.
9/1/2015-8/31/2018	Latina SciGirls: Addressing Barriers to	National Science Foundation's Advancing	(Active)	Rita Karl (PI), Richard Hudson (Co-PI), Alicia

	Promote Middle School Age Hispanic Girls' Positive STEM Identity Development Through Media, Outreach and Role Models.	Informal STEM Learning initiative		Santiago (Co-PI), Brenda Britsch (Co-PI). <b>Krystel Castillo (Mentor and role model).</b>
9/1/2015-8/31/2019	BioEnergy And Water for Agriculture Research and Education (BE AWARE) Network	U.S. Department of Agriculture/National Institute of Food and Agriculture	<b>\$1,000,000</b> (Active)	<b>Krystel Castillo (PI)</b> ,_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)	<b>Krystel Castillo (PI).</b>
11/1/2015-1/1/2018	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.	\$139,189 (Active)	<b>Krystel Castillo (PI).</b>
3/29/2016–3/30/2019	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 (Active)	<b>Krystel Castillo (PI)</b> , Hatim Sharif (Co-PI)
9/1/2016–8/31/2018	Cloud-based Decision Support System Integrating Biomass Quality, Uncertainty and Risk to Optimize the Production of Second-generation Biofuels	South Central Sun Grant	\$150,000 (Active)	<b>Krystel Castillo (PI)</b> , 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 Emissions in Coal Power Plants	Environmental Protection Agency (EPA)	\$15,000 (Completed)	<b>Krystel Castillo (PI)</b> , Marcio Giacomoni (Co-PI)
9/1/2017-8/31/2018	Dual-Mode Rotors for Small Horizontal-Axis Wind Turbines	ConTex – Postdoctoral Fellowship	\$47,476 (Active)	<b>Krystel Castillo (PI)</b>
9/1/2017-8/31/2022	A Cloud-based Expert System to Support the Production of Clean Energy	ConTex – PhD Fellowship	\$149,875 (Active)	<b>Krystel Castillo (PI)</b>
9/1/2017-8/31/2018	Cloud-based Data Analytics To Support Sustainable Clean Energy Production	Open Cloud Institute Fellowship	\$30,000 (Active)	<b>Krystel Castillo (PI)</b>
9/1/2017-8/31/2018	An Open Source Based Proactive Energy	City Public Service (CPS) through the Texas	\$356,631 (Active)	Bing Don (PI), <b>Krystel Castillo (co-PI)</b> , Jeff Xu

	Management System (PEMS) for Integrated Control of Battery Energy Storage System (BESS) and Solar-Powered Buildings	Sustainable Energy Research Institute		(co-PI)
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## 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.

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

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## H. LIST OF STUDENTS MENTORED

Active recruitment and mentoring of minority students is an important component of teaching and education. With an increasing percentage of the United States population of minority background, it is important to encourage, recruit and mentor minority students. Thus, I have made it a priority to *recruit and develop minority and female students*.

### Current Ph.D. Students [Total: 3]

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

- Topic: Stochastic Modeling and Optimization of Clean Energy Systems. Started in Fall 2016- Expected May 2021.



Mario Aboytes (Hispanic), Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Topic: Stochastic Programming in Biomass Feedstock Logistics. Started in Fall 2014- Expected May 2018

Sue Stankus (Female), Mechanical Engineering with concentration in Manufacturing Systems, UTSA.

- Topic: A Novel Spatiotemporal Statistical Quality Control Scheme using 3D Point Cloud Data. Started in Spring 2014- Expected October 2017

### **Current MS Students [Total: 5]**

Mario Chapa (Hispanic), MS in ME, UTSA

- Topic: Cloud-based Decision Support System for Enhanced Bioenergy Production. Started in Fall 2016- Expected May 2018

Brittany Shier (Female), MS in AMEE, UTSA

- Topic: Optimizing Algae Growth and Lipid Accumulation for Biofuel Production. Started in Fall 2016- Expected May 2018

Emilio Hernandez (Hispanic), MS in ME, UTSA

- Topic: Modeling of Quality Characteristics in the Production of Biocrude using an Innovative Hydro-pyrolysis Test Bed. Started in Fall 2014- Expected Dec. 2017

Alyssa Daniel, MS in AMEE, UTSA

- Topic: TBD. Started in Jan. 2017- Expected Dec. 2018.

Amanda Hydar, MS in AMEE, UTSA

- Topic: TBD. Started in Aug. 2017- Expected Aug. 2019.

### **Current Undergraduate Research Supervision/Undergraduate Internship Supervision [Total: 6]**

- 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).
- 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).
- 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).
- 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).
- 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).

- 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).

## 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).

## Graduate Summer Internships

- Sue Stankus (Ph.D. candidate) 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. candidate) 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 the Idaho National Laboratory, Idaho, ID, June-August, 2017 (Expected).

## Visiting Scholars

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

## 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: Krystal 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: Krystal Castillo, expected graduation date: December 2017.

## Ph.D. Dissertation Directed

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. Grade: A. 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 Directed**

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. Grade: A.

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. Grade: A. 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. Grade: A. 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>

Azubuikwe 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.

## **I. SERVICE ON GRADUATE COMMITTEES**

**Ph.D. Students [Total: 4]**

**M.S. Students [Total: 27]**

## **J. PROFESSIONAL SERVICE**

### **Awards Committee Member/Judge.**

- 2017 Best Teacher Award – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE).
- 2017 Outstanding Industry Practitioner – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE).
- 2017 Student Case Competition – Logistics and Supply Chain Division of the Institute of Industrial and Systems Engineering (IISE).

- 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, chairman: Dr. Francesco Corman.

#### **Panelist/Research Proposal Reviewer**

- Department of Energy
- UTSA VPR – Seed Grants

**Referee.** 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; among others.

#### **Leadership Positions in Professional Societies**

- Member of board of directors (Awards Director) at the Logistics and Supply Chain (LSC) Division of the Institute of Industrial and Systems Engineering from 2015-2019.

#### **Program Chair/Co-Chair**

- *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 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/Co-Chair**

- *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.*