

Dongping Du

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Research Interests

Biomedical and Health Informatics, Applied Statistics and Machine Learning, Large Health Care Data Analytics, Risk Assessment and Survival Analysis, Biological System Modeling and Simulation, Data-driven Post-operative Health Management, and Smart and Connected Health.

Education

Ph.D., Industrial Engineering, University of South Florida, May 2015
M.Sc., Industrial Engineering, University of South Florida, May 2012
M.Sc., Electrical Engineering, China University of Mining and Technology (Beijing), July 2010
B.Sc., Electrical Engineering, China University of Mining and Technology (Beijing), July 2008

Employment

2021 – present Tenured Associate Professor, Industrial, Manufacturing, and Systems Engineering, TTU
2015 – 2021 Tenure-track Assistant Professor, Industrial, Manufacturing, and Systems Engineering, TTU
2010 – 2015 Research/Teaching Assistant, Industrial & Management Systems Engineering, USF

Funded Research Projects

- Data Refinement and Reduction for Aviation Sustainment (DRRAS Phase III), DOD, (Co-PI (20%), \$299,482, 2023-2024)
- I-Corps: Post-operative Risk Prediction for Heart Failure Patients, NSF, TI-2230433, (PI, \$50,000, 2022-2024)
- Data Refinement and Reduction for Aviation Sustainment (DRRAS Phase II), DOD, (Co-PI, \$525,971, 2022-2024)
- Presidents' Innovative Startup Award for commercializing a software application for clinical post-operative risk assessment, TTU, (PI, \$5,000, 2022-2023)
- Data Science Activities for the Civil, Mechanical and Manufacturing Innovation Communities, Supplement for NSF CMMI-1728338, (\$53,428, funded on 06/2020)
- Collaborative Research: Personalized Modeling, Monitoring and Control for Advancing Ventricular Assist Device Therapy in End-stage Heart Failure, NSF, CMMI-1728338, (PI, \$275,974 to TTU, Total award \$516,594, 2017 - 2021)
- REU Supplement for NSF CMMI-1728338 (\$7,979, funded on 04/2018)
- Instrumentation Acquisition for Research and Education in Hybrid Manufacturing and Advanced Material Remanufacturing, DOD, (Co-PI, \$174,000, 2018 - 2019)
- EAGER/Collaborative Research: Collaborative Sensing, Modeling and Optimization of Post-operative Management of Heart Health, NSF, CMMI-1646664, (PI at TTU, \$99,806 to TTU, Total award \$338,378, 2016 - 2019).

Publications [ORCID](#) , [Google scholar](#)

Journal Papers (*student supervised)

- [1] Dong*, N., **Du, D.**, Nair, N., " Risk prediction of post-transplant lymphoproliferative disease in heart transplant patients", *IEEE Journal of Biomedical and Health Informatics*, 2025
- [2] Nair, N., **Du, D.**, Johnston, H., Mahesh, B., " Scalable bayesian nonparametric method for clinical risk prediction using large-scale data from heterogeneous populations", *ASAIO Journals*, 2025
- [3] Chiu*, K., **Du, D.**, " Neural ordinary differential equation-based model predictive controller for regulating glucose concentration in a fed-batch CHO cell bioreactor", *The Canadian Journal of Chemical Engineering*, Vol. 103, No. 9, pp 4329-4342, 2025

- [4] GF Cacao*, **D Du**, N Nair, "Unsupervised Image Segmentation on 2D Echocardiogram", *Algorithms*, 17 (11), 515. (Featured Article)
- [5] Rubin, M.*, **Du, D.** (2024). "A Review of Dynamic Fault Tree Analysis and Capacity Degradation for Complex Redundant Systems". *Quality and Reliability Engineering International*. 2024
- [6] Chiu*, K., **Du, D.**, "A neural ordinary differential equation model for predicting the growth of Chinese Hamster Ovary cell in a bioreactor system", *Biotechnology and Bioprocess Engineering*, 1-16, 2024
- [7] N Nair, Z Hu*, B Mahesh, **D Du**, "Propensity matched post-transplant survival in durable CF-axial pump BTT patients with and without diabetes: A UNOS database analysis", *The International Journal of Artificial Organs*, Volume 47, Issue 6, 2024
- [8] N. Nair, Z. Hu*, B. Mahesh, and **D. Du**, "Propensity matched post-transplant survival in durable CF-axial pump BTT patients with and without diabetes: A UNOS database analysis," *The International Journal of Artificial Organs*, p. 03913988241259968, 2024.
- [9] N. Nair, B. Mahesh, and **D. Du**, "The Long-Term Survival of LVAD Patients—A TriNetX Database Analysis," *Journal of Clinical Medicine*, vol. 13, no. 14, p. 4096, 2024.
- [10] Hu*, Z., Wang, C., Wu, J., **Du, D.**, "Gaussian Process Latent Variable Model-Based Multi-Output Modeling of Incomplete Data", *IEEE Transactions on Automation Science and Engineering*, early access, 2024
- [11] Nair, N., Hu, Z.*, **Du, D.**, Gongora, E., "Skin Cancer Risk Prediction in Heart Transplant Recipients", *Experimental and Clinical Transplantation*, Vol. 21, Issue 1:41-46, 2022
- [12] Chhetri, S. B.*, **Du, D.**, "Project Portfolio Reliability: A Bayesian approach for LeAgile project", *Engineering Project Management*, Vol. 35, Issue 3, Pages 223-236, 2022.
- [13] Nair, N., Hu, Z.*, **Du, D.**, Gongora, E., "Risk Prediction Model for Survival of Wait-List Patients on Axial CF-LVAD: A UNOS Database Analysis", *Transplantation Proceedings*, Vol. 54, Issue 7, 1894-1901, 2022.
- [14] Xing, W., **Du, D.**, Chiu, K.*, Bakhshi, A.*, "Design Transferable Prediction Model using Bayesian Updating Approach", *IEEE Transactions on Education*, Vol. 14, Issue 4, 2021.
- [15] Nair, N., Hu, Z.*, **Du, D.**, Gongora, E., "Risk prediction model for basal cell carcinoma in cardiac allograft recipients", *Transplantation Proceedings*, Vol. 53, Issue 6:1981-1988, 2021.
- [16] Zhao, X., Yan, H., Hu, Z.*, **Du, D.**, "Deep spatio-temporal sparse decomposition for trend prediction and anomaly detection in cardiac electrical conduction", *IIEE Transactions on Healthcare Systems Engineering*, Vol. 12, Issue 2: 150-164, 2021.
- [17] Chhetri, S. B.*, **Du, D.**, "Continual learning with Bayesian approach for evolving baselines of LeAgile project portfolio", *International Journal of Information Systems and Project Management*, Vol. 8, No.4, 2020.
- [18] Nair, N., Hu, Z.*, **Du, D.**, Gongora, E., "Risk prediction model for cutaneous SCC in cardiac allograft recipients", *World J Transplant*, 11(3):54-69, 2020.
- [19] Hu, Z.*, **Du, D.**, "Heart Failure readmission prediction: a new analytical framework for missing data imputation and classification with uncertainty", *PloS one*, Vol. 15, Issue 9: e0237724, 2020.
- [20] Son, J., **Du, D.**, Du, Y. "Modified Polynomial Chaos Expansion for Efficient Uncertainty Quantification in Biological Systems", *Applied Mechanics*, Vol. 1, Issue 2, pp. 153-173, 2020.
- [21] Hu, Z.*, Du, Y., **Du, D.**, "A two-stage model identification method for simulation of electrical wave propagation in heart tissue", *IEEE Access*, Vol. 8, pp. 123524 - 123535, 2020.
- [22] Koneshloo, A.*, **Du, D.**, "A uncertainty modeling framework for intracardiac electrogram analysis", *Bioengineering*, Vol. 7, Issue 2, 2020.
- [23] Son, J., **Du, D.**, Du, Y. "Modelling and control of a failing heart managed by a left ventricular assist device", *Biocybernetics and Biomedical Engineering*, Vol. 40, Issue 1, pp. 559-73, 2020.
- [24] Zaman, M. A. *, Sooriyaarachchi, D., Zhou Y., Tan, G. Z., **Du, D.**, "Modeling the density gradient of 3D nanofiber scaffolds fabricated by divergence electrospinning", *Advances in Manufacturing*, 9, pages 414–429, 2020.
- [25] Koneshloo, A. *, **Du, D.**, "A novel motion artifact removal method via joint basis pursuit linear program to accurately monitor heart rate", *IEEE Sensors Journal*, Vol. 9, Issue 21, pp. 9945-52, 2019.
- [26] Son, J., **Du, D.**, Du, Y., "Stochastic modeling and dynamic analysis of the cardiovascular system with rotary left ventricular assist devices", *Mathematical Problems in Engineering*, Vol. 2019, 7179317, 2019.

- [27] Liu, Z., Zhang, H.C., Peng, S., Kim, H., **Du, D.**, Cong, W., "Analytical modeling and experimental validation of powder stream distribution during direct energy deposition", *Additive Manufacturing*, Vol. 30, 100848, 2019.
- [28] Xing, W., **Du, D.**, "Dropout prediction in MOOCs: using deep learning for personalized intervention". *Journal of Educational Computing Research*, Vol 57, Issue 3, 547-570, 2019.
- [29] Zhou, Y., Hu, Z.*, **Du, D.**, Tan, G. Z., "The effects of collector geometry on the internal structure of the 3D nanofiber scaffold fabricated by divergent electrospinning", *The International Journal of Advanced Manufacturing Technology*, Vol. 100, 3045-54, 2019.
- [30] Hu, Z. *, Du, Y., **Du, D.**, "Efficient uncertainty quantification and propagation in multi-scale modeling of cardiac electrophysiology", *Computers in Biology and Medicine*, Vol. 102, pp. 57-74, 2018.
(*Best student poster award, QSR section, INFORMS Annual meeting 2019*)
- [31] Zhu, L.*, Kan, C., Du, Y., **Du, D.**, "Heart rate monitoring during physical exercise from photoplethysmography using neural network", *IEEE Sensor Letters*, Vol. 3, Issue 1, 2018.
- [32] Du, Y, **Du, D.**, "Fault detection and diagnosis using Empirical Mode Decomposition based Principal Component Analysis", *Computers and Chemical Engineering*, Vol. 115, pp 1-21, 2018.
- [33] Du, Y., Budman, H, Duever, T. A., **Du, D.**, "Fault detection and diagnosis for nonlinear chemical process using Lasso and Gaussian Process". *Industrial & Engineering Chemistry Research*, Vol. 57, Issue 27, pp 8962-77, 2018.
- [34] **Du, D.**, Yang, H., S. A. Norring, and E. S. Bennett, "In-silico modeling of the functional role of reduced sialylation in sodium and potassium channel gating of mouse ventricular myocytes," *IEEE Journal of Biomedical and Health Informatics (Featured Article)*, Vol 22, No. 2, pp. 631-639, 2018.
- [35] Wang, H., Ning, F., Hu, Y., **Du, D.**, Cong, W., "Surface grinding of CFRP composites using rotary ultrasonic machining: design of experiment on cutting force, torque and surface roughness". *International Journal of Manufacturing Research*, 12(4), 461-479, 2017.
- [36] **Du, D.**, Yang, H., Ednie, A. R., and E. S. Bennett, "Statistical Metamodeling and Sequential Design of Computer Experiments to Model Glyco-altered Gating of Sodium Channels in Cardiac Myocytes", *IEEE Journal of Biomedical and Health Informatics*, Vol. 20, No. 5, 2016.
- [37] **Du, D.**, Yang, H., S. A. Norring, and E. S. Bennett, "In-Silico Modeling of Glycosylation Modulation Dynamics in HERG Channels and Cardiac Electrical Signaling", *IEEE Journal of Biomedical and Health Informatics (Featured Article)*, Vol. 18, No. 1, 2014.
- [38] S. A. Norring, Ednie, A. R., T. A. Schwetz, **Du, D.**, H. Yang and E. S. Bennett, "Channel Sialic Acids Limit hERG Channel Activity During the Ventricular Action Potential", *The FASEB Journal*, Vol. 27, Issue 2, p. 622-631, 2013.

Peer-reviewed Medical Abstracts

- [39] Nair, N., Johnston, H. *, **Du, D.**, , & Gongora, E., "Machine Learning Ensemble Models for Predicting Post-Transplant Lymphoproliferative Disorder in Heart Transplant Recipients", *The Journal of Heart and Lung Transplantation*, Vol. 42, Issue 4, pp. S21-22, 2023.
- [40] Nair, N., Harish, A, **Du, D.**, , & Gongora, E., "Determination of Incidence and Mortality of Cancer in Cardiac Transplant Patients-A Unos Database Analysis", *The Journal of Heart and Lung Transplantation*, Vol. 42, Issue 4, pp. S21-22, 2023.
- [41] Nair, N., Harish, A, **Du, D.**, , & Gongora, E., "A Machine Learning Model for Post-Transplant Lymphoproliferative Disorder Using the UNOS Database", *The Journal of Heart and Lung Transplantation*, Vol. 41, Issue 4, pp. S321-322, 2022.
- [42] Nair, N., **Du, D.**, Hu, Z.*, & Gongora, E., "Risk Prediction Model for Skin Cancers in Cardiac Transplant Patients: A UNOS Database Analysis", *The Journal of Heart and Lung Transplantation*, Vol. 40, Issue 4, pp. S241, 2021.
- [43] Nair, N., **Du, D.**, Hu, Z. *, & Gongora, E., "Risk prediction model for basal cell carcinoma in cardiac allograft recipients", *The Journal of Heart and Lung Transplantation*, Vol. 39, Issue 4, pp. S128, 2020.
- [44] Nair, N., **Du, D.**, Hu, Z. *, & Gongora, E., "Does diabetes influence post-transplant survival in CF-axial LVAD BTT Patients?", *The Journal of Heart and Lung Transplantation*, Vol. 39, Issue 4, pp. S282, 2020

- [45] Nair, N., **Du, D.**, Hu, Z.*, & Gongora, E., "Risk prediction model for cutaneous SCC in cardiac allograft recipients", *The Journal of Heart and Lung Transplantation*, Vol. 39, Issue 4, pp. S281, 2020.

Peer-reviewed Conference Proceedings

- [46] Chiu, K., **Du, D.**, Nair, N., Du, Y., "Deep Neural Network-Based Survival Analysis for Skin Cancer Prediction in Heart Transplant Recipients", *43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, EMBS Virtual Academy, 2021.
- [47] Liao, Y., Xiang, Y., **Du, D.**, "Automatic classification of heartbeats using ECG signals via higher-order hidden Markov model", *IEEE International Conference on Automation Science and Engineering (CASE) 2020*, a Virtual Conference
- [48] Hu, Z.*, Du, Y., **Du, D.**, "Gaussian process-based spatiotemporal modeling of electrical wave propagation in human atria". *2020 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, EMBS Virtual Academy, 2020.
- [49] Son, J., **Du, D.**, Du, Y., "Control of a rotary blood pump based on trade-off between aortic valve dynamics and cardiac outputs", *2020 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, EMBS Virtual Academy, 2020.
- [50] Son, J., **Du, D.**, Du, Y., "Stochastic modeling and control of circulatory system with a left ventricular assist device", *the 2019 American Control Conference (ACC)*, July 10~12, Philadelphia, PA, USA.
- [51] **Du, D.**, Hu, Z.*, Du, Y., "Model identification and physical exercise control using nonlinear heart rate model and particle filter", *2019 International Conference on Automation Science and Engineering (CASE)*, Vancouver, BC, Canada, 2019, pp. 405-410.
- [52] Yan, H., Zhao, X., Hu, Z.*, **Du, D.**, "Physics-based deep spatio-temporal metamodeling for cardiac electrical conduction simulation", *2019 International Conference on Automation Science and Engineering (CASE)*, Vancouver, BC, Canada, 2019, pp. 152-157.
- [53] Son, J., **Du, D.**, Du, Y., "Feedback control of rotary blood pump for preventing left ventricular suction", *2019 American Control Conference (ACC)*, Philadelphia, PA, USA, 2019, pp. 5426-5431
- [54] Zhu, L., **Du, D.**, "Improved Heart Rate Tracking Using Multiple Wrist-type Photoplethysmography during Physical Activities", *2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Honolulu, HI, 2018, pp. 5450-5453.
- [55] Du, Y., **Du, D.**, "Robust control design of heart rate response during treadmill exercise under parametric uncertainty", *2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Honolulu, HI, 2018, pp. 5830-5833,
- [56] Koneshloo, A.*, **Du, D.**, "Coronary heart disease diagnosis using kernel PCA and adaptive boosting", *Proceedings of the 2018 IISE Annual Conference*, Orlando, May, 2018
- [57] **Du, D.**, Du, Y., "Cardiac image segmentation using generalized polynomial chaos expansion and level set function", *2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Seogwipo, 2017, pp. 652-655.
- [58] **Du, D.**, Du, Y., "Global sensitivity analysis for developing biological models: application to K⁺ channel model in mouse ventricular myocytes", *2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Seogwipo, 2017, pp. 3676-3679.
- [59] Du, Y., **Du, D.**, "Propagation of parametric uncertainty for the K⁺ channel model in mouse ventricular myocytes", *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Orlando, FL, 2016, pp. 5587-5590.
- [60] **Du, D.**, Du, Y., "Detection of propagating directions of electrical wavefront in atrial fibrillation", *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Orlando, FL, 2016, pp. 2749-2752.
- [61] Di, Y., **Du, D.**, Yang, H., and Tu, Y., "Parallel computing simulation of electrical excitation and conduction in the 3D human heart", *2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Chicago, IL, 2014, pp. 4315-4319.
- [62] **Du, D.**, Yang, H., Norring, S. A., and Bennett, E. S., "Multiscale Modeling of Glycosylation Modulation Dynamics in Cardiac Electrical Signaling", *2011 33rd Annual International Conference of the IEEE*

Engineering in Medicine and Biology Society(EMBC), Boston, MA, 2011, pp. 104-107. (*The 1st Place, IMB Best Student Paper Award, IEEE EMBC, 2011*)

Book chapter (Invited)

- [63] Du, Y., **Du, D.**, "Cardiac image segmentation using generalized polynomial chaos expansion and level set function" in "Level Set Method in Medical Imaging Segmentation". Edited by A. El-Baz. (CRC Press/Taylor & Francis), Chapter 9, pp. 260-288

Professional Activities

Conference Track Chair

- Computer and Information System Track, IISE Annual Conference, Philadelphia, PA, 2017
- Modeling and Simulation Track, IISE Annual Conference, Anaheim, CA, 2016

IISE Member of Board of Directors

- IISE Data Analytics and Information System (DAIS) Division, 2018-2019
- IISE Modeling and Simulation (M&S) Division, 2017-2020

Chair, QSR Member Service and Growth Subcommittee, INFORMS, 2019

Organizer of Special Sessions

- QSR Student Introduction and Interaction Session & Poster Competition Session, INFORMS Annal Meeting 2018&2019

Webinar Series Organizer, IISE DAIS Division, 2017-2019

Associate Editor of Conference Proceedings

- Proceedings of the IEEE International Conference on Automation Science and Engineering (CASE), 2020-present

Organizer of Technical Sessions in International Conferences

- Predictive Modeling in Data-driven Medical Decision Making, INFORMS 2020
- Data-driven Decision Making for Healthcare II, IEEE CASE 2019
- Predictive Modeling and Optimization in Reliability Analysis and Complex System Control, INFORMS 2019
- Data Analytics and System Informatics in Healthcare Applications, IISE Annual Conference 2018
- Time-Frequency Analysis of Cardiovascular Signals Theme I, IEEE EMBC 2018
- Data Analytics in Healthcare Applications, INFORMS 2018
- Uncertainty Analysis in Modeling, Control, and Optimization, INFORMS 2017

Reviewer

- IISE Transactions on Healthcare Systems Engineering, IEEE Transactions on Automation Science and Engineering, Computers in Biology and Medicine, IEEE Journal of Biomedical and Health Informatics, AMSE Journal of Manufacturing Science and Engineering, Journal of Manufacturing Systems, Energy Systems, Journal of Educational Computing Research, Neural Computing and Applications, Engineering Applications of Computational Fluid Mechanics.

Service at Texas Tech University

- Undergraduate Assessment Lead for ABET & SACSCOC accreditations, IMSE, TTU, 2020 - present.
- Faculty Search Committee Chair, IMSE, TTU, (2018-2019, 2022 – present)
- Member of the Review Committee for the Dean of Whiter College of Engineering, TTU, 01/2021 – 05/2021
- Undergraduate Committee Member, IMSE, TTU, 2020 - present
- Scholarship Committee Member, IMSE, TTU, 2015 - 2020
- Mechanical Engineering Faculty Search Committee in the Engineering Medicine Area, TTU, 2019-2020
- Explore Engineering Summer Camp Presentation in Industrial Engineering Area, Summer 2019

- Faculty Search Committee Member, IMSE, TTU, (2017-2018 and 2021-2022)
- Advisor, Summer Research for International Students (Summer 2016, and Summer 2019)
- Graduate Committee Member, IMSE, TTU, 2017-2018
- International Collaboration Committee Chair, IMSE, TTU, 2016-2017
- Department Chair Search Committee Member, IMSE, TTU, 2016-2017
- Grade Appeal Board, WCOE, TTU, Spring 2016

Student Supervision

Current PhD students

- Gabriel Cacao (01/2021-present), Henry Johnston (09/2020-present), Kuo Chun Chiu (01/2020-present), Ning Dong (06/2022-present), Michael Rubin (09-2021-present), Sudip Giri (09/2022-present), Dan Ni Lin (01/2023-present)

Completed

- PhD:
 - Adib Zaman, “Multivariate Irregularly Sampled Time Series Imputation and Classification with Uncertainty for Predicting Hospital Readmission”, (06/2018-08/2021)
 - Zhiyong Hu, “Data Analytics and Computational Modeling for Cardiac Health Care”, (09/2016-08/2021)
 - Sagar Chhetri, “A Bayesian Learning Approach to Advance the Reliability of LeAgile Project Portfolio Management”, (01/2017-12/2021)
 - Amir Koneshloo, “Uncertainty Analysis of Healthcare Data via Statistical Modeling and Optimization”, (09/2016-08/2020)
- M.S.: Ali Bakhshi, Lianning Zhu, Chengjie Jian
- Undergraduates: Juan Aguilar, Neiba Jimenez, Shirra Irham
- International Undergraduate Students: Marco Labarca Tabilo, María Ignacia Bahamóndez Bravo, Anabel Polanco Martinez

Dissertation Committee Member

- Chao Wen Tseng, Amin Nikakhtar, Lewis Njuaem, Andrea L. Arias, Amanda Baty, Harshvardhan Gazula, Yang Yu, Nathaniel Wiggins, Tamer Yared, Srikumar Krishnamoorthy, Shahrma Maharubin, Wang Hui, Sasan Torabzadehkorasani, Ayo Alalade, Dilshan Sooriyaarachchi, Yingge Zhou, Abhishake Kundu, Paul Braden, Zhicheng Zhu, Richard Burgess, Ying Liao, Yue Shi, Dongzhe Zhang, Imtiaz Qavi, Eric, Bediako, Seyi Famuyiro, Pritom K Mondal, Mundhir Al-Alawi, Monikka M. Mann, Colton Mikes, Lucas Cortez, Rafael Cacao Yunze Li.

Honors and Awards

- The *3rd Place*, International Simio Student Competition, the faculty advisor for the winning team, 2022.
- *Featured Article* by the IEEE Journal of Biomedical and Health Informatics, 2018
- *Featured Article* by the IEEE Journal of Biomedical and Health Informatics, 2014
- The *1st Place* in the CIEADH Doctoral Colloquium Poster Competition, IISE Annual Conference 2014
- The *2nd Place* in the IISE Mobile App Competition, IISE Annual Conference 2014
- Dissertation Completion Fellowship, University of South Florida, 2014~2015
- IBM Best Paper Award in *1st place*, the 33rd Annual International Conference of IEEE Engineering in Medicine and Biology Society (EMBC), 2011
- Entrepreneurial Lead of NSF I-Corps Team, NSF IIP-1447289, 2014

Awards to Students Supervised

- Dissertation Completion Fellowship, Texas Tech University, 2020-2021 (Zhiyong Hu)
- Best Student Paper Competition, Finalist, Data Analytics and Information System division, IISE Annual Conference 2020 (Zhiyong Hu)

- Best Student Poster Award, Quality, Statistics, and Reliability (QSR) section at INFORMS Annual Meeting 2019 (Zhiyong Hu)

Conference Presentations

Dong, Y., Du, D., "Feature Extraction of Echocardiograms Using Neural Network Image Segmentation", *INFORMS Annual Meeting 2022*, Phoenix, AZ

Cacao, G., Du, D., "Feature Extraction of Echocardiograms Using Neural Network Image Segmentation", *INFORMS Annual Meeting 2022*, Indianapolis, IN

Johnston, H., Du, D., "A Sample-weighting Algorithm for Classification of Imbalanced Overlapped Data with Numerical and Categorical Features", *INFORMS Annual Meeting 2022*, Indianapolis, IN

Du, D., Hu, Z., Du, Y., "Gaussian Process-Based Spatiotemporal Modeling of Electrical Wave Propagation in Human Atrium", *IEEE International Conference on Automation Science and Engineering (CASE) 2020*, Virtual Conference

Du, D., Chiu Kuo-Chun, "Survival Analysis to Predict the Risk of Skin Cancer in Heart Transplant Recipients", *INFORMS Annual Meeting 2020, Virtual Conference*

Hu, Zhiyong, Zaman, Muhammad Adib Uz Zaman, Du, Dongping, "Prediction of Hospital Readmission using Gaussian Process and Support-Vector Machine", *IISE Annual Conference 2020*, Virtual Conference

Koneshloo, A., Du, D., "Motion artifact removal using joint basis pursuit linear program for accurate heart monitoring", *INFORMS Annual Meeting 2019*, Seattle, WA

Du, D., Hu, Z., Du, Y., "Model identification and physical exercise control using nonlinear heart rate model and particle filter", *IEEE International Conference on Automation Science and Engineering (CASE) 2019*, Vancouver, Canada

Hu, Z., Du, D., "Spatial-temporal modeling of cardiac electrical activity based on Gaussian Process and mechanistic model", *INFORMS Annual Meeting 2019*, Seattle WA

Koneshloo, A., Du, D., "Atrial Fibrillation source identification using multinomial distribution and maximum likelihood estimation," *INFORMS Annual Meeting 2018*, Arizona, AZ

Zhu, L., Du, D., "Heart rate estimation using wrist-type photoplethysmography based on Neural Networks," *INFORMS Annual Meeting 2018*, Arizona, AZ

Hu, Z., Du, D., "Cardiac surface potential prediction based on Gaussian process and partial differential equation," *INFORMS Annual Meeting 2018*, Arizona, AZ

L. Zhu, Du, D., "Heart rate tracking using multiple wrist-type photoplethysmography during physical activities via joint sparse spectrum reconstruction", *2018 Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Honolulu, HI

Son, J., Du, Y., Du, D., "Propagation of parametric uncertainty in Aliev-Panfilov model of cardiac excitation", *2018 Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Honolulu, HI

Du, Y., Du, D., "Robust control design of heart rate response during treadmill exercise under parametric uncertainty", *2018 Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Honolulu, HI

Du, Y., Du, D., "Fault detection using empirical mode decomposition based PCA and CUSUM with application to the Tennessee Eastman process", *10th IFAC International Symposium on Advanced Control of Chemical Process*, Shenyang, China

Hu, Z., Du, D., "Gaussian Process-based spatial-temporal modeling of electrical wave propagation in atrial fibrillation," *IIE Annual Conference & Expo 2018*, Orlando, FL

Zhu, L., Du, D., "Classification of intracardiac electrogram during Atrial Fibrillation using hidden Markov models and Gaussian mixture models," *INFORMS Annual Meeting 2017*, Houston, TX

Koneshloo, A., Du, D., "Coronary heart disease diagnosis using kernel PCA and adaptive boosting," *INFORMS Annual Meeting 2017*, Houston, TX

Hu, Z., Du, D., "Efficient uncertainty quantification and propagation in multi-scale modeling of cardiac electrophysiology," *INFORMS Annual Meeting 2017*, Houston TX.

Du, D., Du, Y., "Global sensitivity analysis for developing biological models: application to K⁺ channel model in mouse ventricular myocytes," *2017 Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Jeju, South Korea.

Du, D., Du, Y., "Cardiac image segmentation using generalized polynomial chaos expansion and level set function," *2017 Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Jeju, South Korea.

Du, D., "Modeling and classification for identifying electrical sources in atrial fibrillation," *IIE Annual Conference & Expo 2017*, Pittsburgh, PA

Du, D., Du, Y., "Propagation of parametric uncertainty of K⁺ channel model in mouse ventricular myocytes," *2016 Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Orlando, FL.

Du, D., Du, Y., "Detection of the propagating direction of electrical waves in atrial fibrillation," *2016 Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Orlando, FL

Du, D., Yang, H., Ednie, A., and Bennett, E., "Uncertainty propagation in K⁺ channel model of mouse ventricular myocytes," *IIE Annual Conference & Expo 2016*, Anaheim, CA

Professional Memberships

Institute of Electrical and Electronics Engineers (**IEEE**)

IEEE Engineering in Medicine and Biology Society (**EMBS**)

Institute for Operations Research and the Management Sciences (**INFORMS**)

Institute of Industrial and Systems Engineers (**IISE**)

American Heart Association (**AHA**)

The International Society for Heart & Lung Transplantation (**ISHLT**)

American Society of Transplantation (**AST**)