

Dongping Du

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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

PROFESSIONAL EXPERIENCE

Sept. 2015 ~ Present, Assistant Professor, Industrial, Manufacturing, and Systems Engineering, TTU
Jul. 2010 ~ May 2015, Research Assistant, Industrial & Management Systems Engineering, USF

PUBLICATIONS

Journal Papers:

- [1] D. Du, H. Yang, 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*, Epub ahead of print, 2017.
- [2] D. Du, H. Yang, A. R. Ednie, 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.
- [3] D. Du, H. Yang, 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 (Feature Article)*, Vol. 18, No. 1, 2013
- [4] S. A. Norring, A. R. Ednie, T. A. Schwetz, D. Du, 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.
- [5] H. Wang, W. Cong, D. Du, "Surface Grinding of CFRP Composites using Rotary Ultrasonic Machining (RUM): Design of Experiment on Cutting Force, Torque, and Surface Roughness," *International Journal of Manufacturing Research*, in-press, 2017
- [6] Du, Y, Du, D., "Fault Detection and Diagnosis using Empirical Mode Decomposition based Principal Component Analysis", *Computers and Chemical Engineering*, 2nd revision, 2017.
- [7] Hu, Z., Zhu, L. Du, D., "Efficient Uncertainty Quantification and Propagation in Multi-scale Modeling of Cardiac Electrophysiology", *Journal of Molecular and Cellular Cardiology*, Under Review, 2017.
- [8] 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*, Under Review, 2017.
- [9] Hu, Z., Du, D., Gaussian Process-Based Spatial Temporal Modeling of Electrical Activities in Atrial Fibrillation for Abnormal Source Identification. *IEEE Journal of Biomedical and Health Informatics*. Under Review, 2017.

Conference Proceedings

- [10] D. Du, Y. Du, "Cardiac Image Segmentation Using Generalized Polynomial Chaos Expansion and Level Set Function", Proceedings of 2017 IEEE Engineering in Medicine and Biology Society Conference (EMBC), Jeju Island, Korean, July., 2017.
- [11] D. Du, Y. Du, "Global Sensitivity Analysis for developing biological models: Application to K+ channel Model in Mouse Ventricular Myocytes", Proceedings of 2016 IEEE Engineering in Medicine and Biology Society Conference (EMBC), Jeju Island, Korean, July., 2017

- [12] Y. Du, D. Du, "Propagation of Parametric Uncertainty for The K⁺ Channel Model In Mouse Ventricular Myocytes", Proceedings of 2016 IEEE Engineering in Medicine and Biology Society Conference (EMBC), Orlando, FL, Aug., 2016
- [13] D. Du, Y. Du, "Detection of Propagating Directions of Electrical Wavefront in Atrial Fibrillation", Proceedings of 2016 IEEE Engineering in Medicine and Biology Society Conference (EMBC), Orlando, FL, Aug. 2016
- [14] D. Yu, D. Du, H. Yang, and Y. Tu, "Parallel Computing Simulation of Electrical Excitation and Conduction in the 3D Human Heart", Proceedings of 2014 IEEE Engineering in Medicine and Biology Society Conference (EMBC), p.4315-4319, Chicago, IL, Sept., 2014
- [15] D. Du, H. Yang, S. A. Noring, and E. S. Bennett, "Multiscale Modeling of Glycosylation Modulation Dynamics in Cardiac Electrical Signaling", Proceedings of 2011 IEEE Engineering in Medicine and Biology Society Conference (EMBC), p.104-107, Boston, MA, August, 2011 (**IBM Best Paper Award**)
- [16] Y. Du, H. Wang, D. Du, "Nonperiodic Cycle Detection and Application In Gas Liquid Two-Phase Flow", Proceedings of 2010 IEEE Instrumentation and Measurement Technology Conference, p. 255-258, Austin, TX, May, 2010

Working papers

- [17] D. Du, Y. Du, "Automated Stochastic Image Segmentation Using Arbitrary Polynomial Chaos Expansion and Gabor Filter", Target Journal: Transactions on Biomedical Engineering
- [18] Hu, Z., Du, D., "Stochastic partial differential equation based spatial-temporal interpolation", Target Journal: IISE Transactions.
- [19] Hu, Z., Yang, H., Bennett, E., Du, D., "Uncertainty quantification and propagation of potassium current in mouse ventricular myocyte in congenital disorder of glycosylation", Target Journal: Progress in Biophysics and Molecular Biology

FUNDED RESEARCH PROJECTS

- "Collaborative Research: Personalized Modeling, Monitoring and Control for Advancing Ventricular Assist Device Therapy in End-stage Heart Failure", PI, NSF CMMI-1728338, \$275,974.00, 08/2017-07/2020.
- "EAGER: Collaborative Research: Collaborative Sensing, Modeling and Optimization of Postoperative Management of Heart Health", PI, NSF CMMI-1646664, \$99,806.00, 09/2016-07/2018.

TEACHING EXPERIENCE

- IE5319 Risk Modeling and Assessment, Spring, 2016 & 2017
- IE5345 Reliability Theory, Fall, 2016 & 2017

SERVICE ACTIVITIES

Reviewer

- Computers in Biology and Medicine
- IEEE Journal of Biomedical and Health Informatics
- Journal of Manufacturing Systems
- Energy Systems
- ASME Journal of Manufacturing Science and Engineering

Track Chair

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

Board Director, IISE Computer and Information System Division, 2017~2020

Webinar Coordinator, IISE Computer and Information System Division

Session Chair

- "Healthcare Modeling and Optimization", 2015 INFORMS, Philadelphia, PA
- "Uncertainty Analysis in Modeling, Control, and Optimization", 2017 INFORMS, Houston, TX

Graduate Committee Member, IE, Texas Tech University

Scholarship Committee Member, IE, Texas Tech University
Council Member, International Affairs, Texas Tech University
International Collaboration Committee Chair, IE, Texas Tech University

COMMITTEE MEMBERSHIPS FOR GRADUATE STUDENTS

As advisor: Zhiyong Hu (09/2016~present), Lianning Zhu (09/2016~present), Amir Koneshloo (08/2017~present), Oluwatosin Ogundare (Distance PhD student, 12/2016~present), Sagar Chhetri (Distance PhD student, 01/2017~present)

As Committee Member: Chao Wen Tseng (Graduated in May 2016), Harshvardhan Gazula (11/2015~present), Amanda Baty (Graduated in May 2017), Yang Yu (07/2016~present), Amin Nikakhtar (07/2016~present), Lewis Njuaalem (08/2016~present), Andrea L. Arias (10/2016~present), Nathaniel, Wiggins (11/2017~present)

HONORS AND AWARDS

- **Feature Article** by *IEEE Journal of Biomedical and Health Informatics*, 2014
- **IBM Best Paper Award** (the 1st place) in the 33th Annual International Conference of IEEE Engineering in Medicine and Biology Society (EMBC), 2011
- The **2nd Place** in IIE Mobile App Competition for MESH software development in the IOS platform, IIE Annual Conference, 2014
- **Entrepreneurial Lead** of NSF I-Corps Team for market research and commercialization of the Mobile and E-Network Smart Health Care (MESH) technology, NSF IIP-1447289, 2014
- The **1st Place** in CIEADH Doctoral Colloquium Poster Competition, IISE Annual Conference, 2014

PRESENTATIONS

D. Du, Y. Du, "Global Sensitivity Analysis for developing biological models: Application to K+ channel Model in Mouse Ventricular Myocytes," *The 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2017, Jeju, South Korea.

D. Du, Y. Du, "Cardiac Image Segmentation Using Generalized Polynomial Chaos Expansion and Level Set Function," *The 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2017, Jeju, South Korea.

D. Du, Y. Du, "Propagation of Parametric Uncertainty of K+ Channel Model in Mouse Ventricular Myocytes," *The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2016, Orlando, FL.

D. Du, Y. Du, "Detection of the Propagating Direction of Electrical Waves in Atrial Fibrillation," *The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2016, Orlando, FL

D. Du, H. Yang, A. Ednie, and E. Bennett, "Uncertainty Propagation in K+ channel Model of Mouse Ventricular Myocytes," *IIE Annual Conference & Expo*, 2016, Anaheim, CA

D. Du, H. Yang, "Simulation and Quantitative Analysis of Rhythmic Mechanisms in Atrial Fibrillation," *INFORMS Annual Meeting*, 2015, Philadelphia, PA

D. Du, H. Yang, "Simulation and Quantitative Analysis of Rhythmic Mechanisms in Atrial Fibrillation," *INFORMS Healthcare Conference*, 2015, Nashville, TN

D. Du, H. Yang, A. Ednie, and E. Bennett, "Statistical Metamodeling and Computer Experiments of Large-scale Cardiac Models," *INFORMS Annual Meeting*, 2014, San Francisco, CA

D. Du, H. Yang, "Parallel Computing Simulation of Electrical Excitation and Conduction in the 3D Human Heart," *The 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2014, Chicago, IL

D. Du, H. Yang, A. Ednie, and E. Bennett, "Statistical Metamodeling and Sequential Design of Computer Experiments to Model Glyco-altered Gating of Sodium Channels in Cardiac Myocytes," *IIE Annual Conference & Expo*, 2014, Montreal, QC, Canada

D. Du, H. Yang, "Predictive Modeling of Glycosylation Modulation Dynamics in Cardiac Electrical Signaling," *INFORMS Annual Meeting*, 2012, Phoenix, AZ

D. Du, H. Yang, S. Norring, and E. Bennett, "Multi-scale Modeling of Glycosylation Modulation Dynamics in Cardiac Electrical Signaling," *INFORMS Annual Meeting*, 2011, Charlotte, NC

D. Du, H. Yang, S. Norring, and E. Bennett, "In-silico Modeling of Glycosylation Modulation Dynamics in hERG Channels and Cardiac Electrical Signaling," *The 33th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2011, Boston, MA

D. Du, H. Yang, Y. Chen, S. Norring, and E. Bennett "Computer Model and Experiments of Glycosylation Modulation Dynamics in Cardiac Action Potentials," *INFORMS Annual Meeting*, 2010, Austin, TX

PROFESSIONAL MEMBERSHIPS

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

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

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

American Heart Association (**AHA**)

Society of Women Engineers (**SWE**)