Robyn L. Ball, Ph.D.

PhD Statistician

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Education

Texas A&M University
College Station, TX

PH.D. IN STATISTICS — *May 2013*

- *Dissertation:* Statistical methods for high dimensional biomedical data
- *Committee:* Drs. Alan Dabney, Raymond Carroll, Alan Feiveson, and Susan Geller
- *GPA:* 3.6/4.0

Texas A&M University – Corpus Christi
Corpus Christi, TX

M.S. IN MATHEMATICS — *May 2008*

- *Thesis:* A comparison of random forest, artificial neural network, and multilinear regression models: predicting water temperature in the Upper Laguna Madre
- *Committee:* Drs. Philippe Tissot, Beate Zimmer, and Blair Sterba-Boatwright
- *GPA:* 4.0/4.0

Texas A&M University – Corpus Christi
Corpus Christi, TX

B.S. IN MATHEMATICS — *May 2005*

- *Minor:* Philosophy
- *GPA:* 4.0/4.0 *Summa Cum Laude*

Experience

The Jackson Laboratory
Bar Harbor, ME

COMPUTATIONAL SCIENTIST — *Nov. 2019 - Present*

- Develop robust computational resources to facilitate scientific discoveries
- Develop novel methods to answer complex biological questions in multi-modal data

Roam Analytics
San Mateo, CA

SENIOR CLINICAL DATA SCIENTIST — *May 2018 - Jul. 2019*

- Developed machine learning predictive models for healthcare language data (NLP)
- Cross-functional leadership to deliver business solutions for healthcare companies

Stanford University
Palo Alto, CA

SENIOR BIOSTATISTICIAN — *Nov. 2015 - May 2018*

- Collaborated with medical researchers in a variety of subject areas with diverse methodological challenges.
- Study design, grantsmanship, clinical protocol development, operational statistics, predictive modeling with EHR data, and machine (deep) learning.
- Mentor clinical researchers and junior statisticians, lead seminars, develop best practices for reproducible research.

The Jackson Laboratory
Bar Harbor, Maine

BIOINFORMATICS ANALYST — *July 2013 - Nov. 2015*

- Statistical consultant for a diverse team of scientists in multiple lab groups.
- Developed Permutation-based Maximum Covariance Analysis (PMCA) method for coupled data that corrects for false positives.
- Developed Spliced RUM, a novel algorithm that identifies novel isoforms and novel genes using RNAseq data.

NASA Johnson Space Center
Houston, Texas

RESEARCH STATISTICIAN — *Aug. 2011 - Aug. 2012*

- Developed a Bayesian model to predict a subject's 'heart age' based on his/her electrocardiogram

UT MD Anderson Cancer Center
Houston, Texas

RESEARCH STATISTICIAN — *Jun. 2011 - Jun. 2012*

- Applied machine learning algorithms to genomics data and performed other statistical analyses
- Performed comparative analysis of somatic copy number variation across cancer types using a random forest classifier.
- Predicted the lethality of the knockout mouse using genomic data using a random forest classifier.

Extramural Research Support

Active

1. *(U Chicago)* *08-01-2020 – 07-31-2022*
   Medical Imaging and Data Resource Center (MIDRC)
   Goal: The goal of this project is to create new tools that physicians can use for early detection and personalized therapies for COVID-19 patients.
   Role: ***Co-Investigator***
2. *NIH 1R01CA217953-01 (Wintermark)* *07-01-2017 – 06-30-2022*
   MR-Guided Focused Ultrasound Combined with Immunotherapy to Treat Malignant Brain Tumors
   Goal: The goal of this project is to investigate the effects of MR-guided focused ultrasound (MRgFUS) combined with microbubbles on brain tumor tissue, and to use this information to enhance the effect of immunotherapies on brain tumors.
   Role: ***Co-Investigator***
3. *NIH 1R01LM012966-01 (Lungren)* *09-11-2018 – 05-31-2022*
   Deep Learning for Pulmonary Embolism Imaging Decision Support: A Multi-institutional Collaboration
   Goal: The goal of this project is to create a predictive model that leverages real-time EMR clinical data from top national medical centers to arrive at a patient-specific imaging outcome prediction.
   Role: ***Co-Investigator***

Completed

1. *NIH 5R01HL12530302 (Khush)* *11-15-2014 – 10-31-2019*
   Evidence Based Evaluation and Acceptance of Donor Hearts for Transplantation
   Goal: The goal of this study is to develop evidence-based guidelines for the evaluation and acceptance of donor hearts for transplantation, with the goals of standardizing and increasing rates of donor heart utilization in the United States.
   Role: ***Biostatistician***
2. *NIH R01DK034238 (Kim)* *07-01-2014 – 06-30-2018*
   Models for Optimal Liver Transplant Outcomes
   Goal: The goal of this project is to extend our investigation in renal complications in patients with ESLD undergoing liver transplant by testing our overarching hypotheses that renal histologic abnormalities are common and consequential in patients with ESLD, detectable by urinary biomarkers, and informative in clinical decision making.
   Role: ***Biostatistician***
3. *NIH 5DP5OD019893-05 (Nelson)* *10-13-2016 – 08-31-2019*
   A novel approach to improve patient care and diarrheal disease research using mobile technology
   Goal: The goal of this project is to show for the first time that mobile technology deployed in rural Bangladesh can be used to identify and provide ORS to diarrheal disease patients early in disease and decrease the incidence and severity of cases admitted to the hospital.
   Role: ***Biostatistician***
4. *NIH 1R21TW010182-01 (Nelson)* *09-09-2016 – 08-31-2018*
   The evaluation of a mHealth Platform for Diarrheal Disease Decision Support and real-Time Epidemiology
   Goal: The goal of this project is to deploy our mHealth platform in a cluster randomized controlled trial (CRT) across ten hospitals in rural Bangladesh and evaluate the impact of automated decision-support on clinical guideline adherence, provider uptake and capacity to detect diarrheal disease outbreaks.
   Role: ***Biostatistician***
5. *Stanford Cardiovascular Institute Seed Grant (Edwards)* *09-19-2016 – 09-18-2016*
   Angiographic and psychosocial comparison of peripartum and non-peripartum spontaneous coronary artery dissection (SCAD): A collaborative study
   Goal: The goal of this project was to assess differences n imaging and pycho-social measures between women diagnosed with peripartum SCAD and non-peripartum SCAD.
   Role: ***Co-Investigator***
6. *Stanford Child Health Research Institute Seed Grant (Desai)* *11-05-2015 – 12-31-2017*
   Measuring Children's Physical Activity and Sleep in the Real World: Processing and Analysis of High-Dimensional Accelerometry Data Using Statistical Learning Techniques
   Goal: The goal of this project was to study children?s physical activity and sleep using accelerometry data.
   Role: ***Biostatistician***
7. *NASA NNX11AN08H (Dabney)* *08-01-2011 – 07-31-2012*
   Increasing electrocardiography (ECG) predictive power by using the random forest technique
   Goal: A yearlong fellowship with NASA Johnson Space Center to develop a model to predict "heart age" using electrocardiography.
   Role: ***Graduate Student Researcher***

Publications

2020

1. Kiran K Khush & **Robyn L. Ball**. Great variability in donor heart acceptance practices across the United States. *Am J Transplant*. 2020; 20: 1582–1596.
2. Pranav Rajpurkar, Chloe O'Connell, Amit Schechter, Nishit Asnani, Jason Li, Amirhossein Kiani, **Robyn L. Ball**, Marc Mendelson, Gary Maartens, Daniël J. van Hoving, Rulan Griesel, Andrew Y. Ng, Tom H. Boyles & Matthew P. Lungren. CheXaid: deep learning assistance for physician diagnosis of tuberculosis using chest x-rays in patients with HIV. 2020. *npj Digit. Med.* 3, 115.
3. Ashraful I Khan, Jasmine A Mack, M Salimuzzaman, Mazharul I Zion, Hasnat Sujon, **Robyn L. Ball**, Stace Maples, Md Mahbubur Rashid, Mohammod J Chisti, Shafiqul A Sarker, Debashish Biswas, Raduan Hossin, Kevin L Bardosh, Yasmin A Begum, Azimuddin Ahmed, Dane Pieri, Farhana Haque, Mahmudur Rahman, Adam C Levine, Firdausi Qadri, Meerjady S Flora, Matthew J Gurka, Eric J Nelson. Electronic decision support and diarrhoeal disease guideline adherence (mHDM): a cluster randomised controlled trial. *Lancet Dig Health*. 2020; 2, 5: e250–e258.
4. Adam E. Flanders, Luciano M. Prevedello, George Shih, Safwan S. Halabi, Jayashree Kalpathy-Cramer, **Robyn L. Ball**, John T. Mongan, Anouk Stein, Felipe C. Kitamura, Matthew P. Lungren, Gagandeep Choudhary, Lesley Cala, Luiz Coelho, Monique Mogensen, Fanny Morón, Elka Miller, Ichiro Ikuta, Vahe Zohrabian, Olivia McDonnell, Christie Lincoln, Lubdha Shah, David Joyner, Amit Agarwal, Ryan K. Lee, Jaya Nath, and the RSNA-ASNR 2019 Brain Hemorrhage CT Annotators. Construction of a Machine Learning Dataset through Collaboration: The RSNA 2019 Brain CT Hemorrhage Challenge. *Radiology AI*. 2020; 2:3.
5. Shih-Cheng Huang, Tanay Kothari, Imon Banerjee, Chris Chute, **Robyn L. Ball**, Norah Borus, Andrew Huang, Bhavik N. Patel, Pranav Rajpurkar, Jeremy Irvin, Jared Dunnmon, Joseph Bledsoe, Katie Shpanskaya, Abhay Dhaliwal, Roham Zamanian, Andrew Y. Ng & Matthew P. Lungren. PENet—a scalable deep-learning model for automated diagnosis of pulmonary embolism using volumetric CT imaging. *npj Digit. Med.* 2020; 3, 61.
6. Vedant S. Pargaonkar, Justin H. Lee, Eric K.H. Chow, Takeshi Nishi, **Robyn L. Ball**, Yuhei Kobayashi, Takumi Kimura, David P. Lee, Marcia L. Stefanick, William F. Fearon, Alan C. Yeung, Jennifer A. Tremmel. Dose-Response Relationship Between Intracoronary Acetylcholine and Minimal Lumen Diameter in Coronary Endothelial Function Testing of Women and Men With Angina and No Obstructive Coronary Artery Disease. *Circulation: Card. Int.*. 2020; 13, 4.
7. Amirhossein Kiani, Bora Uyumazturk, Pranav Rajpurkar, Alex Wang, Rebecca Gao, Erik Jones, Yifan Yu, Curtis P Langlotz, **Robyn L. Ball**, Thomas J Montine, Brock A Martin, Gerald J Berry, Michael G Ozawa, Florette K Hazard, Ryanne A Brown, Simon B Chen, Mona Wood, Libby S Allard, Lourdes Ylagan, Andrew Y Ng, Jeanne Shen. Impact of a deep learning assistant on the histopathologic classification of liver cancer. *npj Digit. Med.*. 2020; 3, 23.

2019

1. **Robyn L. Ball**, Bin Jiang, Manisha Desai, Patrik Michel, Ashraf Eskandari, Tudor Jovin, Max Wintermark. A statistical approach to identify optimal inclusion criteria: An application to acute stroke clinical trials. *Contemp. Clin. Trials Com.*. 2019; 14.
2. Alexander D Fine, **Robyn L. Ball**, Yasuhiro Fujiwara, Mary Ann Handel, Gregory W Carter. Uncoupling of transcriptomic and cytological differentiation in mouse spermatocytes with impaired meiosis. *Mol. Biol. Cell*. 2019; 30, 5.
3. Bin Jiang & **Robyn L Ball**, Patrik Michel, Ying Li, Guangming Zhu, Victoria Ding, Bochao Su, Zack Naqvi, Ashraf Eskandari, Manisha Desai, Max Wintermark. Factors influencing infarct growth including collateral status assessed using computed tomography in acute stroke patients with large artery occlusion. *Int. J. Stroke*. 2019; 14, 6.
4. Imon Banerjee, Miji Sofela, Jaden Yang, Jonathan H Chen, Nigam H Shah, **Robyn L. Ball**, Alvin I Mushlin, Manisha Desai, Joseph Bledsoe, Timothy Amrhein, Daniel L Rubin, Roham Zamanian, Matthew P Lungren. Development and Performance of the Pulmonary Embolism Result Forecast Model (PERFORM) for Computed Tomography Clinical Decision Support. *JAMA Net. Open*. 2019; 2, 8.
5. Park, Allison and Chute, Chris and Rajpurkar, Pranav and Lou, Joe and **Ball, Robyn L.** and Shpanskaya, Katie and Jabarkheel, Rashad and Kim, Lily H. and McKenna, Emily and Tseng, Joe and Ni, Jason and Wishah, Fidaa and Wittber, Fred and Hong, David S. and Wilson, Thomas J. and Halabi, Safwan and Basu, Sanjay and Patel, Bhavik N. and Lungren, Matthew P. and Ng, Andrew Y. and Yeom, Kristen W. Deep Learning–Assisted Diagnosis of Cerebral Aneurysms Using the HeadXNet Model. *JAMA Net. Open*. 2019; 2, 6.
6. Reena P. Thomas, Seema Nagpal, Michael Iv, Scott G. Soltys, Sophie Bertrand, Judith S. Pelpola, **Robyn L. Ball**, Jaden Yang, Vandana Sundaram, Jonathan Lavezo, Donald Born, Hannes Vogel, J. Martin Brown and Lawrence D. Recht. Macrophage Exclusion after Radiation Therapy (MERT): A First in Human Phase I/II Trial using a CXCR4 Inhibitor in Glioblastoma. *Clin. Cancer Res.*. 2019; 25, 23.
7. Jeremy Irvin, Pranav Rajpurkar, Michael Ko, Yifan Yu, Silviana Ciurea-Ilcus, Chris Chute, Henrik Marklund, Behzad Haghgoo, **Robyn L. Ball**, Katie Shpanskaya, Jayne Seekins, David A Mong, Safwan S Halabi, Jesse K Sandberg, Ricky Jones, David B Larson, Curtis P Langlotz, Bhavik N Patel, Matthew P Lungren, Andrew Y Ng. CheXpert: A Large Chest Radiograph Dataset with Uncertainty Labels and Expert Comparison. *Proceedings of the AAAI Conference on Artificial Intelligence*, 2019; 33(01), 590-597.
8. Bo Zhou, Victoria Y Ding, Ying Li, **Robyn L. Ball**, Bin Jiang, Guangming Zhu, Derek Boothroyd, Michael Zeineh, Alisa Gean, Max Wintermark. Validation of the neuroimaging radiological interpretation system for acute traumatic brain injury. *J. Comp. Ass. Tomography*. 2019; 43, 5.
9. Guangming Zhu, Ying Li, Victoria Ding, Bin Jiang, **Robyn L. Ball**, Fatima Rodriguez, Dominik Fleischmann, Manisha Desai, David Saloner, Ajay Gupta, Luca Saba, Jason Hom, Max Wintermark. Semiautomated Characterization of Carotid Artery Plaque Features From Computed Tomography Angiography to Predict Atherosclerotic Cardiovascular Disease Risk Score. *J. Comp. Ass. Tomography*. 2019; 43, 3.
10. Ying Li, Guangming Zhu, Victoria Ding, Yonghua Huang, Bin Jiang, Robyn L Ball, Fatima Rodriguez, Dominik Fleischmann, Manisha Desai, David Saloner, Luca Saba, Jason Hom, Max Wintermark. Assessing the Relationship between Atherosclerotic Cardiovascular Disease Risk Score and Carotid Artery Imaging Findings. *J. Nueroimaging*. 2019; 29, 1.
11. Bora Uyumazturk, Amirhossein Kiani, Pranav Rajpurkar, Alex Wang, **Robyn L. Ball**, Rebecca Gao, Yifan Yu, Erik Jones, Curtis P Langlotz, Brock Martin, Gerald J Berry, Michael G Ozawa, Florette K Hazard, Ryanne A Brown, Simon B Chen, Mona Wood, Libby S Allard, Lourdes Ylagan, Andrew Y Ng, Jeanne Shen. Deep Learning for the Digital Pathologic Diagnosis of Cholangiocarcinoma and Hepatocellular Carcinoma: Evaluating the Impact of a Web-based Diagnostic Assistant. 2019; arXiv:1911.07372.

2018

1. Nicholas Bien & Pranav Rajpurkar, *Robyn L. Ball*, Jeremy Irvin, Allison Park, Erik Jones, Michael Bereket, Bhavik N Patel, Kristen W Yeom, Katie Shpanskaya, Safwan Halabi, Evan Zucker, Gary Fanton, Derek F Amanatullah, Christopher F Beaulieu, Geoffrey M Riley, Russell J Stewart, Francis G Blankenberg, David B Larson, Ricky H Jones, Curtis P Langlotz, Andrew Y Ng, Matthew P Lungren. Deep-learning-assisted diagnosis for knee magnetic resonance imaging: Development and retrospective validation of MRNet. *PLoS Med.*. 2018; 15, 11.
2. Pranav Rajpurkar & Jeremy Irvin, **Robyn L. Ball**, Kaylie Zhu, Brandon Yang, Hershel Mehta, Tony Duan, Daisy Ding, Aarti Bagul, Curtis P Langlotz, Bhavik N Patel, Kristen W Yeom, Katie Shpanskaya, Francis G Blankenberg, Jayne Seekins, Timothy J Amrhein, David A Mong, Safwan S Halabi, Evan J Zucker, Andrew Y Ng, Matthew P Lungren. Deep learning for chest radiograph diagnosis: A retrospective comparison of the CheXNeXt algorithm to practicing radiologists. *PLoS Med.*. 2018; 15, 11.
3. Samuel CD Cartmell, **Robyn L. Ball**, Rajani Kaimal, Nicholas A Telischak, Michael P Marks, Huy M Do, Robert L Dodd, Gregory W Albers, Maarten G Lansberg, Jeremy J Heit. Early Cerebral Vein After Endovascular Ischemic Stroke Treatment Predicts Symptomatic Reperfusion Hemorrhage. *Stroke*. 2018; 49 (7), 1741-1746.
4. Malie K Collins, Victoria Y Ding, **Robyn L. Ball**, Dana L Dolce, Jaimie M Henderson, Casey H Halpern. Novel application of virtual reality in patient engagement for deep brain stimulation: A pilot study. *Brain Stim.*. 2018; 11, 4: 935-937.
5. Ying Li, Guangming Zhu, Victoria Ding, Bin Jiang,**Robyn L Ball**, Neera Ahuja, Fatima Rodriguez, Dominik Fleischmann, Manisha Desai, David Saloner, Luca Saba, Max Wintermark, Jason Hom. Assessing the Relationship Between American Heart Association Atherosclerotic Cardiovascular Disease Risk Score and Coronary Artery Imaging Findings. *J Comp. Ass. Tomography*. 2018; 42, 6.
6. Max Wintermark, Ying Li, Victoria Y Ding, Yingding Xu, Bin Jiang, **Robyn L. Ball**, Michael Zeineh, Alisa Gean, Pina Sanelli. Neuroimaging radiological interpretation system for acute traumatic brain injury. *J. Neurotrauma*. 2018; 35, 22: 2665-2672.
7. Pranav Rajpurkar, Jeremy Irvin, Aarti Bagul, Daisy Ding, Tony Duan, Hershel Mehta, Brandon Yang, Kaylie Zhu, Dillon Laird, **Robyn L. Ball**, Curtis Langlotz, Katie Shpanskaya, Matthew P Lungren, Andrew Y Ng. MURA Dataset: Towards Radiologist-Level Abnormality Detection in Musculoskeletal Radiographs. *MIDL 2018 Conference Submission*. 2018.

2017

1. Matthew C Chen, **Robyn L. Ball**, Lingyao Yang, Nathaniel Moradzadeh, Brian E Chapman, David B Larson, Curtis P Langlotz, Timothy J Amrhein, Matthew P Lungren. Deep Learning to Classify Radiology Free-Text Reports. *Radiology*. 2017; 286, 3: 845-852.
2. Jiang B, **Ball RL**, Michel P, Jovin T, Desai M, Eskandari A, Naqvi Z, Wintermark M. Prevalence of Imaging Biomarkers to Guide the Planning of Acute Stroke Reperfusion Trials.*Stroke*. 2017; 48(6):1675-1677. PMID: 28386041
3. Heit JJ, **Ball RL**, Telischak NA, Do HM, Dodd RL, Steinberg GK, Chang SD, Wintermark M, Marks MP. Patient Outcomes and Cerebral Infarction after Ruptured Anterior Communicating Artery Aneurysm Treatment. *AJNR. American journal of neuroradiology*. 2017; 38(11):2119-2125. PMID: 28882863
4. Pranav Rajpurkar, Jeremy Irvin, Aarti Bagul, Daisy Ding, Tony Duan, Hershel Mehta, Brandon Yang, Kaylie Zhu, Dillon Laird, **Robyn L. Ball**, Curtis Langlotz, Katie Shpanskaya, Matthew P. Lungren, Andrew Ng . MURA Dataset: Towards Radiologist-Level Abnormality Detection in Musculoskeletal Radiographs. 2017. arXiv:1712.06957.
5. Pranav Rajpurkar, Jeremy Irvin, Kaylie Zhu, Brandon Yang, Hershel Mehta, Tony Duan, Daisy Ding, Aarti Bagul, **Robyn L. Ball**, Curtis Langlotz, Katie Shpanskaya, Matthew P. Lungren, Andrew Y. Ng. CheXNet: Radiologist-Level Pneumonia Detection on Chest X-Rays with Deep Learning. 2017. arXiv:1711.05225. item Haque F* and **Ball RL***, Khatun S, Ahmed M, Kache S, Chisti MJ, Sarker SA, Maples SD, Pieri D, Vardhan Korrapati T, Sarnquist C, Federspiel N, Rahman MW, Andrews JR, Rahman M, Nelson EJ. Evaluation of a Smartphone Decision-Support Tool for Diarrheal Disease Management in a Resource-Limited Setting. *PLoS neglected tropical diseases*. 2017; 11(1):e0005290. PMID: 28103233

2012-2016

1. **Ball, R.L.*** and Fujiwara Y*, Sun F, Hu J, Hibbs MA, Handel MA, Carter GW. Regulatory complexity revealed by integrated cytological and RNA-seq analyses of meiotic substages in mouse spermatocytes. *BMC Genomics*. 2016; 17(1):628. PMID: 27519264
2. **Ball, R.L.**, Feiveson, A.H., Schlegel, T.T., Starc, V., and Dabney, A.R. Predicting “Heart Age” using Electrocardiography.
3. **Ball, R.L.**, Feiveson, A.H., Schlegel, T.T., and Dabney, A.R. Predicting Heart Age using Electrocardiography. *NASA Tech Briefs*. November 1, 2014.
4. **Ball, R.L.** Statistical Methods for High Dimensional Biomedical Data. Doctoral dissertation, Texas A&M University, 2013. Available online.
5. Yuan, Y., Xu, Y., Xu, J., **Ball, R.L.**, and Liang, H. Predicting the lethal phenotype of the knockout mouse by integrating comprehensive genomic data. *Bioinformatics*. 2012 May 1; 28(9):1246–52. PMID: 22419784
6. Li, Y., Li, J., **Ball, R.L.**, Lin, Z., and Liang, H. Comparative analysis of somatic copy-number alterations across different human cancer types reveals two distinct classes of breakpoint hotspots. *Human Molecular Genetics*. 2012 Nov 15; 21(22):4957–65. PMID: 22899649

2007-2010

1. **Ball, R.L.** A Comparison of Random Forest, Artificial Neural Network, and Multi-Linear Regression Models: Predicting Water Temperature in the Upper Laguna Madre. Masters thesis. Texas A&M University-Corpus Christi, Corpus Christi, TX, 2008.
2. Tissot, P.E., **Ball, R.L.**, and Adams, J.S. Monitoring and Predictive Modeling of Water Temperatures in the Laguna Madre. Final report to the Texas Parks and Wildlife Department and the Coastal Conservation Association, Texas A&M University-Corpus Christi, Conrad Blutcher Institute, Division of Nearshore Research, 2007.
3. Simoniello, C., Tissot, P., McKee, D., Adams, J., **Ball, R.**, and Butler, R. A cooperative approach to resource management: Texas game fish win. *Marine Technology Society Journal*. 44(5):5–9. September/October 2010.

Presentations

Selected Presentations

- **Ball, R.L.**, Jiang, B,, Desai M, and Wintermark M. In: *Joint Statistical Meetings*, August 2017. Evaluating Imaging Inclusion Criteria for Stroke Clinical Trials: Appropriate Enrichment Versus Cherry Picking. Paper Presentation.
- **Ball, R.L.**, Fujiwara, Y., Sun, F., Handel, M.A., and Carter, G.W. Permutation-based maximum covariance analysis (PMCA). In: *Joint Statistical Meetings*, August 2015. Paper Presentation.
- **Ball, R.L.**, Fujiwara, Y., Sun, F., Handel, M.A., and Carter, G.W. Transcriptional deconvolution of meiotic substages using RNA-seq and cytological analysis of the first wave of spermatogenesis in the mouse. In: *International Mammalian Genome Conference*, October 2014. Poster Presentation.
- **Ball, R.L.**, Yuan, Y., Xu, Y., Xu, J., and Liang, H. Predicting the lethal phenotype of the knockout mouse by integrating comprehensive genomic data. In: *Joint Statistical Meetings*, 2012. Poster Presentation.
- **Ball, R.L.**, Tissot, P.E., Zimmer, G.B. and Sterba-Boatwright, B. Comparison of Random Forest, Artificial Neural Network, and Multi-Linear Regression: A Water Temperature Prediction Case. In: *89th Annual Meeting of the American Meteorological Society, 7th Conference on Artificial Intelligence and its Applications to Environmental Sciences*, 2009. Paper Presentation.
- **Ball, R.L.**, Tissot, P.E., Adams, J.S., Zimmer, G.B. and Sterba-Boatwright, B. ANN Predictive Water Temperature Modeling of Cold Water Events in a Shallow Lagoon. In: *87th Annual Meeting of the American Meteorological Society, 5th Conference on Artificial Intelligence and its Applications to Environmental Sciences*, 2007. Paper Presentation.

Honors & Awards

2014 **NASA Inventions and Contributions Board Tech Brief Award**, NASA Johnson Space Center
2012 **Scholar Award**, Philanthropic Educational Organization (P.E.O.)
2011 **NASA GSRP Fellowship**, NASA Johnson Space Center
2008 **Pathways to the Doctorate Fellowship**, Texas A&M University

Extracurricular Activity

2019–2021 **At-Large Member**, Executive Committee for the Statistical Consulting Section *ASA*
2020 **Statistical Consultant**, RSNA Pulmonary Embolism Detection Kaggle Challenge *RSNA*
2019 **Statistical Consultant**, RSNA Intracranial Hemorrhage Detection Kaggle Challenge *RSNA*
2017–2020 **Statistical Mentor**, AI for Healthcare Bootcamp *Stanford University*
2016–2018 **Statistical Mentor**, Intensive Course for Clinical Research (ICCR) *Stanford University*
2016–2018 **Statistical Mentor**, Heart Center Seminar Series *Stanford University*
2008– **Member**, American Statistical Association *National*
2013– **Member**, Philanthropic Educational Organization (P.E.O.) *International*
2015– **Administrator**, Appalachian Trail Women's Group *Facebook*
2008-2013 **Member**, Institute of Mathematical Statistics *International*
2008-2013 **Member**, Statistics Graduate Student Association *TAMU*
2003-2005 **Mentor**, Ethics at TAMUCC *TAMUCC*
2003-2005 **Presenter**, Ethics Bowl *TAMUCC*