Luke Bornn

Sacramento, CA
http://www.lukebornn.com

Education

Ph.D. Statistics — University of British Columbia
Vancouver, British Columbia — 09/2008–07/2012
Supervisors: Dr. Arnaud Doucet and Dr. Jim Zidek
Thesis Title: "Modeling Latent Correlation Structures with Application to Agricultural and Environmental Science"

M.Sc. Statistics — University of British Columbia
Vancouver, British Columbia — 09/2006–08/2008
Supervisors: Dr. Arnaud Doucet and Dr. Raphael Gottardo
Thesis Title: "Statistical Solutions For and From Signal Processing"

B.Sc. Mathematics and Statistics — University of the Fraser Valley
Abbotsford, British Columbia — 09/2003–04/2006

Research Experience & Employment

Co-Founder and Chief Scientist — Zelus Analytics
07/2020–Present

Co-Owner and Board Member — RedBird FC
Toulouse FC — 07/2020–Present

Executive Vice President — RedBall Acquisition Corp
07/2020–Present

Vice President, Strategy and Analytics — Sacramento Kings
05/2017–07/2020

Associate Professor (Tenured) — Simon Fraser University
Department of Statistics and Actuarial Science — 01/2015–08/2020

Visiting Scholar — Harvard University
Department of Statistics — 09/2015–08/2017

Assistant Professor (Tenure-Track) — Harvard University
Department of Statistics — 07/2012–08/2015

Business Analyst — Electronic Arts
Football Business Analytics Team — 09/2011–05/2012

Visiting Professor/Researcher
Université Paris Dauphine and ENSAE — 05/2014–06/2014
Newton Institute, Cambridge University — 05/2014
Oxford University — 12/2013
University of Bordeaux and INRIA — 03/2010–06/2010, 04/2011
Los Alamos National Labs — 02/2008–08/2008, 02/2010
Stat. and Applied Math. Sciences Inst. (SAMSI) — 09/2008–12/2008

Research Assistant — University of British Columbia
Dr. Jim Zidek and Dr. Arnaud Doucet — 01/2009–12/2009
Dr. Arnaud Doucet and Dr. Raphael Gottardo — 05/2007–02/2008

Consultant
Numerous tech startups, sports teams, etc. — 06/2006–05/2017

Teaching Experience

Instructor — Simon Fraser University
Stat 180: Career Development Seminar — Fall 2016
Stat 350: Linear Models in Applied Statistics — Fall 2015
Stat 440: Learning from Big Data — Fall 2016
Stat 857: Space Time Models — Spring 2016

Instructor — Harvard University
Stat 183: Learning from Big Data — Spring 2014
Stat 225: Spatial Statistics — Spring 2013, Spring 2014
Stat 303: The Art and Practice of Teaching Statistics — Full-year 2012/2013
Stat 306: Research Topics in Sports Analytics — Fall 2014
Stat 314: Timely Topics in Statistics — Full-year 2013/2014, Fall 2014
Stat 325: Advanced Topics in Environmental Modeling — Spring 2013, Full-year 2013/2014
Stat 328: Bayesian Nonparametrics — Fall 2013

Instructor — UBC Sauder School of Business
BABS 550: Application of Statistics in Management — Fall 2010, Fall 2011

Head Teaching Assistant — University of British Columbia
Stat 241/251: Introduction to Statistics — Fall 2007

Teaching Assistant — University of British Columbia
Stat 443: Introduction to Time Series Analysis — Winter 2009
Stat 241/251: Introduction to Statistics — Fall 2006, Winter 2007, Summer 2007

Mathematics Tutor — University of the Fraser Valley
All Levels — 2003–2006

Service and Additional Training

- Chair – ASA Section on Statistics in Sports, 01/2019 - 12/2020
- Co-organizer of BIRS-CMO workshop entitled *Computational Statistics and Molecular Simulation: A Practical Cross-Fertilization*, 11/2018
- Organizer of the Cascadia Symposium on Statistics in Sports (CASSIS), 08/2018
- Co-organizer of Visualization in Data Science (VDS), 10/2017
- Scientific Program Committee Member, 2017 Bayesian Nonparametrics Meeting, 04/2016 - Present
- Co-organizer of Banff International Research Station (BIRS) workshop entitled *Validating and Expanding Approximate Bayesian Computation Methods*, 02/2017
- Organizer of the Cascadia Symposium on Statistics in Sports (CASSIS), 09/2016
- Co-organizer of Visualization in Data Science (VDS), 10/2016
- SFU Committee Service
  - SFU Big Data Academic Advisory Committee, 02/2016 - 06/2017
  - Statistics Big Data Committee, 01/2015 - 06/2017
  - Statistics UG Curriculum Revision Committee, 09/2015 - 06/2017
  - Computer Science Tenure and Promotion Committee, 05/2015 - 06/2017
  - Statistics Tenure and Promotion Committee, 01/2015 - 08/2016
  - Statistics Joint Program Committee, 01/2015 - 01/2016
- Founder and Faculty Advisor, Simon Fraser Sports Analytics Club, 09/2015 - Present
- Member, SFU Sports Analytics Group, 01/2015 - Present
- Associate Editor, *Journal of Quantitative Analysis in Sports*, 05/2014 - Present
- Associate Editor, *Statistics and Computing*, 03/2014 - 01/2020
- Scientific Committee Member, 2016 IMS-ISBA Joint Meeting, 02/2015 - 01/2016
- Member, Prozone Performance Lab Advisory Group, 03/2015 - 06/2017
- Member, Harvard IACS Advisory Board, 04/2014 - Present
- Session organizer
  - *Shots in the Box-Cox: Transformational Soccer Analytics.* Joint Statistical Meetings, 08/2018
  - *Accelerating Bayesian Computation by Intersecting Monte Carlo and Optimization.* Joint Statistical Meetings, 08/2016
  - *BayesBall: The Bayesian takeover in Sports.* International Society on Bayesian Analysis World Meeting, 06/2016
  - *Eye in the Sky: The Player Tracking Revolution in Sports Analytics.* Joint Statistical Meetings, 08/2014
  - *Recent Developments in Software for MCMC.* MCMSki, 01/2014
  - *Advances in Nonstationary Spatial Modeling.* Joint Statistical Meetings, 08/2013
  - *Identifiability – Pushing Data to the Limits.* Statistical Society of Canada Meeting, 06/2013
  - *Resiliency of Agriculture and Natural Resources to Climate Change and Variability.* Joint Statistical Meetings, 08/2010
- Associate Faculty, Harvard University Center for the Environment, 10/2013–08/2015
- Organizer, Harvard Statistics Colloquium Series, 07/2013–06/2014
- Lead organizer of Banff International Research Station (BIRS) workshop entitled *Advances in Scalable Bayesian Computation*, 03/2014

- Creator and developer of new Harvard course *Stat 183: Learning from Big Data*, 01/2014
- Referee of approximately 10-15 papers per year for *Journal of the American Statistical Association*, *Neural Information Processing Systems (NIPS)*, *Journal of Computational and Graphical Statistics*, *International Conference on Machine Learning (ICML)*, *Annals of Applied Statistics*, *Artificial Intelligence and Statistics (AISTATS)*, *Papers in Regional Science*, *Shock and Vibration*, *Journal of Agricultural, Biological, and Environmental Statistics*, *Structural Health Monitoring*, *Machine Learning*, *Statistics and Computing*, *Neurocomputing*, *WIRE Computational Statistics* and others
- Associate Editor (Student's Corner), International Society for Bayesian Analysis (ISBA) Bulletin, 08/2007–11/2011
- Head (2008, 2009, 2010, 2011) and Assistant (2007) UBC Dept. of Statistics TA Training Instructor
- Active member of the UBC Dept. of Statistics Short Term Consulting Service, 05/2007–10/2011
- Completed 3-day Instructional Skills Workshop, 09/2009
- Accepted into (and attended) the Summer School on Spatial Statistics. Statistical and Applied Mathematical Sciences Institute (SAMSI), 08/2009
- Accepted into (and attended) the International Graduate Summer School on Statistics and Climate Modeling. National Center for Atmospheric Research (NCAR), 08/2008
- Graduate Representative, UBC Dept. of Statistics, 05/2007–02/2008
- Vice President Internal, Student Union Society, University of the Fraser Valley, 02/2004–04/2005
- Student Representative, Student Union Society, University of the Fraser Valley, 09/2003–01/2004

Honours and Awards

- Post-PhD (Harvard, Simon Fraser)
  - Sloan Sports Analytics Conference Research Paper winner (5,000 USD), 03/2019
  - Sloan Sports Analytics Conference Research Paper finalist, 02/2018
  - Sloan Sports Analytics Conference Research Paper finalist, 03/2017
  - ASA Section on Statistics in Sports Significant Contributor Award, 08/2016
  - ISBA Lifetime Members Junior Researcher Award (750 USD), 06/2016
  - Sloan Sports Analytics Conference Research Paper finalist, 03/2016
  - Work selected for "Breaking News!" Session, IMS-ISBA Meeting, 01/2016
  - Sloan Sports Analytics Conference Research Paper winner (15,000 USD), 03/2015
  - Sloan Sports Analytics Conference Research Poster winner (1,000 USD), 03/2015
  - Sloan Sports Analytics Conference Research Paper finalist, 03/2014
- M.Sc./Ph.D. (University of British Columbia)
  - SSC Pierre Robillard Award (1,000 CDN), 05/2013
  - UBC Faculty of Science Graduate Award (1,000 CDN), 04/2013
  - Michael Smith Foundation for Health Research (MSFHR) Trainee Award (67,500 CDN), 10/2009–09/2012 (*Accepted at reduced amount*)
  - UBC Tuition Award (18,000 CDN), 09/2008–08/2012
  - JSM ENVR Paper Award (125 USD), 07/2012
  - ISBA Kyoto Travel Award (500 USD), 07/2012 (*Declined*)
  - UBC Department of Statistics Marshall Award (500 CDN), 06/2012
  - GeoMed Travel Award (500 CDN), 10/2011
  - Faculty of Science Graduate Award (15,000 CDN), 09/2009–09/2011

  - NSERC PGS-D (63,000 CDN), 09/2008–08/2011
  - UBC Graduate Student Travel Award (800 CDN), 07/2007, 08/2011
  - Faculty of Science Achievement Award for Teaching and Mentorship (1,000 CDN), 04/2011
  - UBC Killam Graduate Teaching Award (1,000 CDN), 04/2009
  - British Columbia Clean Air Fund Scholarship (1,000 CDN), 02/2009
  - PhD Entrance Award (5,000 CDN), 09/2008
  - Best Student Oral Presentation: WNAR/IMS Meeting (300 USD), 06/2008
  - University Graduate Fellowship (8,000 CDN), 09/2007–08/2008
  - BC Ferries Scholarship (500 CDN), 09/2007
  - CMS-MITACS Joint Conference Student Travel Award (600 CDN), 06/2007
  - M.Sc. Entrance Award (1,205 CDN), 09/2006
- B.Sc. (University of the Fraser Valley)
  - Garfield Weston Merit Scholarship (43,000 CDN), 09/2003–06/2006
  - Award for Excellence in 4th Year Mathematics, 04/2006
  - Doug McDowell Scholarship in Mathematics (600 CDN), 01/2006
  - Award in Recognition of Outstanding Volunteer Commitment to the Students of UCFV, 04/2005
  - Toastmaster's Scholarship for Public Speaking (300 CDN), 04/2004
  - Envision Financial Award for Outstanding School and Community Service (1,000 CDN), 09/2003
  - BC Provincial Scholarship (1,000 CDN), 09/2003

Refereed Publications

- †Fernández, J., **Bornn, L.**, Cervone, D. (2021) A Framework for the Fine-Grained Evaluation of the Instantaneous Expected Value of Soccer Possessions. To appear in *Machine Learning*.
- †van Bommel, M., **Bornn, L.**, Chow-White, P., †Gao, C. (2021) Home Sweet Home: Quantifying Home Court Advantages For NCAA Basketball Statistics. To appear in the *Journal of Sports Analytics*.
- †Rischard, M., †Branson, Z., Miratrix, L., **Bornn, L.** (2020) Do School Districts Affect NYC House Prices? Identifying Border Differences Using a Bayesian Nonparametric Approach to Geographic Regression Discontinuity Designs. *Journal of the American Statistical Association*. Vol. 1, 1-13.
- †Sandholtz, N., **Bornn, L.** (2020) Markov Decision Processes with Dynamic Transition Probabilities: An Analysis of Shooting Strategies in Basketball. *Annals of Applied Statistics*. Vol. 3, 1122-1145.
- †Fernandez, J., **Bornn, L.** (2020) SoccerMap: A Deep Learning Architecture for Visually-Interpretable Analysis in Soccer. *European Conference on Machine Learning (ECML)*
- †Daly-Grafstein, D., **Bornn, L.** (2020) Using In-Game Shot Trajectories to Better Understand Defensive Impact in the NBA. *Journal of Sports Analytics*. Vol. 6, 235-242.
- †Sandholtz, N., †Mortensen, J., **Bornn, L.** (2020) Measuring Spatial Allocative Efficiency in Basketball. *Journal of Quantitative Analysis in Sports*. Vol. 16, 271-289.
- Impellizzeri, F., Ward, P., Coutts, A., **Bornn, L.**, McCall, A. (2020) Training Load and Injury Part 1: The Devil Is in the Detail—Challenges to Applying the Current Research in the Training Load and Injury Field. *Journal of Orthopaedic and Sports Physical Therapy*. Vol. 50, 574-576.
- Impellizzeri, McCall, A., F., Ward, P., **Bornn, L.**, Coutts, A. (2020) Training Load and Its Role in Injury Prevention, Part 2: Conceptual and Methodologic Pitfalls. *Journal of Orthopaedic and Sports Physical Therapy*. Vol. 55, 893-901.

†Indicates students and other HQP

- **Bornn, L.**, Shephard, N., †Solgi, R. (2019) Moment Conditions and Bayesian Nonparametrics. *Journal of the Royal Statistical Society – Series B*. Vol. 81, 5-43.
- †Daly-Grafstein, D., **Bornn, L.** (2019) Rao-Blackwellizing Field Goal Percentage. *Journal of Quantitative Analysis in Sports*. Vol. 15, 85-95.
- †Branson, Z., †Rischard, M., **Bornn, L.**, Miratrix, L. (2019) A Nonparametric Bayesian Methodology for Regression Discontinuity Designs. *Journal of Statistical Planning and Inference*. Vol. 202, 14-30.
- †Fernandez, J., **Bornn, L.**, Cervone, D. (2019) Decomposing the Immeasurable Sport: A Deep Learning Expected Possession Value Framework for Soccer. *Sloan Sports Analytics Conference 2019 (Finalist and Winner)*.
- **Bornn, L.**, †Ward, P., Norman, D. (2019) Training Schedule Confounds the Relationship Between Acute:Chronic Workload and Injury. *Sloan Sports Analytics Conference 2019 (Finalist)*.
- Czuzoj-Shulman, N., Yu, D., Boucher, C., **Bornn, L.**, Javan, M. (2019) Winning Isn't Everything: A Contextual Analysis of Hockey Face-Offs. *Sloan Sports Analytics Conference 2019 (Finalist)*.
- †Gerber, M., **Bornn, L.** (2018) Convergence Results for a Class of Time-Varying Simulated Annealing Algorithms. *Stochastic Processes and their Applications*. Vol. 128, 1073-1094.
- †Ward, P., Tankovich, M., Ramsden, J., Drust, B., **Bornn, L.** (2018) Volume and Intensity are Important Training Related Factors in Injury Incidence in American Football Athletes. *Sloan Sports Analytics Conference 2018 (Finalist)*.
- †Fernandez, J., **Bornn, L.** (2018) Wide Open Spaces: A Statistical Technique for Measuring Space Creation in Professional Soccer. *Sloan Sports Analytics Conference 2018 (Finalist)*.
- †Liu, A., †Wang, L., **Bornn, L.**, and Farrar, C. (2018) Robust Structural Health Monitoring Under Environmental and Operational Uncertainty with Switching State-Space Autoregressive Models. *Structural Health Monitoring*. Vol. 18, 435–453.
- †Wu, S., **Bornn, L.** (2018) Modeling Offensive Player Movement in Professional Basketball. *The American Statistician*. Vol. 72, 72-29.
- †Franks, A., †D'Amour A., †Cervone, D., **Bornn, L.** (2017) Meta-Analytics: Tools for Understanding the Statistical Properties of Sports Metrics. *The Journal of Quantitative Analysis in Sports*. Vol. 12, 151-165.
- †van Bommel, M., **Bornn, L.** (2017) Adjusting for Scorekeeper Bias in NBA Box Scores. *Data Mining and Knowledge Discovery*. Vol. 31, 1622-1642.
- †Gerber, M., **Bornn, L.** (2017) Improving Simulated Annealing through Derandomization. *The Journal of Global Optimization*. Vol. 68, 189-217.
- **Bornn, L.**, Pillai, N., Smith, A., Woodard., D. (2017) The Use of a Single Pseudo-Sample in Approximate Bayesian Computation. *Statistics and Computing*. Vol. 27, 583-590.
- †Miller, A., **Bornn, L.** (2017) Possession Sketches: Mapping NBA Strategies. *Sloan Sports Analytics Conference 2017 (Finalist)*.
- †Antonelli, J., Cefalu, M., **Bornn, L.** (2016) The Positive Effects of Population Based Preferential Sampling in Environmental Epidemiology. *Biostatistics*. Vol. 17, 764-778.
- †Cervone, D., †D'Amour, A., **Bornn, L.**, Goldsberry, K. (2016) A Multiresolution Stochastic Process Model for Predicting Basketball Possession Outcomes. *Journal of the American Statistical Association*. Vol. 111, 585-599.
- **Bornn, L.**, Farrar, C., Higdon, D., Murphy, K. (2016) Modeling and Diagnosis of Structural Systems through Sparse Dynamic Graphical Models. *Mechanical Systems and Signal Processing*. Vol. 74, 133–143.
- †Bojinov, I., **Bornn, L.** (2016) The Pressing Game: Optimal Defensive Disruption in Soccer. *Sloan Sports Analytics Conference 2016 (Finalist)*.

- Chen, Y., **Bornn, L.**, De Freitas, N., Eskelin, M., Fang, J., Welling, M. (2016) Herded Gibbs Sampling. *Journal of Machine Learning Research*. Vol. 17, 1-29.
- †Franks, A., †Miller, A., **Bornn, L.**, Goldsberry, K. (2015) Counterpoints: Advanced Defensive Metrics for NBA Basketball. *Sloan Sports Analytics Conference 2015 (Finalist and Winner)*.
- †Gopalan, G., Vrtilek, S., **Bornn, L.** (2015) Classifying X-ray Binaries: A Probabilistic Approach. *The Astrophysical Journal*. Vol. 809, No. 1.
- †Director, H., **Bornn, L.** (2015) Connecting Point-Level and Gridded Moments in the Analysis of Climate Data. *Journal of Climate*. Vol. 28, 3496–3510.
- †Franks, A., †Miller, A., **Bornn, L.**, Goldsberry, K. (2015) Characterizing the Spatial Structure of Defensive Skill in Professional Basketball. *Annals of Applied Statistics*. Vol. 9, No. 1, 94-121.
- †Yuan, L., †Liu, A., †Yeh, A., †Kaufman, A., †Reece, A., †Bull, P., †Franks, A., †Wang, S., †Illushin, D., **Bornn, L.**, (2015) A Mixture-of-Modelers Approach to Forecasting NCAA Tournament Outcomes. *Journal of Quantitative Analysis in Sports*. Vol. 11, Issue 1, 13-27.
- †Cervone, D., †D'Amour, A., **Bornn, L.**, Goldsberry, K. (2014) POINTWISE: Predicting Points and Valuing Decisions in Real Time with NBA Optical Tracking Data. *Sloan Sports Analytics Conference 2014 (Finalist)*.
- †Miller, A., **Bornn, L.**, Adams, R., Goldsberry, K. (2014) Factorized Point Process Intensities: A Spatial Analysis of Professional Basketball. *International Conference on Machine Learning (ICML)*.
- **Bornn, L.**, Jacob, P., Del Moral, P., Doucet, A. (2013) An Adaptive Interacting Wang-Landau Algorithm for Automatic Density Exploration. *Journal of Computational and Graphical Statistics*. Vol. 22, Issue 3, 749-773.
- **Bornn, L.** (2013) PAWL-Forced Simulated Tempering. *Proc. Bayesian Young Statisticians Meeting*.
- **Bornn, L.**, Shaddick, G., Zidek, J. (2012) Modeling Non-Stationary Processes Through Dimension Expansion. *Journal of the American Statistical Association*. Vol. 107, No. 497, 281–289.
- **Bornn, L.**, Caron, F. (2012) Bayesian Clustering in Decomposable Graphs. *Bayesian Analysis*. Vol. 6, No. 4, 829–846.
- **Bornn, L.**, Zidek, J. (2011) Efficient Stabilization of Crop Yield Prediction in the Canadian Prairies. *Agricultural and Forest Meteorology*. Vol. 152, Pages 223-232.
- Atamturktur, S., **Bornn, L.**, Hemez, F. (2011) Vibration Characteristics of Vaulted Masonry Monuments Undergoing Differential Support Settlement. *Engineering Structures*. Vol. 33, 2472–2484.
- El-Zammar, D., Yan, M., Huang, C., Fang, D., Petigara, F., **Bornn, L.**, Ngai, T., and others (2011) Assessment and Management of Anemia in a Population of Children Living in the Indian Himalayas: A Student-Led Initiative. *UBC Medical Journal*. Vol. 2, Issue 2, 12-18.
- **Bornn, L.**, Farrar, C.R., Park, G. (2010) Damage Detection in Initially Nonlinear Systems. *International Journal of Engineering Science*. Vol. 48, 909-920.
- **Bornn, L.**, Doucet, A., Gottardo, R. (2010) An Efficient Computational Approach for Prior Sensitivity and Cross-validation. *The Canadian Journal of Statistics*, Vol. 38, Issue 1, 47-64.
- **Bornn, L.**, Farrar, C., Park, G., Farinholt, K. (2009) Structural Health Monitoring with Autoregressive Support Vector Machines. *Journal of Vibration and Acoustics*. 131:021004.

†Indicates students and other HQP

Invited Book Chapters, Articles, and Comments

- **Bornn, L.**, †Fernandez, J., †Cervone, D. (2018) Soccer analytics: Unravelling the complexity of "the beautiful game". To appear in *Significance*.
- **Bornn, L.**, †Cervone, D., †Franks, A., †Miller, A. (2017) Studying Basketball Through the Lens of Player Tracking Data. To appear in *The Handbook of Sports Analytics*.
- Caron, F., **Bornn, L.** (2014) Comment on Article by Finegold and Drton. *Bayesian Analysis*. Vol. 9, 551-556.
- **Bornn, L.**, Cornebise, J. (2010) Comment on "Riemann manifold Langevin and Hamiltonian Monte Carlo methods". *Journal of the Royal Statistical Society Series B*. Vol. 73, 123-214.
- **Bornn, L.**, Tabet, A. (2010) Comment on "Particle Markov Chain Monte Carlo". *Journal of the Royal Statistical Society Series B*. Vol. 72, 269-342.

Proceedings, Reports, Etc.

- †Mortensen, J., **Bornn, L.**, (2019) From Markov Models to Poisson Point Processes: Modeling Movement in the NBA *Sloan Sports Analytics Conference 2019*.
- †Yu, D., Boucher, C., **Bornn, L.**, Javan, M. (2019) Playing Fast Not Loose: Evaluating Team-Level Pace of Play in Ice Hockey Using Spatio-Temporal Possession Data *Sloan Sports Analytics Conference 2019*.
- †Keane, E., Desaulniers, P., **Bornn, L.**, Javan, M. (2019) Data-Driven Lowlight and Highlight Reel Creation Based on Explainable Temporal Game Models *Sloan Sports Analytics Conference 2019*.
- †Sandholtz, N., Mortensen, J., **Bornn, L.** (2019) Chuckers: Measuring Lineup Shot Distribution Optimality Using Spatial Allocative Efficiency Models *Sloan Sports Analytics Conference 2019*.
- †Sandholtz, N., **Bornn, L.** (2018) Replaying the NBA. *Sloan Sports Analytics Conference 2018*.
- †Mehrasa, N., †Zhong, Y., Tung, F., **Bornn, L.**, Mori, G. (2018) Deep Learning of Player Trajectory Representations for Team Activity Analysis. *Sloan Sports Analytics Conference 2018*.
- †van Bommel, M., **Bornn, L.**, (2017) The Van Exel Effect: Adjusting for Scorekeeper Bias in NBA Box Scores. *Sloan Sports Analytics Conference 2017*.
- **Bornn, L.**, Shephard, N., †Solgi, R. (2016) Nonparametric Hierarchical Bayesian Quantiles. *arXiv:1605.02385*.
- †Cervone, D., **Bornn, L.**, Goldsberry, K. (2016) NBA Court Realty. *Sloan Sports Analytics Conference 2016*.
- †D'Amour, A., †Cervone, D., **Bornn, L.**, Goldsberry, K. (2015) Move or Die: How Ball Movement Creates Open Shots in the NBA. *Sloan Sports Analytics Conference 2015*.
- †Gopalan, G., **Bornn, L.** (2015) FastGP: An R Package for Gaussian Processes. *arXiv:1507.06055*.
- †D'Amour, A., †Cervone, D., **Bornn, L.**, Goldsberry, K. (2015) Move or Die: How Ball Movement Creates Open Shots in the NBA. *Sloan Sports Analytics Conference 2015*.
- †Yang, J., †Wang, X., Protopapas, P. **Bornn, L.** (2015) Fast and Optimal Nonparametric Sequential Design for Astronomical Observations. *arXiv:1501.02467*.
- †Batmanghelich, N., Quon, G., Kulesza, A., Kellis, M., Golland, P., **Bornn, L.** (2014) Diversifying Sparsity Using Variational Determinantal Point Processes. *arXiv:1411.6307*.
- †Cackler, J., **Bornn, L.** (2014) Understanding the Effect of Gerrymandering on Voter Influence through Shape-based Metrics. *Unpublished*.
- **Bornn, L.**, †Cherkassky, M. (2013) Sequential Monte Carlo Bandits. *arXiv:1310.1404*.
- **Bornn, L.**, Anghel, M., Steinwart, I. (2012) Forecasting with Historical Data or Process Knowledge under Misspecification: A Comparison. *arXiv:1205.3845*.

†Indicates students and other HQP

- Caron, F., **Bornn, L.**, Doucet, A. (2012) Sparsity-Promoting Bayesian Dynamic Linear Models. *arXiv:1203.0106*.
- **Bornn, L.** (2012) Modeling Latent Correlation Structures with Application to Agricultural and Environmental Science. *Ph.D. Thesis*.
- Farrar, C., Park, G., Anghel, M, Bement, A., **Bornn, L.** (2011) Structural Health Monitoring, Data Analysis and Modeling for Ship Structures. *Los Alamos Technical Report*. LA-UR-11-05494.
- Jacob, P., **Bornn, L.** (2011) PAWL: An R Package for Automated Monte Carlo. Available on CRAN at `http://cran.r-project.org/web/packages/PAWL/index.html`.
- **Bornn, L.**, Gottardo, R., Doucet, A. (2010) Grouping Priors and the Bayesian Elastic Net. *UBC Department of Statistics Technical Report #254*. Also available on arXiv.
- Farrar, C.R., **Bornn, L.**, Park, G., Farinholt, K.M. (2009) Damage Detection in Initially Nonlinear Systems. *Proceedings of 7th International Workshop on Structural Health Monitoring*. September 9-11 2009, Stanford, CA.
- **Bornn, L.**, Farrar, C.R., Park, G., Farinholt, K.M. (2009) Support Vector Autoregression in the Structural Health Monitoring Paradigm. *Proceedings of 7th International Workshop on Structural Health Monitoring*. September 9-11 2009, Stanford, CA.
- Bornn, L. (2008) Statistical Solutions For and From Signal Processing. *M.Sc. Thesis*.
- Higdon, D., Anderson-Cook, C., Gattiker, J., Huzurbazar, A., Moore, L., Picard, R., Press, W., Williams, B., **Bornn, L.**, Nelson, R. (2008) QMU for Advanced Certification: Identifying Existing Limitations with Discussion of Solution Strategies. *Los Alamos Technical Report*. LA-UR-08-06887.

Media Recognition

- 2017+ - Multiple interviews and article coverage (SiriusXM, CBC, TSN, Sportsnet, NBC Sports)
- 10/2015 - AMS What's Happening in the Mathematical Sciences "Sports Analytics"
- 03/2015 - Columbia Journalism Review "In Defense of Defense"
- 02/2015 - Grantland.com "Department of Defense"
- 02/2015 - Ultimo Uomo "La Rivincita dei Nerd"
- 11/2014 - Wired "Meet the Mapmakers Who are Changing the NBA"
- 04/2014 - Harvard Gazette "For Big Data, Big Thinking"
- 03/2014 - SiriusXM Radio Interview
- 03/2014 - Boston Globe "A New (More Accurate?) Way to Evaluate NBA Players"
- 03/2014 - Harvard Gazette "Bringing Order to the Court"
- 03/2014 - NBA.com "Putting Player Tracking to Work"
- 02/2014 - Bleacher Report "Debating the Value of the NBA's Latest Data Breakthrough"
- 02/2014 - Deadspin "This New NBA Stat is a Huge Step Forward for Basketball Analysis"
- 02/2014 - ESPN Magazine "What's the Big Idea'
- 02/2014 - Grantland.com "DataBall"

Invited Presentations (pre-2020)

- 10/2019 - USOPC Ahtlete Data Summit (Colorado Springs, CO)
- 11/2018 - FC Barcelona Sports Technology Symposium (Barcelona, Spain)
- 09/2018 - Department of Biostatistics, McGill University (Montreal, QC)
- 05/2018 - Fields Institute (Toronto, ON)
- 05/2018 - Peter G. Hall Conference (Davis, CA)
- 03/2018 - Department of Statistics, NC State (Raleigh, NC)
- 02/2018 - Sloan Sports Analytics Conference (Boston, MA)
- 02/2018 - OptaPro Forum (London, UK)
- 01/2018 - Sports Performance Data and Fan Engagement Summit (San Francisco, CA)
- 10/2017 - Carnegie Mellon Sports Analytics Conference (Pittsburgh, PA)
- 10/2017 - Department of Statistics, UC Davis (Davis, CA)
- 09/2017 - Harvard University Computational Statistics Seminar (Cambridge, MA)
- 07/2017 - NBA Summer League (Vegas, NV)
- 05/2017 - BC Data Colloquium (Vancouver, BC)
- 08/2016 - SFU Symposium on Mathematics and Computation (Burnaby, BC)
- 08/2016 - Microsoft Azure (Redmond, WA)
- 06/2016 - ISBA World Meeting (Sardinia, Italy)
- 05/2016 - Statistical Society of Canada Meeting (St. Catharines, ON)
- 05/2016 - Perspectives on High-dimensional Data Analysis (Toronto, ON)
- 05/2016 - Spring Research Conference (Chicago, IL)
- 03/2016 - Department of Statistics, University of British Columbia (Vancouver, BC)
- 03/2016 - Department of Statistics, University of Toronto (Toronto, ON)
- 02/2016 - Workshop on Computational Statistics and Molecular Simulation (Paris, France)
- 11/2015 - FC Barcelona Sports Technology Symposium (Barcelona, Spain)
- 10/2015 - Visualization in Data Science (Chicago, IL)
- 08/2015 - Workshop on Applied Topology and High-Dimensional Data Analysis (Victoria, BC)
- 08/2015 - Joint Statistical Meetings (Seattle, WA)
- 06/2015 - Probabilistic Programming and Machine Learning (Portland, OR)
- 05/2015 - Big Data in Environmental Sciences (Vancouver, BC)
- 04/2015 - New England Statistics Symposium (Storrs, CT)
- 08/2014 - Joint Statistical Meetings (Boston, MA)
- 06/2014 - Meeting of the International Chinese Statistical Association (Portland, OR)
- 05/2014 - Big'MC (Paris, FR)
- 04/2014 - New England Statistics Symposium (Cambridge, MA)
- 04/2014 - Department of Statistics, University of Washington (Seattle, WA)
- 04/2014 - Machine Learning Seminar Series, Duke University (Durham, NC)
- 04/2014 - Department of Statistics, Simon Fraser University (Burnaby, BC)
- 04/2014 - Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing (Leuven, BE)
- 03/2014 - Advances in Scalable Bayesian Computation (Banff, AB)
- 01/2014 - Institute for Applied Computer Science Symposium (Cambridge, MA)

- 01/2014 - MCMSki (Chamonix, France)
- 11/2013 - Department of Statistics, Oxford University (Oxford, UK)
- 10/2013 - Centre de Recherches Mathématiques (Montreal, QC)
- 10/2013 - Booth School of Business, University of Chicago (Chicago, IL)
- 10/2013 - Department of Statistics, Boston University (Boston, MA)
- 08/2013 - Joint Statistical Meetings (Montreal, QC)
- 05/2013 - Statistical Society of Canada Meeting (Edmonton, AB)
- 04/2013 - Department of Biostatistics, Harvard University (Boston, MA)
- 03/2013 - Los Alamos National Labs (Los Alamos, NM)
- 02/2013 - Department of Applied Mathematics, Brown University (Providence, RI)
- 10/2012 - ENSAE (Paris, France)
- 10/2012 - Ecole Polytechnique (Palaiseau, France)
- 06/2012 - Bayesian Inference for Latent Gaussian Models (Trondheim, Norway)
- 05/2012 - Spring Resarch Conference (Cambridge, MA)
- 03/2012 - Department of Mathematics, University of Victoria (Victoria, BC)
- 03/2012 - Department of Statistics, Simon Fraser University (Vancouver, BC)
- 02/2012 - Department of Statistics, Harvard University (Cambridge, MA)
- 02/2012 - Department of Statistics, Columbia University (New York, NY)
- 02/2012 - Department of Statistics, University of British Columbia (Vancouver, BC)
- 04/2011 - INRIA Bordeaux South-West (Bordeaux, France)
- 01/2011 - MCMSki (Park City, UT)
- 01/2011 - AdapSkIII: Advances in Monte Carlo (Park City, UT)
- 05/2010 - Institut de Mathématiques de Bordeaux (Bordeaux, France)
- 01/2010 - Sustainable Agriculture Environmental Systems Workshop (Vancouver, BC)
- 09/2008 - UBC Statistics Seminar Series (Vancouver, BC)
- 07/2008 - Los Alamos National Laboratory (Los Alamos, NM)
- 04/2008 - Conference on Monte Carlo Methods: Theory and Applications (Providence, RI)
- 11/2007 - UBC/SFU Joint Student Workshop (Burnaby, BC)
- 10/2007 - University of the Fraser Valley seminar series (Abbotsford, BC)
- 07/2007 - Banff International Research Station (Banff, AB)

Contributed Presentations

- 01/2016 - MCMSki (Lenzerheide, Switzerland)
- 08/2014 - Joint Statistical Meetings (Boston, MA)
- 09/2013 - Bayesian Inference for Latent Gaussian Models (Reykjavik, Iceland)
- 09/2013 - New England Symposium on Statistics in Sports (Boston, MA)
- 07/2013 - IMS New Researcher Conference (Montreal, QC)
- 06/2013 - Bayesian Young Statisticians Meeting (Milan, Italy)
- 06/2013 - Meeting on Bayesian Nonparametrics (Amsterdam, NL)
- 06/2013 - Bayesian Inference in Stochastic Processes (Milan, Italy)
- 05/2013 - New England Machine Learning Day (Cambridge, MA)
- 04/2013 - New England Statistics Symposium (Storrs, CT)
- 08/2012 - Joint Statistical Meetings (San Diego, CA)
- 10/2011 - GeoMed (Victoria, BC)
- 08/2011 - SAMSI Climate Modeling Opening Workshop (Pleasanton, CA)
- 08/2011 - Joint Statistical Meetings (Miami, FL)
- 04/2011 - International Biometric Society (Bordeaux, France)
- 04/2011 - PIMS Young Researcher Meeting (Vancouver, BC)
- 01/2011 - MCMSki (Park City, UT)
- 08/2010 - Joint Statistical Meetings (Vancouver, BC)
- 06/2010 - Valencia Meeting on Bayesian Statistics (Valencia, Spain)
- 06/2010 - Sparse Structures: Statistical Theory and Practice (Bristol, UK)
- 06/2009 - Statistical Methods for Dynamic System Models (Vancouver, BC)
- 05/2009 - Statistical Society of Canada Annual Meeting (Vancouver, BC)
- 07/2008 - LANL Student Symposium (Los Alamos, NM)
- 06/2008 - WNAR Annual Conference (Davis, CA). Winner, Best Student Presentation
- 06/2008 - Second Canada-France Congress (Montreal, QC)
- 10/2007 - Pacific Northwest Statistics Meeting (Vancouver, BC)
- 05/2007 - CMS-MITACS Joint Conference (Winnipeg, MB)

Research Funding

- 10/2017: Amazon Research Award (10,000 USD), PI
- 09/2016: NSERC Engage Grant (25,000 CAD), PI
- 01/2016: SFU TLC Development Grant (5,000 CAD), PI
- 10/2015: Amazon Research Award (15,000 USD), PI
- 04/2015: NSERC Discovery Grant (110,000 CAD), PI
- 04/2015: ARO Young Investigator Award (237,472 USD), PI
- 01/2015: NSF (330,000 USD), Co-PI (w/ Luke Miratrix)
- 04/2014: DARPA Probabilistic Programming & Machine Learning (207,000 USD), PI
- 12/2013: William F. Milton Fund (40,000 USD), PI
- 04/2013: Harvard Center for the Environment, Faculty Grant for Exploratory Research (32,800 USD), Co-PI (w/ Natesh Pillai, Art Dempster, and Peter Huybers)

Highly Qualified Personnel

- Students
  - Javier Fernandez (Polytechnic University of Catalonia PhD)
- Alumni
  - Nathan Sandholtz (Simon Fraser PhD), now Post-doc at *University of Toronto*
  - Jacob Mortensen (Simon Fraser PhD), now at *Zelus Analytics*
  - Daniel Daly-Grafstein (Simon Fraser MSc), now PhD student at *University of British Columbia*
  - Patrick Ward (Liverpool John Moores PhD – primary supervisor Barry Drust), now at *Seattle Seahawks*
  - Andrew Miller (Harvard PhD – primary supervisor Ryan Adams), now postdoc at *Columbia University*
  - Matthew van Bommel (Simon Fraser MSc 2017), now at the *Sacramento Kings*
  - Reza Solgi (Harvard Postdoc 2017 – jointly supervised with Neil Shephard), now at *Amazon*
  - Yatao Zhong (Simon Fraser MSc 2017 – primary supervisor Greg Mori), now at *Microsoft Research*
  - Nazanin Mehrasa (Simon Fraser MSc 2017 – primary supervisor Greg Mori), now PhD student at *Simon Fraser University*
  - Mathieu Gerber (Harvard Postdoc 2016), now Assistant Professor at *University of Bristol*
  - Alexander D'Amour (Harvard PhD 2016 – primary supervisor Edo Airoldi), now Researcher at *Google Research*
  - Alexander Franks (Harvard PhD 2015 – primary supervisor Edo Airoldi), now Assistant Professor at *UC Santa Barbara*
  - Daniel Cervone (Harvard PhD 2015 – primary supervisor Natesh Pillai), now Researcher at *Los Angeles Dodgers*
  - Giri Gopalan (Harvard AM 2015), now Assistant Professor at *Cal Poly, San Luis Obispo*
  - Hannah Director (Harvard AM 2015), now PhD student at *University of Washington*
  - David Zhang (Harvard AB 2015), now at *AQR Capital Management*
  - Ryan Grossman (Harvard AB 2015), now at *Tinder*
  - Anthony Liu (Harvard AB 2014), now at *Analytics Operations Engineering*
  - Eric Hendey (Harvard AB 2014), now at *Evercore*
  - Jessica Hwang (Harvard AB 2013), now PhD student at *Stanford*
  - Michael Cherkassky (Harvard AB 2013), now at *Pipewave, Inc.*
  - Eunice Kim (Harvard Research Fellow 2013), now at *Amherst College*

Professional Memberships

Statistical Society of Canada, American Statistical Association, International Society for Bayesian Analysis, Institute of Mathematical Statistics