CURRICULUM VITAE, WILLIAM JAMES WELCH
MAY 14, 2024

Contact and personal information

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Employment

Aug 2018–Dec 2018	Interim Head, Department of Statistics, University of British Columbia
Jun 2003–May 2008	Head, Department of Statistics, University of British Columbia
Jun 2003–	Professor, Department of Statistics, University of British Columbia
Jun 2003–	Adjunct Professor, Department of Statistics and Actuarial Science, University of Waterloo
Jul 1998–Aug 2000	Associate Chair, Department of Statistics and Actuarial Science, University of Waterloo
Jul 1993–May 2003	Professor, Department of Statistics and Actuarial Science, University of Waterloo
Jul 1987–Jun 1993	Associate Professor, Department of Statistics and Actuarial Science, University of Waterloo
Jan 1987–Jun 1987	Adjunct Associate Professor, Department of Statistics and Actuarial Science, University of Waterloo
Aug 1986–Jun 1987	Visiting Assistant Professor and Research Associate, Department of Statistics/National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign
Jul 1983–Dec 1986	Assistant Professor, Faculty of Commerce and Business Administration, University of British Columbia
Oct 1981–Jun 1983	Statistical Consultant, Management Science Consultancy Unit, British Telecom, United Kingdom
Oct 1978–Sep 1981	Research Assistant, Department of Mathematics, Imperial College of Science and Technology, University of London (full-time, academic staff position)

Degrees

Oct 1978–Sep 1981	PhD Mathematics, Imperial College of Science and Technology, University of London
Oct 1977–Sep 1978	MSc Statistics, Imperial College of Science and Technology, University of London
Oct 1973–Jun 1977	BSc Management Sciences, Loughborough University of Technology, United Kingdom

Highlights

On October 6, 2023 a total of 22,996 citations and 8,992 since 2018: please see
https://scholar.google.com/citations?user=Bus4Xi8AAAAJ&hl=en
> (Google scholar currently reports a higher count due to its recent confusion of my "Design and Analysis of Computer Experiments" article (citation count of the order 7,000) and the book of the same name by Santner et al.)

Fellow of the American Statistical Association

Nominated for Faculty of Science Killam Teaching Award, 2016 and 2017

Associate Director, Canadian Statistical Sciences Institute (CANSSI), 2012–2016

Dean of Science Excellence in Service Award, 2012

Visiting Professor (Honorary position), Business School, Loughborough University of Technology, United Kingdom, Jan 2005 to present

Head of Department of Statistics, University of British Columbia, 2003–2008 and Interim Head, Aug 2019–Dec 2019

Paper selected by the *Technometrics* editor for the 2002 Joint Statistical Meetings, New York City

Paper selected for the *Journal of Quality Technology* session at the 33rd Annual Fall Technical Conference, Houston, Texas, 1989

Statistics in Chemistry Award 2000, American Statistical Association

Armstrong Medal, Imperial College of Science and Technology, University of London, 1983

Postdoctoral Fellow Supervision at UBC

1. Xiaomeng (Jasmine) Ju, Supervisor, Sep 2022–Mar 2023
2. Stefan Schrunner (visiting postdoc from Norwegian University of Life Sciences), Supervisor, Mar 2022-Jun 2022
3. Michael Fernández Llamosa, Co-supervisor with A. Cherkasov (Department of Urologic Sciences), Jun 2017–Aug 2018
4. Jabed Tomal, Co-supervisor Jan 2014–Jul 2014
5. Jason Loeppky, Supervisor Aug 2004–Jun 2006

PhD Thesis Supervision at UBC

1. Par Pishrobat, Supervisor May 2024–, "Dynamic Statistical Models" (tentative title), in progress
2. Jesse Schneider, Supervisor Sep 2023–, "Bayesian Optimization" (tentative title), in progress

3. Sonja Isberg, Supervisor May 2017–Aug 2022, "Design and Analysis of Computer Experiments: Large Datasets and Multi-Model Ensembles", graduated
4. Xin Ding, Co-supervisor with Jane Z. Wang May 2018–Aug 2021, "Improved Conditional Generative Adversarial Networks for Image Generation: Methods and Their Application in Knowledge Distillation", graduated. Awarded the 2021 Marshall Prize.
5. G. Alexi Rodriguez-Arelis, Supervisor Jun 2015–Dec 2020, "How to Improve Prediction Accuracy in the Analysis of Computer Experiments", graduated
6. Hao Chen, Supervisor Jan 2014–Mar 2018, "Design and Analysis of Computer Experiments: Assessing and Advancing the State of the Art", graduated
7. Tianji Shi, Co-supervisor with D.G. Steyn May 2009–Aug 2015, "Air-Quality Model Evaluation Through the Analysis of Spatial-Temporal Ozone Features", graduated
8. Jabed Tomal, Co-supervisor with R.H. Zamar Feb 2009–Nov 2013, "Rare-Class Classification Using Ensembles of Subsets of Variables", graduated
9. Bela Nagy, Supervisor Sep 2005–Aug 2008 (part of the period co-supervised with J.L. Loeppky), "Valid Estimation and Prediction Inference in Analysis of a Computer Model", graduated
10. Mohua Podder, Co-supervisor with R.H. Zamar Sep 2004–Aug 2008, "Robust Genotype Classification Using Dynamic Variable Selection", graduated
11. Guohua Yan, Co-supervisor with R.H. Zamar Sep 2004–Jun 2008, "Linear Clustering with Application to Single Nucleotide Polymorphism Genotyping", graduated
12. Hui Shen, Supervisor Sep 2002–Jul 2008 (at University of Waterloo until 2003), "Model Comparison and Assessment by Cross Validation", graduated

MSc Thesis Supervision at UBC

1. Silke Rice, Co-supervisor with D. Scott (Physics and Astronomy) Mar 2023–, "Detection of Galaxy-scale Strong Gravitational Lenses", in progress
2. Wenyi Wang, Supervisor May 2017–Apr 2019, "Machine Learning Hyperparameter Tuning via Bayesian Optimization Exploiting Monotonicity", graduated
3. Hao Chen, Supervisor May 2012–Nov 2013, "Bayesian Analysis of Computer Experiments", graduated

MSc Project Supervision at UBC

1. Par Pishrobat, Project supervisor Sep 2023–Apr 2024 (then "head start" transfer to PhD), "Statistical Modelling of Lagged Effects of Rainfall on Streamflow"
2. Maria del Mar Bazua-Lobato, Project supervisor Mar 2018–Aug 2019, "Modeling Residential Electricity Expenditure in Mexico as a Function of Income and Use of Air Conditioning", graduated
3. Dustin Johnson, Project supervisor Sep 2016–Oct 2018, "Measurement Error Model for Calibration", graduated
4. Gal Av-Gay, Project supervisor May 2015–Apr 2016, "Metropolis-Hastings Optimization for Gaussian Processes", graduated

BSc Undergraduate Research Supervision at UBC

1. Caden Hewlett, NSERC USRA supervisor May–Aug 2024, "Software for Statistical Modelling of Hydrology Time Series"
2. Par Pishrobat, NSERC USRA supervisor May–Aug 2023, "Calibration Via Computer Models and Physical Data"

3. Junsong (Jason) Tang, NSERC USRA supervisor May–Aug 2022, "Statistical Modelling of Watershed Data"

4. Yiling (Justin) Yang, Undergraduate RA supervisor May–Aug 2020, "GaSP: Gaussian Stochastic Processes for Computer Experiments (R Package)"

5. Allen Lee, NSERC USRA supervisor Apr–Aug 2018, "Statistical Machine Learning for Drug Discovery"

6. Grace Hsu, NSERC USRA supervisor May–Aug 2016, "Software for Classification Using an Ensemble of Phalanxes of Variables"

7. Dustin Johnson, NSERC USRA supervisor May–Aug 2015, "Ensemble Methods for Gaussian Processes"

8. Gal Av-Gay Supervisor May 2012–Aug 2013, including NSERC USRA supervisor May–Aug 2013, "Fast Approximations in Analysis of Computer Experiments", graduated

9. Fei Yuan, Supervisor May 2004–Aug 2004, "Research Tools for Drug Discovery Data", graduated

PhD Thesis Supervisory Committee Memberships at UBC

1. Anthony Christidis, Thesis Committee Member, Apr 2019–Sep 2022, "A Data-Driven Ensemble Framework for Modeling High-Dimensional Data", graduated

2. Xiaomeng (Jasmine) Ju, Thesis Committee Member, Apr 2018–June 2022, "Boosting for Regression Problems With Complex Data", graduated

3. Harlan Campbell, Thesis Committee Member, Apr 2017–2019, "If Journals Embraced Conditional Equivalence Testing, Would Research Be Better?", graduated

4. Hongyang (Fred) Zhang, Thesis Committee Member, Jul 2015–Aug 2017, "Hierarchical Clustering of Observations and Features in High-dimensional Data", graduated

5. Camila Casquilho, Thesis Committee Member, Mar 2014–Sep 2016, "Models and Monitoring Designs for Spatio-temporal Climate Data Fields", graduated

6. David Lee, Thesis Committee Member, Nov 2014–Dec 2016, "Models and Diagnostics for Parsimonious Dependence With Applications to Multivariate Extremes", graduated

7. Yang (Seagle) Liu, Thesis Committee Member, Oct 2014–Mar 2017, "Statistical Methods for Big Tracking Data", graduated

8. Yanling (Tara) Cai, Thesis Committee Member, Jan 2010–Aug 2015, "Statistical Methods for Relating Strength Properties of Dimensional Lumber", graduated

9. Aline Talhouk, Thesis Committee Member, Nov 2009–Jul 2013, "Modeling Dependencies in Multivariate Data", graduated

10. Justin Harrington, Thesis Committee Member, May 2006–May 2008, "Extending Linear Grouping Analysis and Robust Estimators for Very Large Data Sets", graduated

11. Weiliang Qiu, Thesis Committee Member, Sep 2003–Sep 2004, "Separation Index, Variable Selection and Sequential Algorithm for Cluster Analysis", graduated

PhD Thesis Supervisory Committee Memberships External to UBC

1. Dhruv Kapor, Environmental and Life Sciences, Trent University, Thesis Committee Member, Sep 2023–, "Non-stand Replacing Predictions in the Canadian Boreal", in progress

PhD Thesis Examination Committee Memberships at UBC

1. Creagh Briercliffe, University Examiner, May 2023, "Bayesian Models for Hierarchical Clustering of Network Data"

2. Julia Jeworrek, University Examiner, Feb 2023, "Improving Precipitation Forecasts over Complex Terrain Using Numerical Weather Prediction and Analog Ensemble Methods"
3. Fraser Parlane, University Examiner, Aug 2022, "A Self-driving Laboratory for Automated Materials Discovery"
4. Yingkai Sha, University Examiner, Dec 2021, "Post-processing Precipitation Forecasts in British Columbia Using Deep Learning Methoeds"
5. Reza Babanezhad, University Examiner, Dec 2019, "Practical Optimization Methods for Machine Learning Models"
6. Sharan Viswani, University Examiner, Oct 2018, "Structured Bandits and Applications: Exploiting Problem Structure for Better Decision-making under Uncertainty"
7. Bobak Shahriari, University Examiner, Aug 2016, "Practical Bayesian Optimization with Application to Tuning Machine Learning Algorithms"
8. Julien Renard, University Examiner, Jun 2016, "Spectrum Sensing for Cognitive Radios: Improving Robustness to Impulsive Noise"
9. Jessica Ford, University Examiner, May 2015, "Galaxy Cluster Studies with Weak Lensing Magnification and Shear"
10. Eric Brochu, University Examiner Nov 2010, "Interactive Bayesian Optimization: Learning User Preferences for Graphics and Animation"
11. Mikhail (Mike) Danilov, University Examiner Jan 2010, "Robust Estimation of Scatter Matrices in Non Affine-equivariant Scenarios"

Master's Thesis Supervisory Committee Memberships at UBC

1. Mahsa Parsaei, Department of Wood Science, Thesis Committee Member, Apr 2024–, "Predicting Cutting Power Via Signal Analysis" (tentative title), in progress
2. Godwin Woo (Department of Urologic Sciences), Thesis Committee Member, Sep 2018–Sep 2019, "Deep Learning-Based Approach for Predicting Gene-Regulating Effects of Small Molecules", graduated

PhD Thesis Supervision at University of Waterloo

1. Stella W. Karuri, Supervisor Sep 2000–Apr 2005 (technically co-supervisor after I left University of Waterloo), "Integration in Computer Experiments and Bayesian Analysis", graduated
2. Yuanyuan Wang, Co-supervisor Sep 1999–Apr 2005 with H.A. Chipman, "Statistical Methods for High Throughput Screening Drug Discovery Data", graduated
3. L.-H.R. Lam, Co-supervisor 1998–2001 with S.S. Young, graduated
4. M. Schonlau, Supervisor 1993–1997, graduated
5. M.T. Mirnazari, Supervisor 1991–1995, graduated
6. X. Chen, Supervisor 1990–1996, graduated

MMath Thesis Supervision at University of Waterloo

1. Yan Yuan, Co-supervisor Sep 2002–Aug 2003 with H.A. Chipman, graduated
2. G.A. Salloum, Co-supervisor Sep 2001–Aug 2002 with H.A. Chipman, graduated
3. Xianlin Ma, Co-supervisor 2000–2003 with H.A. Chipman, graduated
4. C.A.O. Baidoo, Supervisor 2000–2000, graduated
5. W. Huang, Supervisor 1999–2000, graduated
6. S.W. Karuri, Supervisor 1999–2000, graduated
7. T.J. Fahey, Supervisor 1990–1990, graduated

8. D.D. Koch, Supervisor 1989–1989, graduated
9. M.T. Mirnazari, Supervisor 1989–1989, graduated
10. X. Chen, Supervisor 1989–1989, graduated

Research Areas

Computer experiments, Drug discovery, Design and analysis of experiments, Statistical machine learning, Quality improvement, Environmental modelling

Research Grants

Apr 2024–Mar 2029, Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant, Dynamic Gaussian Processes to Identify Environmental Mechanisms, $135,000, Principal Investigator W.J. Welch

Apr 2021–Mar 2024, Canadian Statistical Sciences Institute (CANSSI), Statistical machine learning with functional data for assessment of landscape vulnerability to climate change and land cover development, $200,000, team members Ali Ameli (PI, UBC Department of Earth, Ocean and Atmospheric Sciences), Jiguo Cao (Co-PI, SFU), Welch (Co-PI)

Apr 2019–Mar 2024, Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant, Adaptive Design for Fast Machine/Statistical Learning, $125,000, Principal Investigator W.J. Welch

Aug 2017–Dec 2017, Mitacs Accelerate Award, Shoppers Persona Analysis: Statistical Learning of Shoppers' Behaviour, $15,000, Principal Investigator W.J. Welch

Jun 2017–Aug 2018, Data Science Institute Postdoctoral Fellow Award, Application of Deep Learning Approaches in Modeling Cheminformatics Data and Discovery of Novel Therapeutics Agents for Prostate Cancer, $52,000, co-PI with A. Cherkasov, UBC Department of Urologic Sciences

Jun 2016–June 2021, Natural Sciences and Engineering Research Council of Canada (NSERC) Collaborative Research and Development Grant, Forest Products Stochastic Modelling Group: Advanced Manufacturing and Product Development, $402,500, Principal Investigator J.V. Zidek, Co-Applicants Bouchard-Cote, A., Cao, J (Simon Fraser University), Chen, J.H., Heckman, E., Nolde, N., Welch, W.J., Wu, L.

Apr 2014–Mar 2017, Canadian Statistical Sciences Institute (CANSSI), Statistical Modelling of the World: Computer and Physical Models in Earth, Ocean, and Atmospheric sciences, $200,000, team members Bingham (SFU), Chipman, Ranjan (Acadia), Welch (UBC)

Apr 2014–Mar 2019, Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant, Ensemble Methods for Classification/Prediction With High-Dimensional Explanatory Variables, $90,000, Principal Investigator W.J. Welch

Mar 2010–Feb 2015, Natural Sciences and Engineering Research Council of Canada (NSERC), Forest products stochastic modelling group, $490,000, Principal Investigator J.V Zidek, coinvestigators W.J. Welch (Co-Principal Investigator) + 7 others

Invited Presentations at Major Meetings

Dec 2023, "Data-Adaptive Dimensional Analysis for Enhanced Interpolation and Extrapolation Accuracy in Computer Experiments", 2023 Conference on Experimental Design and Analysis (CEDA), Taipei, Taiwan

Aug 2023, "Jerry Sacks and the Birth of Design and Analysis of Computer Experiments", Joint Statistical Meetings, Toronto, ON

May 2023, "Efficient Global (Bayesian) Optimization: Making It Work", 2023 ASA/IMS Spring Research Conference on Statistics in Industry and Technology, Banff, AB

May 2023, "Design of Experiments and Global Optimization", School on Artificial Intelligence for Materials Science in the Exascale Era, Cap Roig, Spain

May 2022, "Robust Ranking by Ensembling of Diverse Models and Assessment Metrics", Statistical Society of Canada Annual Meeting, held virtually

Jul 2021, "Statistical Science: Statistics *and* Science" (Plenary Speaker), Quality and Productivity Research Conference, Tallahassee, FL and virtual

Aug 2020, "The Early Years: Paving the Way for Computer Experiments" (Invited Session in Honor of Jerome Sacks), Joint Statistical Meetings, held virtually

May 2019, "Dimensional Analysis in Computer Experiments", SAMSI Statistical Perspectives on Uncertainty Quantification (SPUQ) Workshop, Raleigh, NC

May 2018, "Computer Experiments With Big n: has Gaussian Process Computation Been Tamed?", Workshop on Design of Experiments: New Challenges, CIRM, Marseilles, France

Aug 2017, "Gaussian Processes and the Statistical Analysis of Computer Experiments", Applied Mathematics, Modeling and Computational Science (AMMCS) 2017, Waterloo, Ontario, Congress Plenary Lecture

Aug 2017, "Computer Experiments I: Moving Forward by Looking Back at History", Latest Advances in the Theory and Applications of Design and Analysis of Experiments, Banff International Research Station, Banff, Alberta, Canada

Aug 2017, "Analysis of Computer Experiments: What Can Be Learned from Physical Experiments?", 3rd ICSA-Canada Chapter Symposium, Vancouver, Canada

May 2017, "Statistical Modelling of Annual Rainfall Pattern in Guanacaste, Costa Rica", Canadian Geophysical Union and Canadian Society of Agricultural and Forest Meteorology Joint Annual Scientific Meeting, Vancouver, Canada

Jun 2015, "Dynamic Space-Time Modelling of Ozone Processes", Statistical Society of Canada Annual Meeting, Halifax, Nova Scotia

Dec 2014, "Sequential Computer Experiments for Quantile Estimation", 3rd International Conference on the Interface Between Statistics and Engineering, Hong Kong

Jul 2014, "Bayesian Uncertainty Quantification of a Gaussian Process in Analysis of a Computer Experiment", Conference on Experimental Design and Analysis (CEDA), Taipei, Taiwan

Aug 2013, Discussion of "Computer Models in Environmental Research", Joint Statistical Meetings, Montreal, Quebec, Canada

Aug 2011, "Quantification of Computer-Model Bias", International Federation for Information Processing Working Conference on Uncertainty Quantification in Scientific Computing, Boulder, Colorado, United States

Dec 2010, "Analyzing Computer Experiments: What Matters, What Doesn't", ICSA International Conference, Guangzhou, China

Aug 2010, Short Course on "Design and Analysis of Computer Experiments", PIMS/SAMSI Summer School on Computer Models and Geophysical Risk Analysis, Vancouver, BC, co-presenter J. Sacks

Jul 2010, "Analyzing Computer Experiments: What Matters, What Doesn't", International Symposium on Business and Industrial Statistics, Slovenia

Conference Organization

Organizer, Session on "Computer Experiments With Big n: Taming Gaussian Process Computation", 2019 International Conference on Design of Experiments (ICODOE2019), Memphis, May 18–21, 2019

Program Committee, AutoML 2018 Workshop at the 2018 International Conference on Machine Learning (ICML), Stockholm, Sweden, Jul 14–15, 2018

Organizing Committee, SIAM Conference on Uncertainty Quantification, Lausanne, Switzerland, Apr 5–8, 2016

Organizer, Session on Uncertainty Quantification in Analysis of Computer Models, Statistical Society of Canada Annual Meeting, Guelph Jun 3–6, 2012

Scientific Program Committee, Conference on Uncertainty in Computer Models 2010, Sheffield, Jul 12–14, 2010

Organizer, Session on Computer Experiments, International Symposium on Business and Industrial Statistics, Slovenia, Jul 6–9, 2010

Organizer, Session on Large (Industrial-Scale) Computer Experiments for Business and Industry, Statistical Society of Canada Annual Meeting, Quebec City, May 23–26, 2010

Organizer, Session on Drug Discovery, Conference: Spring Research Conference on Statistics in Industry and Technology, Coquitlam, BC, May 27–29, 2009

Committee Memberships, UBC, University Level

Sep 2016–Jun 2018, UBC Senior Appointments Committee (Subcommittee Co-chair Sep 2017–Jun 2018)

Offices Held At UBC

Aug 2018–Dec 2018, Interim Head of Department of Statistics

Jun 2003–May 2008, Head of Department of Statistics

External Professional Service

Nov 2012–Jun 2016, Associate Director, Canadian Statistical Sciences Institute (CANSSI)

Jul 2012–Jun 2016, Member of Research Committee, Statistical Society of Canada

2011–2012, Member of Canadian Statistical Institute: Development Committee, Statistical Society of Canada

Jul 2009–Jun 2012, President-Elect, President, and Past-President, Business and Industrial Statistics Section, Statistical Society of Canada

2003–2004, Member of Joint Statistical Meetings Program Committee, representative for Statistical Society of Canada

Editorships

Mar 2012–Dec 2023, SIAM/ASA Journal on Uncertainty Quantification, Founding Associate Editor

Jul 2006–Jun 2021, Annals of Applied Statistics, Associate Editor

Jan 2004–Dec 2009, Canadian Journal of Statistics, Associate Editor

Jan 1995–1997, Canadian Journal of Statistics, Associate Editor

External Reviews

Oct 2018, Review of Department of Statistics, University of Auckland

Publications in Refereed Journals and Refereed Conference Proceedings

On October 6, 2023 a total of 22,996 citations and 8,992 since 2018: please see
https://scholar.google.com/citations?user=Bus4Xi8AAAAJ&hl=en

(Google scholar currently reports a higher count due to its recent confusion of my "Design and Analysis of Computer Experiments" article (citation count of the order 7,000) and the book of the same name by Santner et al.)

[1] X. Ding, Y. Wang, Z. J. Wang, and W. J. Welch, "Efficient subsampling of realistic images from GANs conditional on a class or a continuous variable," *Neurocomputing*, vol. 517, pp. 188–200, 2023.

[2] X. Ding, Y. Wang, Z. Xu, W. J. Welch, and Z. J. Wang, "Distilling and transferring knowledge via cGAN-generated samples for image classification and regression," *Expert Systems With Applications*, vol. 213, p. 119060, 2023.

[3] X. Ding, Y. Wang, Z. Xu, W. J. Welch, and Z. J. Wang, "Continuous conditional generative adversarial networks: Novel empirical losses and label input mechanisms," *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. 45, pp. 8143–8158, 2023, https://doi.org/10.1109/TPAMI.2022.3228915.

[4] J. H. Tomal, W. J. Welch, and R. H. Zamar, "Robust ranking by ensembling of diverse models and assessment metrics," *Journal of Statistical Computation and Simulation*, vol. 93, no. 1, pp. 77–102, 2023, https://doi.org/10.1080/00949655.2022.2093873.

[5] S. Isberg and W. J. Welch, "Adaptive design and analysis via partitioning trees for emulation of a complex computer code," *J. of Computational and Graphical Statistics*, vol. 31, no. 4, pp. 1280–1291, 2022, https://doi.org/10.1080/10618600.2022.2039160.

[6] X. Ding, Y. Wang, Z. Xu, W. J. Welch, and Z. J. Wang, "CcGAN: Continuous conditional generative adversarial networks for image generation," in *International Conference on Learning Representations (ICLR 2021)*, p. 30 pages, 2021, https://openreview.net/forum?id=PrzjugOsDeE.

[7] X. Ding, Q. Zhang, and W. J. Welch, "Classification beats regression: Counting of cells from greyscale microscopic images based on annotation-free training samples," in *Artificial Intelligence, Proceedings of the CAAI International Conference on Artificial Intelligence, CACAI 2021* (L. Fang, Y. Chen, G. Zhai, J. Wang, R. Wang, and W. Dong, eds.), pp. 662–673, Springer, 2021.

[8] G. G. Hsu, J. H. Tomal, and W. J. Welch, "EPX: An R package for the ensemble of subsets of variables for highly unbalanced binary classification," *Computers in Biology and Medicine*, vol. 136, p. 104760, 2021.

[9] X. Ding, Z. J. Wang, and W. J. Welch, "Subsampling generative adversarial networks: Density ratio estimation in feature space with softplus loss," *IEEE Transactions on Signal Processing*, vol. 68, pp. 1910–1922, 2020.

[10] H. Chen and W. J. Welch, "Sequential computer experimental design for estimating an extreme probability or quantile," Revision requested by *Journal of Quality Technology*, pp. 1–23, 2018.

[11] F. Bappee, Y. Wang, H. A. Chipman, X. Wang, and W. J. Welch, "Adaptively chosen number of neighbours and weights in *k*-nearest neighbours for classifying imbalanced drug discovery data," Revision requested by *Canadian Journal of Statistics*, pp. 1–21, 2018.

[12] M. Fernandez, F. Ban, G. Woo, M. Hsing, T. Yamazaki, E. LeBlanc, P. S. Rennie, W. J. Welch, and A. Cherkasov, "Toxic colors: The use of deep learning for predicting toxicity of compounds merely from their graphic images," *Journal of Chemical Information and Modeling*, vol. 58, no. 8, pp. 1533–1543, 2018, https://doi.org/10.1021/acs.jcim.8b00338. PMID: 30063345.

[13] W. Wang and W. J. Welch, "Bayesian optimization using monotonicity information and its application in machine learning hyperparameter tuning," in *Proceedings of AutoML 2018 @ ICML/IJCAI-ECAI*, pp. 1–8, 2018, https://sites.google.com/site/automl2018icml/accepted-papers/59.pdf.

[14] J. H. Tomal, W. J. Welch, and R. H. Zamar, "Discussion of random-projection ensemble classification by T. I. Cannings and R. J. Samworth," *Journal of the Royal Statistical Society B*, vol. 79, no. 4, pp. 1024–1025, 2017, http://dx.doi.org/10.1111/rssb.12228.

[15] H. Chen, J. L. Loeppky, and W. J. Welch, "Flexible correlation structure for accurate prediction and uncertainty quantification in Bayesian Gaussian process emulation of a computer model," *SIAM/ASA Journal on Uncertainty Quantification*, vol. 5, no. 1, pp. 598–620, 2017, https://doi.org/10.1137/15M1008774.

[16] J. H. Tomal, W. J. Welch, and R. H. Zamar, "Exploiting multiple descriptor sets in QSAR studies," *Journal of Chemical Information and Modeling*, vol. 56, no. 3, pp. 501–509, 2016, http://dx.doi.org/10.1021/acs.jcim.5b00663.

[17] H. Chen and W. J. Welch, "Comment: Expected improvement for efficient blackbox constrained optimization," *Technometrics*, vol. 58, no. 1, pp. 12–15, 2016.

[18] J. R. Gattiker, M. S. Hamada, D. M. Higdon, M. Schonlau, and W. J. Welch, "Using a Gaussian process as a nonparametric regression model," *Quality and Reliability Engineering International*, vol. 32, pp. 673–680, 2016.

[19] H. Chen, J. L. Loeppky, J. Sacks, and W. J. Welch, "Analysis methods for computer experiments: How to assess and what counts?," *Statistical Science*, vol. 31, no. 1, pp. 40–60, 2016, https://doi.org/10.1214/15-STS531.

[20] J. H. Tomal, W. J. Welch, and R. H. Zamar, "Ensembling classification models based on phalanxes of variables with applications in drug discovery," *Annals of Applied Statistics*, vol. 9, no. 1, pp. 69–93, 2015.

[21] Y. Yuan, H. A. Chipman, and W. J. Welch, "Harvesting classification trees for drug discovery," *Journal of Chemical Information and Modeling*, vol. 52, pp. 3169–3180, 2012.

[22] J. M. Hughes-Oliver, A. D. Brooks, W. J. Welch, M. G. Khaledi, D. Hawkins, S. S. Young, K. Patil, G. W. Howell, R. T. Ng, and M. T. Chu, "ChemModLab: A web-based cheminformatics modeling laboratory," *In Silico Biology*, vol. 11, pp. 61–81, 2012.

[23] H. Shen, W. J. Welch, and J. M. Hughes-Oliver, "Efficient, adaptive cross-validation for tuning and comparing models, with application to drug discovery," *Annals of Applied Statistics*, vol. 5, no. 4, pp. 2668–2687, 2011.

[24] G. Yan, W. J. Welch, and R. H. Zamar, "Model-based linear clustering," *Canadian Journal of Statistics*, vol. 38, pp. 716–737, 2010.

[25] J. L. Loeppky, J. Sacks, and W. J. Welch, "Choosing the sample size of a computer experiment: A practical guide," *Technometrics*, vol. 51, no. 4, pp. 366–376, 2009.

[26] X. S. Wang, G. A. Salloum, H. A. Chipman, W. J. Welch, and S. S. Young, "Exploration of cluster structure-activity relationship analysis in efficient high-throughput screening," *Journal of Chemical Information and Modeling*, vol. 47, pp. 1206–1214, 2007.

[27] M. Podder, W. J. Welch, R. H. Zamar, and S. J. Tebbutt, "Dynamic variable selection in SNP genotype autocalling from apex microarray data," *BMC Bioinformatics*, vol. 7:521, p. 11 pages, 2006.

[28] Y. B. Lim, J. Sacks, W. J. Studden, and W. J. Welch, "Design and analysis of computer experiments when the output is highly correlated over the input space," *Canadian Journal of Statistics*, vol. 30, no. 1, pp. 109–126, 2002.

[29] S. S. Young, R. L. H. Lam, and W. J. Welch, "Initial compound selection for sequential screening," *Current Opinion in Drug Discovery and Development*, vol. 5, pp. 422–427, 2002.

[30] R. L. H. Lam, W. J. Welch, and S. S. Young, "Uniform coverage designs for molecule selection," *Technometrics*, vol. 44, pp. 99–109, 2002. This paper won the 2000 Statistics in Chemistry Award, American Statistical Association and was selected for the *Technometrics* session at the Joint Statistical Meetings, New York, August 2002.

[31] N. J. McMillan, J. Sacks, W. J. Welch, and F. Gao, "Analysis of protein activity data by Gaussian stochastic process models," *Journal of Biopharmaceutical Statistics*, vol. 9, no. 1, pp. 145–160, 1999.

[32] D. Mrawira, W. J. Welch, M. Schonlau, and R. Haas, "Sensitivity analysis of computer models: World Bank HDM-III model," *Journal of Transportation Engineering*, vol. 125, pp. 421–428, 1999.

[33] M. Abt, W. J. Welch, and J. Sacks, "Design and analysis for modeling and predicting spatial contamination," *Mathematical Geology*, vol. 31, pp. 1–22, 1999.

[34] M. Abt and W. J. Welch, "Fisher information and maximum-likelihood estimation of covariance parameters in Gaussian stochastic processes," *Canadian Journal of Statistics*, vol. 26, pp. 127–137, 1998.

[35] R. Aslett, R. J. Buck, S. G. Duvall, J. Sacks, and W. J. Welch, "Circuit optimization via sequential computer experiments: Design of an output buffer," *Applied Statistics*, vol. 47, pp. 31–48, 1998.

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Patents

[1] "Ensembling Classification Models Based on Phalanxes of Variables with Applications in Drug discovery," provisional patent filed 7 Jun 2013, with Tomal, Welch, and Zamar as co-inventors.

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