Willem van den Boom

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Education	Duke University, Department of Statistical Science	
	Ph.D. in Statistical Science	2018
	Certificate in College Teaching	2018
	M.S. in Statistical Science	2016

Dissertation: Tailored scalable dimensionality reduction
Advisors: David B. Dunson and Galen Reeves

	Utrecht University, University College Roosevelt	
	B.Sc. in Liberal Arts and Sciences	2014

Major in Mathematics, Computer Science, and Physics
Minor in Methods & Statistics

Academic positions

National University of Singapore, Yale-NUS College, Division of Science

Research Fellow	2020 – present
Lecturer	2019 – 2020
Research Fellow	2019

Agency for Science, Technology and Research (A*STAR), Singapore Institute for Clinical Sciences

Visiting Fellow	2020 – present

National University of Singapore, Department of Statistics and Data Science

Research Fellow	2018 – 2019

Research grants

Principal Investigator, 'Optimal treatment target identification from longitudinal electronic medical records', National Medical Research Council, Young Individual Research Grant, S$298,000   2020 – 2024

Publications: Peer reviewed

1. van den Boom, W., Reeves, G., and Dunson, D.B. (2021). Approximating posteriors with high-dimensional nuisance parameters via integrated rotated Gaussian approximation. *Biometrika*, 108(2), 269–282. doi:10.1093/biomet/asaa068

2. van den Boom, W., Hoy, M., Sankaran, J., Liu, M., Chahed, H., Feng, M., and See, K.C. (2020). The search for optimal oxygen saturation targets in critically ill patients: Observational data from large ICU databases. *CHEST*, 157(3), 566–573. doi:10.1016/j.chest.2019.09.015

3. van den Boom, W., Mao, C., Schroeder, R.A., and Dunson, D.B. (2018). Extrema-weighted feature extraction for functional data. *Bioinformatics*, 34(14), 2457–2464. doi:10.1093/bioinformatics/bty120

4. van den Boom, W., Schroeder, R.A., Manning, M.W., Setji, T.L., Fiestan, G., and Dunson, D.B. (2018). Effect of A1C and glucose on postoperative mortality in noncardiac and cardiac surgeries. *Diabetes Care*, 41(4), 782–788. doi:10.2337/dc17-2232

5. van den Boom, W., Dunson, D., and Reeves, G. (2015). Quantifying uncertainty in variable selection with arbitrary matrices. *IEEE 6th International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, 385–388. doi:10.1109/CAMSAP.2015.7383817

Publications: Not peer reviewed

1. van den Boom, W., Hoy, M., Sankaran, J., Liu, M., Chahed, H., Feng, M., and See, K.C. (2020). Response to letter to the editor. *CHEST*, 158(3), 1287–1288. doi:10.1016/j.chest.2020.04.023

2. van den Boom, W. and Thiery, A. H. (2020). EP-IS: Combining expectation propagation and importance sampling for Bayesian nonlinear inverse problems. In: *Proceeding. ISI World Statistics Congress 2019. Contributed Paper Session. (Volume 2)*, pp. 145–152.

Publications: Preprint

1. van den Boom, W., Jasra, A., De Iorio, M., Beskos, A., and Eriksson, J.G. (2021). Unbiased approximation of posteriors via coupled particle Markov chain Monte Carlo. arXiv:2103.05176

2. van den Boom, W., Tallarita, M., and De Iorio, M. (2020). Bayesian joint modelling of recurrence and survival: A conditional approach. arXiv:2005.06819

3. van den Boom, W., Reeves, G., and Dunson, D.B. (2015). Scalable approximations of marginal posteriors in variable selection. arXiv:1506.06629

Honors & awards	Best Student/Postdoc Contributed Paper Award. 2021 World Meeting of the International Society for Bayesian Analysis, 2021.
	Fulbright Grant. Fulbright Foreign Student Program, 2014.
	Graduated Summa Cum Laude. Utrecht University, University College Roosevelt, 2014.

Invited talks

1. Bayesian joint modelling of recurrence and survival: A conditional approach. *13th International Conference of the ERCIM WG on Computational and Methodological Statistics and 14th International Conference on Computational and Financial Econometrics*, London, United Kingdom, 2020.
2. Approximating high-dimensional posteriors with nuisance parameters via integrated rotated Gaussian approximation. *Bayesian Computation for High-Dimensional Statistical Models*, Institute of Mathematical Sciences, National University of Singapore, 2018.
3. Scalable posterior approximations of marginal posteriors in variable selection. *2017 Joint Statistical Meetings*, Baltimore, MD, United States, 2017.

Contributed talks

1. Stein adaptive importance sampling. *2021 World Meeting of the International Society for Bayesian Analysis*, online, 2021.
2. EP-IS: Combining expectation propagation and importance sampling for Bayesian nonlinear inverse problems. *62nd ISI World Statistics Congress*, Kuala Lumpur, Malaysia, 2019.

Poster presentations

1. EP-IS: Combining expectation propagation and importance sampling for Bayesian nonlinear inverse problems. *12th Conference on Bayesian Nonparametrics*, Oxford, United Kingdom, 2019.
2. Flexible Bayesian feature extraction from varying length functional data. *11th Conference on Bayesian Nonparametrics*, Paris, France, 2017.
3. Effect of A1c and glucose on postoperative mortality in non-cardiac versus cardiac surgeries. *American Diabetes Association's 77th Scientific Sessions*, San Diego, CA, United States, 2017.
4. Scalable posterior approximation. *Laboratory for Analytic Sciences Symposium*, Raleigh, NC, United States, 2016.

5. Scalable posterior approximation in variable selection. *IEEE 6th International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, Cancun, Mexico, 2015.

6. Scalable posterior approximation in variable selection. *Laboratory for Analytic Sciences Symposium*, Raleigh, NC, United States, 2015.

Teaching experience	National University of Singapore, Yale-NUS College	
	Instructor of Record. Introduction to Data Science Responsible for the design of this new course	2019 – 2020
	Instructor of Record. Quantitative Reasoning	2019
	Duke University	
	Instructor of Record. Data Analysis and Statistical Inference Full credit course taught online	2017
	Teaching Assistant. Bayesian Methods and Modern Statistics	2017
	Project Manager and Mentor. Data+ Summer research experience for students	2017
	Teaching Assistant. Data Analysis and Statistical Inference	2016
	Utrecht University, University College Roosevelt	
	Teaching Assistant. Mathematical Ideas & Methods in Context	2014
Research experience	*Research Assistant* Duke University, Department of Statistical Science	2017 – 2018
	Accenture Fellow Duke University, Rhodes Information Initiative at Duke	2015 – 2017
Service: To Yale-NUS College	Maintenance of the website for the Mathematical, Computational & Statistical Sciences major, 2019 – 2020	
	Evaluation Committee for Student-Initiated Research Projects of the Summer Research Programme, 2020	
	Academic Sampler at the Experience Yale-NUS Weekend, 2019	
Service: Other	junior-ISBA board, Secretary, 2020 – 2021	
	Bayesian Young Statisticians Meeting, organizing committee, 2021	

Bayesian Young Statisticians Meeting: Online, organizing and scientific committee, 2020

ASA DataFest@Duke, VIP Consultant, 2015 – 2017

Graduate Consultative Committee, 2015 – 2016
Duke University, Department of Statistical Science

Journal reviews: Frontiers in Applied Mathematics and Statistics, Journal of the Korean Statistical Society, Stat, Statistics and Computing

Summer research supervision	Madhumitha Ayyappan, 2020 Jia Tang, 2020
Capstone supervision	Ahmed Elsayed Gobba, 2019 – 2020 Haroun Chahed, 2019 – 2020 Sunwoo Nam, 2019 – 2020
Independent study supervision	Callie Mao, 2015 – 2016 Gic-Owens Fiestan, 2015 – 2016
Software	github.com/willemvandenboom van den Boom, W. (2018) `xwf`: An R package for extrema-weighted feature extraction for varying length functional data.
Professional affiliations	International Society for Bayesian Analysis International Statistical Institute