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# Michel Ballings

Assistant Professor  
Department of Business Analytics and Statistics  
The University of Tennessee

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<a href="http://ballings.co">http://ballings.co</a>	Teaching website: <a href="http://kddata.co">http://kddata.co</a>

## Summary

Assistant Professor at The University of Tennessee conducting research in Customer Analytics, Social Media Analytics, Data Mining, and Machine Learning. Trained at the intersection of three disciplines: (a) statistics and machine learning, (b) programming and computing, and (c) business, management and marketing. Teaches Data Mining, Customer Analytics, and Social Media and Web Analytics.

## Education

2008–2014	Ph.D. in Applied Economic Sciences, Ghent University Title: Advances and Applications in Ensemble Learning Supervisor: Prof. dr. Dirk Van den Poel (Dirk.VandenPoel@UGent.be)
2006–2008	Master in Business Economics, VLEKHO Business School Brussels (Magna cum laude, Ranking: 1st)
2003–2006	Bachelor in Business Administration, Leuven University College (Cum laude) -Studied (in French) at Haute Ecole d'Enseignement Supérieur de Namur, Belgium (one semester, 2005) -Studied (in Spanish) abroad at Universidad de Màlaga, Spain (one semester, 2005 - 2006)

## Employment

08/2014–now	Assistant Professor at The University of Tennessee
09/2008–06/2014	Doctoral researcher and teaching assistant at Ghent University, Belgium
06/2008–12/2010	Consultant at Psilogy
08/2006–06/2008	Internship at AB InBev (Master)
03/2006–06/2006	Internship at AB InBev (Bachelor)

## Visiting positions

10/01/2014– 10/01/2017	Visiting Professor of Social Media and Web Analytics, Ghent University
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## Research stays

Summer 2015	Research visit, Northwestern University, Medill, Integrated Marketing Communications, Chicago, Evanston, July 5- August 14, 2015
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## Languages

Dutch	Native speaker
English	Full professional proficiency
French	Full professional proficiency
Spanish	Elementary proficiency

## Honors and Awards

2017	Finalist for the 2017 Chancellor's Excellence in Teaching Award, The University of Tennessee, 01/11/2017
2016	MSBA Faculty Excellence in Teaching Award, Haslam College of Business, The University of Tennessee, 11/11/2016
2014	MSBA Faculty Excellence in Teaching Award, Haslam College of Business, The University of Tennessee, 12/12/2014

## Teaching

	Teaching website: <a href="http://kddata.co">http://kddata.co</a>
	<b>UT: The University of Tennessee, GU: Ghent University</b>
Fall 2017	<b>22.</b> UT: BZAN 554: Customer Analytics, 22 students, Mean of student evaluations: 3.88/5
Spring 2017	<b>21.</b> GU: F000799: Social Media and Web Analytics, 2017, 40 students, Mean of student evaluations: 4.37/5
	<b>20.</b> UT: BZAN 542: Data Mining Methods for Business Applications, 43 students, Mean of student evaluations: 4.35/5
Fall 2016	<b>19.</b> UT: BZAN 554: Customer Analytics, 24 students, Mean of student evaluations: 4.59/5
	<b>18.</b> UT: BAS 474: Data Mining and Business Analytics, 101 students, Mean of student evaluations: 3.28/5
Spring 2016	<b>17.</b> UT: BZAN 542: Data Mining Methods for Business Applications, 45 students, Mean of student evaluations: 4.11/5
	<b>16.</b> UT: BAS 474: Data Mining and Business Analytics, 47 students, Mean of student evaluations: 3.50/5
	<b>15.</b> GU: F000799: Social Media and Web Analytics, March 14-17, 2016, 41 students, Mean of student evaluations: 4.34/5
Fall 2015	<b>14.</b> UT: BZAN 554: Customer Analytics, 15 students, Mean of student evaluations: 4.54/5
Spring 2015	<b>13.</b> UT: BZAN 542: Data Mining Methods for Business Applications, 47 students, Mean of student evaluations: 3.95/5
	<b>12.</b> GU: F000799: Social Media and Web Analytics, March 13-19, 2015, 38 students, Mean of student evaluations: 4.10/5
	<b>11.</b> UT: BZAN 550 Business Analytics Experience Capstone: Faculty coach (no evaluations)
Fall 2014	<b>10.</b> UT: STAT 583, Section 2: Marketing Analytics. 18 students, Mean of student evaluations: 4.43/5
	<b>9.</b> UT: BZAN 550 Business Analytics Experience Capstone: Faculty coach (no evaluations)
Spring 2014	<b>8.</b> GU: TA in Marketing Models and Marketing Engineering (R)
Spring 2013	<b>7.</b> GU: TA in Marketing Models and Marketing Engineering (R)
Fall 2012	<b>6.</b> GU: TA in Marketing Information Systems - DB Marketing ((PL/)SQL, ODM)
Fall 2011	<b>5.</b> GU: TA in Marketing Information Systems - DB Marketing ((PL/)SQL, ODM)
Fall 2010	<b>4.</b> GU: TA in Marketing Information Systems - DB Marketing ((PL/)SQL, ODM)
	<b>3.</b> GU: TA in Analytical Customer Relationship Management (SAS)
Fall 2009	<b>2.</b> GU: TA in Analytical Customer Relationship Management (SAS)
Fall 2008	<b>1.</b> GU: TA in Analytical Customer Relationship Management (SAS)

## Software

- 2015 | **9.** Steven Hoornaert, Michel Ballings, and Dirk Van den Poel (2015). R package lift: Compute the Top Decile Lift and Plot the Lift Curve.
- 2015 | **8.** Matthias Bogaert, Michel Ballings, and Dirk Van den Poel (2015). R package AggregateR: Aggregate Numeric and Categorical Variables by an ID.
- 2015 | **7.** Matthijs Meire, Michel Ballings, and Dirk Van den Poel (2015). R package imputeMissings: Impute Missing Values in a Predictive Context
- 2015 | **6.** Michel Ballings, and Dirk Van den Poel (2015). R package rotationForest: Fit and Deploy Rotation Forest Models.
- 2014 | **5.** Michel Ballings, and Dirk Van den Poel (2014). R package interpretR: Binary Classifier Interpretation functions.
- 2014 | **4.** Michel Ballings, and Dirk Van den Poel (2014). R package dummy: Automatic creation of dummy variables with support for predictive modeling.
- 2013 | **3.** Michel Ballings, Dauwe Vercaemer, and Dirk Van den Poel. Hybrid Ensemble: An R package for Hybrid Ensemble classification
- 2013 | **2.** Michel Ballings, and Dirk Van den Poel. AUC: Threshold independent performance measures for probabilistic classifiers.
- 2012 | **1.** Michel Ballings, and Dirk Van den Poel (2013). R package kernelFactory: an ensemble of kernel machines.

## Seminar presentations

- 2015 | **5.** Michel Ballings. The Power of Facebook to Predict Customer Acquisition and Defection. Seminar Talk. Northwestern University, Medill School of Journalism, Media, Integrated Marketing Communications, IMC, February 12, 2015
- 2014 | **4.** Michel Ballings. Social Media Analytics. Seminar Talk. The University of Tennessee, Haslam College of Business, Department of Management, November 4, 2014
- 2014 | **3.** Michel Ballings. Advances in Social Media Analytics. Seminar Talk. The University of Tennessee, College of Engineering, Department of Industrial and Systems Engineering, October 3, 2014
- 2012 | **2.** Michel Ballings. Resolutions to Having Too Much or Too Little Data. Top Management aCRM Training, Ghent University, College of Economics and Business Administration, Department of Marketing, August 10, 2012.
- 2011 | **1.** Michel Ballings. Data Augmentation for CRM. Executive Course: Predictive Analytics for Customer Intelligence in Financial Services, Ghent University, College of Economics and Business Administration, Department of Marketing, August 18, 2011.

## Conference presentations

- 2017 | **10.** Michel Ballings, Review of Business Strategy Problems in Social Media Analytics. INFORMS Annual Meeting 2017, Session Title: Ideas And Discussions Relating to the Future of Social Media Analytics Research, Cluster: Social Media Analytics, TX, Houston, October 22, 2017
- 2016 | **9.** Rachel Van Deventer, Ryan Erwin, Miller Moore, Michel Ballings, Dirk Van den Poel. Evaluating Prediction Models for Targeting Product Reviewers, INFORMS Annual Meeting 2016, Session Title: Mining and measuring user ties, product ideas, product reviewers, and behavioral consumer engagement, Cluster: Social Media Analytics, TN, Nashville, November 13-16, 2016
- 2016 | **8.** Steven Hoornaert, Michel Ballings, Edward C. Malthouse, Dirk Van den Poel. Identifying New Product Ideas: Waiting for the Wisdom of the Crowd or Screening Them in Real-time? 2016 JPIM/MSI Research Workshop: Innovation in Data-Rich Environments, Knoxville, TN, June 8-10, 2016

- 2015 **7.** Michel Ballings, Matthijs Meire, and Dirk Van den Poel. The Power of Facebook to Predict Customer Acquisition and Defection. INFORMS Annual Meeting 2015, Session Title: Predicting Customer Behavior using Facebook Data, Cluster: Social Media Analytics, Philadelphia, Pennsylvania, USA, November 1-4, 2015
- 6.** Michel Ballings, Matthijs Meire, and Dirk Van den Poel. Predicting Customer Acquisition using Facebook. NYU 2015 Conference on Digital Big Data, Smart Life, Mobile Marketing Analytics. NYU Stern, New York, USA, October 23, 2015
- 2014 **5.** Michel Ballings and Dirk Van den Poel. CRM in Social Media: Predicting Increases in Facebook Usage Frequency. INFORMS Annual Meeting 2014, Session Title: Predictive Analytics for Social Media, Cluster: Artificial Intelligence, San Francisco, USA, November 9-12, 2014
- 2013 **4.** Michel Ballings and Dirk Van den Poel. Evaluating multiple weight estimation methods in hybrid ensembles. The 2nd Annual Conference of the Dutch/Flemish Classification Society (VOC), Antwerp, Belgium, May 31, 2013
- 2012 **3.** Michel Ballings and Dirk Van den Poel. The dangers of using intention as a surrogate for retention in brand positioning decision support systems. The 36th Annual Conference of the German Classification Society (GFKL), Hildesheim, Germany, August 1-3, 2012
- 2.** Michel Ballings and Dirk Van den Poel. Improving customer churn prediction by data augmentation using pictorial stimulus-choice data. International Symposium on Management Intelligent Systems, Salamanca, Spain, May 22-14, 2012
- 2011 **1.** Michel Ballings and Dirk Van den Poel. Data Augmentation in Customer Intelligence using Pictorials. 2011 Joint Statistical Meetings, Miami, USA, July 30- August 4, 2011

## Refereed Journal Articles

- 2017 **12.** Michel Ballings, Heath McCullough, Neeraj Bharadwaj. Cause Marketing and Customer Profitability. *Journal of the Academy of Marketing Science*. Forthcoming. Impact factor: 5.888, FT50 journal
- 11.** Matthijs Meire, Michel Ballings, Dirk Van den Poel (2017). The Added Value of Social Media Data in B2B Customer Acquisition Systems: A Real-life Experiment. *Decision Support Systems*. Forthcoming. Impact factor: 3.222
- 10.** Matthias Bogaert, Michel Ballings, Martijn Hosten, Dirk Van den Poel (2017). Identifying Soccer Players on Facebook through Predictive Analytics. *Decision Analysis*. Forthcoming. Impact factor: 2.143
- 9.** Steven Hoornaert, Michel Ballings, Edward C. Malthouse, Dirk Van den Poel (2017). Identifying New Product Ideas: Waiting for the Wisdom of the Crowd or Screening Ideas in Real Time, *Journal of Product Innovation Management*. Forthcoming. Impact factor: 2.086
- 2016 **8.** Matthias Bogaert, Michel Ballings, Dirk Van den Poel (2016). Evaluating the Importance of Different Communication Types in Romantic Tie Prediction on Social Media, *Annals of Operations Research*. Forthcoming. Impact factor: 1.406
- 7.** Matthijs Meire, Michel Ballings, Dirk Van den Poel (2016). The Added Value of Auxiliary Data in Sentiment Analysis of Facebook Posts, *Decision Support Systems*. 89, February 2016, p98-112. Impact factor: 2.604
- 6.** Matthias Bogaert, Michel Ballings, Dirk Van den Poel (2016). The Added Value of Facebook Friends Data in Event Attendance Prediction, *Decision Support Systems*. 82, February 2016, p26-34. Impact factor: 2.313
- 5.** Michel Ballings, Dirk Van den Poel, and Matthias Bogaert (2016). Social Media Optimization: Identifying an Optimal Strategy for Increasing Network Size on Facebook, *Omega, The International Journal of Management Science*, 59(A), March 2016, 15-25. Impact factor: 4.376
- 2015 **4.** Michel Ballings, Dirk Van den Poel, Nathalie Hespels, and Ruben Gryp (2015). Evaluating Multiple Classifiers for Stock Price Direction Prediction, *Expert Systems with Applications*, 42(20), 15 November 2015, p7046-7056. Impact factor: 2.240

- 2013 **3.** Michel Ballings and Dirk Van den Poel (2015). CRM in Social Media: Predicting Increases in Facebook Usage Frequency, *European Journal of Operational Research*, 244(1), 1 July 2015, p248-260. Impact factor: 2.358, Top 25 most downloaded article in EJOR April to June 2015
- 2013 **2.** Michel Ballings and Dirk Van den Poel (2013). Kernel factory: An ensemble of kernel machines. *Expert Systems with Applications*, 40(8), 15 June 2013, p2904-2913. Impact factor: 1.965
- 2012 **1.** Michel Ballings and Dirk Van den Poel (2012). Customer event history for churn prediction: How long is long enough? *Expert Systems with Applications*, 39(18), 15 December 2012, p13517-13522. Impact factor: 1.854

## Conference Papers

- 2016 **5.** Dirk Van den Poel, Celine Chesterman, Maxim Koppen and Michel Ballings, Equity Price Direction Prediction For Day Trading: Ensemble Classification using Technical Analysis Indicators with Interaction Effects, 2016 IEEE Congress on Evolutionary Computation (CEC), 3455-3462, 24-29 July 2016, Vancouver, Canada.
- 2013 **4.** Michel Ballings and Dirk Van den Poel (2013). Using Eye-Tracking Data of Advertisement Viewing Behavior to Predict Customer Churn. In 2013 IEEE 13th International Conference on Data Mining Workshops (ICDMW 2013), 7 December 2013, Dallas, Texas, USA.
- 3.** Michel Ballings and Dirk Van den Poel (2013). The dangers of using intention as a surrogate for retention in brand positioning decision support systems. In M. Spiliopoulou and L. Schmidt-Thieme, editors, *Studies in Classification, Data Analysis, and Knowledge Organization*, page 8. Hildesheim, Germany.
- 2012 **2.** Michel Ballings, Dirk Van den Poel, and Emmanuel Verhagen (2012). Improving customer churn prediction by data augmentation using pictorial stimulus-choice data. In J. Casillas, F. J. Martinez Lopez, and J. M. Corchado, editors, *Management Intelligent Systems*, volume 171, pages 217-226. Springer-Verlag Berlin, Berlin.
- 2011 **1.** Michel Ballings, Dries F. Benoit, and Dirk Van den Poel (2011). RFM variables revisited using quantile regression. In M. Spiliopoulou, W. Haixun, D. Cook, P. Jian, W. Wei, O. Zaiane, and W. Xindong, editors, 2011 IEEE International Conference on Data Mining Workshops, pages 1163-1169. Vancouver, Canada.

## Internal Service

- 2017 Talk at our Fall Business Analytics Forum: Social Media and Customer Analytics  
Organizer of the Hackathon for our Fall Business Analytics Forum  
Judge in the Hanes Brands Inc MSBA case competition, Apr 28, 2017  
Department Review Chair (DRC)  
MSBA committee member
- 2016 Talk: Dean's Advisory Council Meeting, The Predictive Enterprise, Nov 11, 2016  
Talk: Business Analytics Forum, The Added Value of Social Media in Sentiment Analysis, Sep 15, 2016  
Department Review Chair (DRC) (Starting Aug 5st, 2016)  
MSBA committee member (Starting July 1st, 2016)  
Judge in the Hanes Brands Inc MSBA case competition, Apr 29, 2016  
Committee member Haslam Distinguished Speaker Series  
Business Analytics Forum Committee member
- 2015 Development of an analytical student success management system  
Business Analytics Forum Committee member (Starting Jul. 1, 2015)

	Talk: Business Analytics Forum, The Power of Facebook to Predict Customer Acquisition and Defection, April 20
	Journal rankings committee member
2014	Talk: The Twin Tools of Predictive Analytics and Testing, at FedEx Operation Research and Management Science (FORMS) Conference in Memphis, University of Memphis, September 16
	Search committee member for two new Faculty members at the Assistant Professor level

## Professional Service

2018-2019	Vice President / President Elect INFORMS Social Media Analytics Section
2017	Organizer of the Social Media Analytics Section (INFORMS) student paper competition and session chair, Session Title: Social Media Analytics Best Student Paper Competition, USA, TX, Houston, October 22, 2017
2016	Session chair, Session Title: Business Applications in Social Media Analytics, Cluster: Social Media Analytics, INFORMS Annual Meeting 2016, USA, Tennessee, Nashville, November 13-16, 2016
2015	Referee for a grant proposal for the Research Foundation Flanders (FWO)(Belgium), May 22, 2015
	Session chair, Session Title: Predicting Customer Behavior using Facebook Data, Cluster: Social Media Analytics, INFORMS Annual Meeting 2015, USA, Philadelphia, Pennsylvania, November 1-4, 2015.
2014	Member of project evaluation committee for IWT (Agency for Innovation by Science and Technology), Belgium, Brussels, May, 28, 2014

## Refereeing (ad hoc)

Since 2016	Decision Sciences Electronic Commerce Research and Applications Neural Computing and Applications Computational Statistics and Data Analysis The R Journal Decision Support Systems Annals of Operations Research
Since 2015	Journal of the Operational Research Society European Journal of Operational Research
Since 2014	MIS Quarterly Omega, The International Journal of Management Science Expert Systems with Applications
Since 2013	Journal of the Association for Information Science and Technology

## Professional Memberships

Since 2015	American Marketing Association (AMA)
Since 2014	The Institute for Operations Research and Management Sciences (INFORMS)
Since 2013	Dutch/Flemish Classification Society (VOC)
Since 2011	Foundation for Open Access Statistics (FOAS)

## Ph.D. students

Started 10/2016	Advisor of Mustafa Murat Arat. Topic: Deep Learning. University of Tennessee.
Started 09/2016	Member of the doctoral committee of Lieven Smits. Topic: Big Data based automated trading systems. Ghent University.
05/2016	Statistics advisor of Yufei Yu. Topic: Sentiment Analysis. The University of Tennessee.
06/01/2014- 06/20/2018	Co-advisor of Matthijs Meire. 'A Marketing Perspective on Social Media Usefulness'. Ghent University.
09/01/2014- 06/28/2018	Co-advisor of Matthias Bogaert. 'Harnessing the Power of Social Media in Predictive Analytics'. Ghent University.

## Grants

04/27/2016	Steven Hoornaert, Michel Ballings, Edward C. Malthouse, Dirk Van den Poel, Identifying New Product Ideas: Waiting for the Wisdom of the Crowd or Screening them in Real-time, Marketing Science Institute, Research accelerator grant \$2000
05/28/2015	Kelly Hewett, Michel Ballings, Matthias Bogaert, Dirk Van den Poel, Harnessing the Power of Social Media to Predict Buyer Behavior, Marketing Science Institute, research grant #4-1925, \$4300