Curriculum vitæ

Prof. dr. Seppe K.L.M. vanden Broucke

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Prof. dr. Seppe vanden Broucke is currently working as an assistant professor at the Department of Business Informatics and Operations Management at UGent (Belgium) and is a guest lecturer at KU Leuven (Belgium). Seppe's research interests include business data mining and analytics, machine learning, process management, process mining. His work has been published in well-known international journals and presented at top conferences. Seppe received his PhD in Applied Economics at KU Leuven, Belgium in 2014.

Research Interests Data mining and analytics, data science, process mining, machine learning, artificial intelligence, business process management

Career Summary

UGent October 2019 – present – Assistant professor at UGent

 Research and education focusing on process and data mining, business process management and business information systems at the Department of Business Informatics and Operations Management

KU Leuven October 2019 – present – Guest lecturer at KU Leuven

- Holder of the "Smart Airport Operational Analytics" research chair sponsored by Brussels Airport
- Co-academic organizer of Postgraduate in Big Data & Analytics in Business and Management

KU Leuven September 2016 – September 2019 – **Assistant professor at KU Leuven**

- Co-beneficiary of FWO grant for project "Profit Driven Analytics: New Techniques and Applications" (G063217N, EUR 209.668,25)
- Co-authored book on Principles of Database Management (Cambridge University Press) and a book on Web Scraping (Apress)
- Project researcher in collaboration with KBC Group on the topic of fraud analytics; developed and lectured
 a serious business game for KBC University on big data, presented to top-300 management in KBC Group

KU Leuven November 2014 – August 2016 – Postdoctoral researcher at KU Leuven

- Co-authored book on Beginning Java Programming (Wiley Wrox series)
- Project researcher in collaboration with KBC Group on the topic of customer analytics
- Public speaker and trainings
- Peer reviewing journal papers, book proposals
- Maintaining various educational projects

KU Leuven September 2011 – October 2014 – PhD researcher at KU Leuven

- Thesis: Advances in Process Mining: Artificial Negative Events and Other Techniques (Accessible at: http://www.seppe.net/phd.pdf)
- Published in international journals and top conferences
- Experience with grant project writing and planning
- Travel experience (conferences, international bilateral research collaborations)
- Algorithmic programming, strong knowledge of data/process mining techniques and business process management

Tarsonis, Hitpoint

2008 - present - Freelance Journalist at Hitpoint

- Freelance writing in entertainment industry
- Work against hard deadlines, travel experience (U.S., Europe, Asia), honed writing and language skills, dealt with journalists, developers, producers, PR

Freelance

2003 - present – Freelance Developer

- Created and designed multiple web sites and applications for variety of clients
- Contributed to various open source projects. E.g. Tablix, Apache, others

AL-INVEST III

2005 - 2008 - Freelance Developer for European Commission AL-INVEST III Program

- Web application development and database administration, managed a large-scale Intranet application developed over just one month serving hundreds of thousands of companies and chambers of commerce over Europe and Latin-America
- Dealt with concerns of businesses abroad (Latin-America, Europe)
- Involved in setting up presence at CeBIT fair, Hannover as an exhibitor

Publications

Information Systems

Articles in Internationally Reviewed Academic Journals

	,
ISPRS International Journal of Geo- Information	Geerts, M., Vanden Broucke , S. , De Weerdt, J. (2023). A Survey of Methods and Input Data Types for House Price Prediction. ISPRS International Journal of Geo-Information, 12 (5), 200-200.
Data Mining And Knowledge Discovery	Vazquez, C.O., vanden Broucke, S. , De Weerdt, J. with Vazquez, C.O. (corresp. author) (2023). A two-step anomaly detection based method for PU classification in imbalanced data sets. Data Mining And Knowledge Discovery, 37 (3), 1301-1325.
Information Sciences	Van der Schraelen, L., Stouthuysen, K., vanden Broucke , S. , Verdonck, T. with Verdonck, T. (corresp. author) (2023). Regularization oversampling for classification tasks: To exploit what you do not know. Information Sciences, 635, 169-194.
Machine Learning	Vazquez, C.O., vanden Broucke, S. , De Weerdt, J. with Vazquez, C.O. (corresp. author) (2023). Hellinger distance decision trees for PU learning in imbalanced data sets. Machine Learning.
IEEE TSC	Gunnarsson, B.R., vanden Broucke, S. , De Weerdt, J. with Gunnarsson, B.R. (joint first author) (2023). A Direct Data Aware LSTM Neural Network Architecture for Complete Remaining Trace and Runtime Prediction. IEEE Transactions on Services Computing, 1-13.
Journal Of Intelligent Information Systems	Peeperkorn, J., vanden Broucke, S. , De Weerdt, J. (2022). Can recurrent neural networks learn process model structure? Journal Of Intelligent Information Systems.
Information Sciences	Zhu, B., Pan, X., vanden Broucke, S. , Xiao, J. with Zhu, B. (joint first author), Xiao, J. (joint last author), Zhu, B. (corresp. author), Pan, X. (corresp. author) (2022). A GAN-based hybrid sampling method for imbalanced customer classification. Information Sciences, 609, 1397-1411.
Machine Learning	Verdonck, T., Baesens, B., Oskarsdottir, M., vanden Broucke, S. (2021). Special Issue on Advances in Feature Engineering - Editorial. Machine Learning.
Software and Systems Modeling	Augusto, A., Dumas, M., La Rosa, M., Leemans, S.J.J., vanden Broucke, S.K L M. with Augusto, A. (corresp. author) (2021). Optimization framework for DFG-based automated process discovery approaches. SOFTWARE AND SYSTEMS MODELING, 20 (4), 1245-1270.
Deep Learning for Credit Scoring: Do or Don't?	Gunnarsson, B.R., vanden Broucke , S. , Baesens, B., Óskarsdóttir, M., Lemahieu, W. (2021). Deep Learning for Credit Scoring: Do or Don't? European Journal Of Operational Research, 295 (1), 292-305.
IEEE Access	Aberkane, A-J., Poels, G., vanden Broucke , S. (2021). Exploring Automated GDPR-Compliance in Requirements Engineering: A Systematic Mapping Study. IEEE ACCESS, 9, 66542-66559.
Knowledge And Information Systems	De Koninck, P., Nelissen, K., vanden Broucke, S. , Baesens, B., Snoeck, M., De Weerdt, J. (2021). Expert-driven Trace Clustering with Instance-level Constraints. Knowledge And Information Systems.
IEEE Access	Huang, L., Zhao, J., Zhu, B., Chen, H., vanden Broucke, S. (2020). An Experimental Investigation of Calibration Techniques for Imbalanced Data. Ieee Access, 8, 127343-127343.
IEEE TSC	Hasic, F., De Smedt, J., vanden Broucke , S. , Serral Asensio, E. (2020). Decision as a Service (DaaS): A Service-Oriented Architecture Approach for Decisions in Processes. IEEE Transactions On Services Computing.
European Journal of Operational Research	Höppner S., Stripling E., Baesens B., vanden Broucke S. , Verdonck T. (2020). Profit Driven Decision Trees for Churn Prediction. European Journal of Operational Research.
SoftwareX	Zhu, B., Gao, Z., Zhao, J., vanden Broucke, S. (2019). IRIC: An R library for binary imbalanced classification. SoftwareX, 10.
Knowledge-Based Systems	Smedt, J.D., Hasić, F., vanden Broucke, S., Vanthienen, J. (2019). Holistic discovery of decision
International Journal of	models from process execution data. Knowledge-Based Systems, 104866-104866. Wang, Y., Huang, L., vanden Broucke, S. (2018). An activity theory based approach for ontological
Logistics	modelling of collaborative logistics process dynamics. International Journal of Logistics, Taylor & Francis, 1367-5567.
Big Data	Lemahieu, W., Vanden Broucke, S. , & Baesens, B. (2018). An Interview with Bart Baesens, One of the Authors of Principles of Database Management. <i>Big Data</i> , 6(2), 69-71.

Seppe vanden Broucke Curriculum vitæ Page 3

feedback to predict user engagement on tablets. ACM Transactions on Information Systems.

ACM Transactions on Nelissen K., Snoeck M., vanden Broucke S., Baesens B. (2018). Swipe and tell: using implicit

Swarm and Evolutionary Stripling, E., Vanden Broucke, S., Antonio, K, Baesens, B, & Snoeck, M. (2018). Profit maximizing Computation logistic model for customer churn prediction using genetic algorithms. Swarm and Evolutionary Computation, 40, 116-130.

Ponce de Leon H., Nardelli L., Carmona J., vanden Broucke S. (2018). Incorporating negative Information Sciences information to process discovery of complex systems. Information Sciences, 422, 480-496.

Business & Information Lismont J., Van Calster T., Oskarsdottir M., vanden Broucke S., Baesens B., Lemahieu W., Systems Engineering Vanthienen J. (2018). Closing the gap between experts and novices using analytics-as-a-service: an experimental study. Business & Information Systems Engineering.

Stripling E., Baesens B., Chizi B., vanden Broucke S. (2018). Isolation-based conditional anomaly Decision Support Systems detection on mixed-attribute data to uncover workers' compensation fraud. Decision Support Systems.

Zhu, B., Baesens, B., Backiel, A., vanden Broucke, Seppe KLM. (2018). Benchmarking sampling Journal of the Operational Research techniques for imbalance learning in churn prediction. Journal of the Operational Research Society, Society 69(1), 49-65.

Decision Support Systems vanden Broucke S., De Weerdt J. (2017). Fodina: a Robust and Flexible Heuristic Process Discovery Technique. Decision Support Systems, 100, 109-118.

Data Mining and Data Mining and Knowledge Discovery, 31 (3), 774-808. Knowledge Discovery

De Koninck P., De Weerdt J., vanden Broucke S. (2017). Explaining clusterings of process instances.

Information Sciences Zhu B., Baesens B., vanden Broucke S. (2017). An empirical comparison of techniques for the class imbalance problem in churn prediction. Information Sciences, 408, 84-99.

Journal of Computing Low W., vanden Broucke S., Wynn M., ter Hofstede A., De Weerdt J., van der Aalst W. (2016). Revising history for cost-informed process improvement. Computing, 98 (9), 895-921.

Journal of Information vanden Broucke, S., Caron, F., Lismont, J., Vanthienen, J., Baesens, B. (2016). On the gap between reality and registration: a business event analysis classification framework. Information Technology Technology and Management & Management, 17 (4), 393-410.

Decision Support Systems Zhu, X., vanden Broucke, S., Zhu, G., Vanthienen, J., Baesens, B. (2016). Enabling flexible locationaware business process modeling and execution. Decision Support Systems, (83), 1-9.

Lismont, J., Janssens, A., Odnoletkova, I., vanden Broucke, S., Caron, F., Vanthienen, J. (2016). A Computers in Biology and guide for the application of analytics on healthcare processes: a dynamic view on patient pathways. Medicine Computers in Biology and Medicine, 77, art.nr. S0010-4825(16)30198-6, 125-134.

Ruanjian Xuebao Zhu, X., Zhu, G., vanden Broucke, S. (2015). 地理空间约束的业务流程建模方法. Ruanjian Xuebao (Journal of Software) 《计算机集成制造系统》期刊, 26 (3), 584-599, ISSN 1000-9825.

IEEE Transactions on vanden Broucke, S., De Weerdt, J., Vanthienen, J., Baesens, B. (2014). Determining process model Knowledge and Data precision and generalization with weighted artificial negative events. IEEE Transactions on Engineering Knowledge and Data Engineering, 26 (8), 1877-1889.

Seret, A., vanden Broucke, S., Baesens, B., Vanthienen, J. (2014). A dynamic understanding of Expert Systems with **Applications** customer behavior processes based on clustering and sequence mining. Expert Systems with Applications, 41 (10), 4648-4657.

De Weerdt, J., vanden Broucke, S., Vanthienen, J., Baesens, B. (2013). Active trace clustering for IEEE Transactions on Knowledge and Data improved process discovery. IEEE Transactions on Knowledge and Data Engineering, 25 (12), 2708-Engineering

Van den Bulcke, T., Vanden Broucke, P., Van Hoof, V., Wouters, K., vanden Broucke, S., Smits, G., Journal of Biomedical Informatics Smits, E., Proesmans, S., Van Genechten, T., Eyskens, F. (2011). Data mining methods for classification of Medium-Chain Acyl-CoA dehydrogenase deficiency (MCADD) using non-derivatized tandem MS neonatal screening data. Journal of Biomedical Informatics, 44 (2), 319-325.

Articles in International Scientific Conferences and Symposia

RCIS 2022 Geerts, M., Shaikh, K., De Weerdt, J., vanden Broucke, S. (2022). Predicting the State of a House using Google Street View. In: Proceedings - International Conference on Research Challenges in Information Science. Presented at the RCIS 2022: Research Challenges in Information Science, Barcelona, Spain, 17 May 2022-20 May 2022

ICPM 2022 Peeperkorn, J., vanden Broucke, S., De Weerdt, J. (2022). Can Deep Neural Networks Learn Process Model Structure? An Assessment Framework and Analysis. In: J. Munoz-Gama, X. Lu (Eds.), Process Mining Workshops, (127-139). Presented at the ICPM, Eindhoven. Cham. ISBN: 978-3-030-98581-3.

Seppe vanden Broucke Curriculum vitæ Page 4

- ICPM 2021 Peeperkorn, J., vanden Broucke, S., De Weerdt, J. (2021). Supervised Conformance Checking Using Recurrent Neural Network Classifiers. vol. LNBIP 406, (175-187). Presented at the International Workshop on Leveraging Machine Learning in Process Mining, Padua. Cham, Switerland. ISBN: 978-3-030-72692-8.
- BPM Forum 2020 Peeperkorn, J., De Weerdt, J., vanden Broucke, S. (2020). Conformance checking using activity and trace embeddings. In: Springer's series Lecture Notes in Business Information Processing. Presented at the BPM Forum, Seville, 13 Sep 2020-18 Sep 2020.
- World Conference on Ortega Vazquez, C.E., Mitrovic, S., De Weerdt, J., vanden Broucke, S. (2020). A Comparative Study of Representation Learning Techniques for Dynamic Networks. In: Trends and Innovations in Information Systems and Technologies: vol. 1161, (523-530). Presented at the World Conference on Information Systems and Technologies, Budva, Montenegro.
 - LAK 2020 Van Goidsenhoven, S., Bogdanova, D., Deeva, G., vanden Broucke, S., De Weerdt, J., Snoeck, M. (2020). Predicting Student Success in a Blended Learning Environment. In: LAK20: 10th International Conference on Learning Analytics & Knowledge, accepted.
 - ICDMW 2019 Gunnarsson, B.R., vanden Broucke, S., De Weerdt, J. (2019). Optimizing Marketing Campaign Targeting Using Uncertainty-Based Predictive Modelling. In: 2019 IEEE International Conference on Data Mining Workshops (ICDMW) 19th IEEE International Conference on Data Mining (ICDM). Presented at the 19th IEEE International Conference on Data Mining (ICDM), Beijing, China, 08 Nov 2019-11 Nov 2019.
 - BPI 2019 Gunnarsson, B.R., vanden Broucke, S., De Weerdt, J. (2019). Predictive Process Monitoring in
 Operational Logistics: A Case Study in Aviation. In: Business Process Management Workshops (BPM 2019). Presented at the 17th International Conference on Business Process Management (BPM),
 Vienna, Austria, 01 Sep 2019-06 Sep 2019.
- EAJ Conference 2018 Reynkens, T., Antonio, K., Devriendt, S., Baesens, B., Vanden Broucke, S. (2018). Network-based fraud detection in insurance using GOTCHA! 4th European Actuarial Journal Conference, Leuven, Belgium.
 - BPM 2018 De Koninck, P., vanden Broucke, S., De Weerdt, J. (2018). act2vec, trace2vec, log2vec, and model2vec: Representation learning for Business Processes. Proceeding of the 16th International Conference on Business Process Management (BPM 2018). Sydney (Australia), 9-14 September 2018.
 - KDD 2018 UtilityDriven Mining
 Workshop
 Worksho
 - DSSV 2018 Höppner S., Stripling E., Baesens B., vanden Broucke S., Verdonck T. (2018). Profit Driven Decision Trees for Churn Prediction, Proceedings of the conference on Data Science, Statistics and Visualisation (DSSV 2018), Vienna, Austria, July 9-11, 2018.
 - EURO 2018 Stripling E., Baesens B., vanden Broucke S. (2018). Building profit-sensitive classifiers for maximum profit: vol. accepted. European Conference on Operational Research (EURO 2018). Valencia (Spain), 8-11 July 2018.
 - IEEE DSW 2018 Devos, A., Dhondt, J., Stripling, E., Baesens, B., vanden Broucke, S., Sukhatme, G. (2018). Profit Maximizing Logistic Regression Modeling for Credit Scoring. IEEE Data Science Workshop (IEEE DSW 2018). Lausanne (Switzerland) 4-6 June 2018.
 - BPM 2017 De Smedt, J., Hasic, F., vanden Broucke, S., Vanthienen, J. (2017). Towards a Holistic Discovery of Decisions in Process-Aware Information Systems. Proceeding of the 15th International Conference on Business Process Management (BPM 2017). Barcelona (Spain), 10-15 September 2017.
 - Credit Scoring and Credit Control XV Haupt J., Stripling E., Baesens B., vanden Broucke S., Lessmann S. (2017). Profit-maximizing scorecard development. Credit Scoring and Credit Control XV Conference. Edinburgh (Scotland), 30 August 1 September 2017.
 - CAiSE 2017 De Koninck P., Nelissen K., Baesens B., vanden Broucke S., Snoeck M., De Weerdt J. (2017). An approach for incorporating expert knowledge in trace clustering. International Conference on Advanced Information Systems Engineering (CAiSE 2017). Essen (Germany), 12-16 June 2017.
 - De Smedt J., vanden Broucke S., Obregon J., Kim A., Jung JY., Vanthienen J. (2017) Decision Mining in a Broader Context: An Overview of the Current Landscape and Future Directions. In: Dumas M.,
 Fantinato M. (eds) Business Process Management Workshops. BPM 2016. Lecture Notes in Business Information Processing, vol 281. Rio de Janeiro (Brazil), 18-22 September 2016, Springer.
 - EI-KDD'16 Van Calster, T., Lismont, J., Oskarsdottir, M., vanden Broucke, S., Vanthienen, J., Lemahieu, W., Baesens, B. (2016). Automated analytics: the organizational impact of analytics-as-a-service.

Proceedings of the EI-KDD'16 workshop: Vol. accepted. Workshop on Enterprise Intelligence in conjunction with 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining. San Francisco (US), 14 August 2016.

Efficiency in Education and the Use of Big Data 2015

vanden Broucke, S., Vanthienen, J., De Smedt, J. (2015). Student Journey Mapping: Learning Analytics in Action. Efficiency in Education and the use of Big data. Leuven (Belgium), 19-20 November 2015.

- DSAA 2015 Stripling, E., vanden Broucke, S., Antonio, K., Baesens, B., Snoeck, M. (2015). Profit maximizing logistic regression modeling for customer churn prediction. IEEE International Conference on Data Science and Advanced Analytics (DSAA' 2015). Paris (France), 19-21 October 2015.
- BPM 2015 Ponce-de-Leon, H., Carmona, J., vanden Broucke, S. (2015). Incorporating negative information in process discovery. Proceeding of the 13th International Conference on Business Process Management (BPM 2015). Innsbruck (Austria), 31 August 3 September 2015.
- CBPM 2014 Zhu, X., Zhu, G., vanden Broucke, S. (2014). 地理空间约束的业务流程建模方法. 第四届中国业务过程管理大会 (China BPM 2014). Shanghai, China, 17 October 2014.
- CoopIS 2014 vanden Broucke, S., Muñoz-Gama, J., Carmona, J., Baesens, B., Vanthienen, J. (2014). Event-based real-time decomposed conformance analysis, 18 pp. OnTheMove Federated Conferences & Workshops, CoopIS 2014 (CoopIS'14), Amantea, Calabria (Italy), 27-31 October 2014.
- GRMSE 2014 Zhu, X., Zhu, G., vanden Broucke, S., Vanthienen, J., Baesens, B. (2014). Supporting Sustainable Business Processes through a Geospatial Context Extension. 2nd International Conference on Geo-Informatics in Resource Management & Sustainable Ecosystem (GRMSE'14). Michigan (USA), 3-5 October 2014.
 - DAB 2014 Zhu X., Zhu G., vanden Broucke, S., Vanthienen, J., Baesens, B. (2014). Towards Location-Aware Process Modeling and Execution. Workshop on Data- & Artifact- centric BPM (DAB'14). Haifa (Israel), 7-11 September 2014.
- DeMiMoP 2014 De Weerdt, J., vanden Broucke, S., Caron, F. (2014). Bidimensional Process Discovery for Mining BPMN Models. Workshop on Decision Mining & Modeling for Business Processes (DeMiMoP'14). Haifa (Israel), 7-11 September 2014.
 - BPM 2014 De Weerdt, J., vanden Broucke, S., Vanthienen, J., Baesens, B. (2014). Explaining Clustered Process Instances, Business Process Management Conference 2014, Haifa (Israel), 7-11 September 2014.
- IEEE CEC 2014 vanden Broucke, S., Vanthienen, J., Baesens, B. (2014). Declarative Process Discovery with Evolutionary Computing. 2014 IEEE Congress on Evolutionary Computation Proceedings: Vol. accepted. 2014 IEEE. Beijing (China), 6-11 July 2014.
- IEEE CEC 2014 Low, W.Z., De Weerdt, J., ter Hostede, A.H.M., van der Aalst, W.M.P., vanden Broucke, S. (2014).
 Cost Optimisation of Business Process Execution. 2014 IEEE Congress on Evolutionary Computation Proceedings: Vol. accepted. 2014 IEEE. Beijing (China), 6-11 July 2014.
 - BPI 2013 vanden Broucke, S., Vanthienen, J., Baesens, B. (2013). Volvo IT Belgium VINST. Proceedings of the 3rd Business Process Intelligence Challenge co-located with 9th International Business Process Intelligence workshop (BPI 2013): Vol. 1052. Business Process Intelligence Challenge 2013 (BPIC 2013). Beijing (China), 26 August 2013 (art.nr. 3). Aachen (Germany): RWTH Aachen University.
- DeMiMoP 2013 vanden Broucke, S., Caron, F., Vanthienen, J., Baesens, B. (2013). Validating and enhancing declarative business process models based on allowed and non-occurring past behavior. Business Process Management Workshops. Workshop on Decision Mining & Modeling for Business Processes (DeMiMoP'13). Beijing (China), 26-30 August 2013.
- DeMiMoP 2013 vanden Broucke, S., Delvaux, C., Freitas, J., Rogova, T., Vanthienen, J., Baesens, B. (2013).
 Uncovering the relationship between event log characteristics and process discovery techniques.
 Business Process Management Workshops. Workshop on Business Process Intelligence (BPI2013).
 Beijing (China), 26-30 August 2013.
- DeMiMoP 2013 Seret, A., vanden Broucke, S., Baesens, B., Vanthienen, J. (2013). An exploratory approach for understanding customer behavior processes bases on clustering and sequence mining. Business Process Management Workshops. Workshop on Decision Mining & Modeling for Business Processes (DeMiMoP'13). Beijing (China), 26-30 August 2013.
- IEEE CIDM 2013 vanden Broucke, S., De Weerdt, J., Vanthienen, J., Baesens, B. (2013). A comprehensive benchmarking framework (CoBeFra) for conformance analysis between procedural process models and event logs in ProM. Proceedings of the IEEE Symposium on Computational Intelligence and Data Mining, CIDM 2013, part of the IEEE Symposium Series on Computational Intelligence 2013, SSCI

2013; vol. accepted. IEEE Symposium on Computational Intelligence and Data Mining (CIDM 2013). Singapore, 16-19 April 2013.

- ICIS JAIS 2012 Caron, F., vanden Broucke, S., Vanthienen, J., Baesens, B. (2012). On the distinction between truthful, invisible, false and unobserved events. Sprouts: Working Papers on Information Systems: vol. 12 (16). 11th JAIS Theory Development Workshop at ICIS 2012. Orlando, Florida, 16 December 2012.
 - ACIS 2012 Caron, F., vanden Broucke, S., Vanthienen, J., Baesens, B. (2012). On the distinction between truthful, invisible, false and unobserved events.
 Proceedings of the 18th Americas Conference on Information Systems: Vol. e-pub. Americas Conference on Information Systems. Seattle, Washington (US), 9-12 August 2012 (art.nr. 24) Association for Information Systems.
- IEEE CEC 2012 De Weerdt, J., vanden Broucke, S., Vanthienen, J., Baesens, B. (2012). Leveraging process discovery with trace clustering and text mining for intelligent analysis of incident management processes.
 Evolutionary Computation (CEC), 2012 IEEE Congress on. Congress on Evolutionary Computation (CEC), 2012 IEEE. Brisbane (Australia), 10-15 June 2012 (pp. 1-8) IEEE computational intelligence society.
 - CAiSE 2012 vanden Broucke, S., De Weerdt, J., Baesens, B., Vanthienen, J. (2012). An improved artificial negative event generator to enhance process event logs. In Ralyt, J. (Ed.), Franch, X. (Ed.), Brinkkemper, S. (Ed.), Wrycza, S. (Ed.), Lecture Notes in Computer Science. International Conference on Advanced Information Systems Engineering (CAiSE'12). Gdansk (Poland), 25-29 June 2012 (pp. 254-269) Springer.

Books and Book Chapters

- Book vanden Broucke, S., Baesens, B. (2021). Managing Model Risk. Independently published. ISBN: 979-8521686988.
- Book Chapter Verbeke, W., Moeyersoms, J., vanden Broucke, S., De Weerdt, J. (2021). Al in bedrijfsvoering in De Bruyne, J., & Bouteca, N. (Eds.). (2021). Artificiële intelligentie en maatschappij. Gompel&Svacina.
 - Book Lemahieu W., **vanden Broucke S.**, Baesens B. (2020). 数据库管理: 大数据与小数据的存储、管理及分析实战. China Machine Press.
 - Book vanden Broucke S., Baesens B. (2018). 数据科学实战之网络爬取: Python实践和示例. Apress.
 - Book vanden Broucke S., Baesens B. (2018). Pythonスクレイピングの基本と実践. Apress.
 - Book vanden Broucke S., Baesens B. (2018). Practical Web Scraping for Data Science: Best Practices and Examples with Python. Apress.
 - Book Lemahieu W., vanden Broucke S., Baesens B. (2018). Principles of database management the practical guide to storing, managing and analyzing small and big data. Cambridge University Press.
 - Book Baesens, B., Backiel, A., **vanden Broucke, S.** (2015). Java для начинающих. Объектноориентированный подход. Wrox. Wiley.
 - Book vanden Broucke S., Baesens B. (2018). Web scraping for data science with Python. CreateSpace Amazon.
- Book Chapter De Smet J., **Vanden Broucke S.**, Vanthienen J., De Witte K. (2017). Improved student feedback with process and data analytics. In: Vanthienen J., De Witte K. (Eds.), Data analytics applications in education, (pp. 11-37) Taylor and Francis.
 - Book Baesens, B., Backiel, A., vanden Broucke, S. (2015). Beginning Java: Object Oriented Programming for Business Applications. Wrox, Wiley.
- Book Chapter Baesens, B. (2014). Chapter: Business Process Analytics by vanden Broucke S. in Analytics in A Big Data World: The Essential Guide to Data Science and its Applications. Wiley, June 2014.

Articles in Professionally Oriented Journals, Technical Reports, Science Outreach

Tech Report Augusto, A., Dumas, M., La Rosa, M., Leemans, S., Vanden Broucke, S. (2020). Optimized Discovery of Process Models From Event Logs: Framework and Evaluation: The University of Melbourne.

Tech Report Hasic, F., De Smedt, J., vanden Broucke, S., Serral Asensio, E. (2019). A Parameter Assessment of Service-Oriented Architecture Process Mining Integrating Decisions (SOAP-MInD). FEB Research Report KBI 1914, 11 pp. Leuven (Belgium): KU Leuven - Faculty of Economics and Business. Lemahieu, W., vanden Broucke, S., Baesens, B. (2018). Data Warehouses, Data Marts, Big Data Quarterly Operational Data Stores, and Data Lakes: What's in a Name? Big Data Quarterly. Lemahieu, W., vanden Broucke, S., Baesens, B. (2018). Principles of Database Management: The **KDnuggets** Practical Guide to Storing, Managing and Analyzing Big and Small Data. KDnuggets. Information Lemahieu, W., vanden Broucke, S., Baesens, B. (2018). Opinion: Building the ideal data quality team starts with these roles. September 25, 2018 Information-management.com. Management Baesens, B., vanden Broucke, S., Lemahieu, W. (2018). Relational Databases vs. NoSQL Cutter Consortium Databases: The End of the One-Size-Fits-All Era? September 18, 2018, Cutter Consortium. **KDnuggets** Lemahieu, W., vanden Broucke, S., Baesens, B. (2018). OLAP queries in SQL: A Refresher. KDnuggets. Cutter Consortium Baesens, B., vanden Broucke, S., Lemahieu, W. (2018). Just in Case: A Database Perspective on Business Continuity. July 24, 2018, Cutter Consortium. Lemahieu, W., vanden Broucke, S., Baesens, B. (2018). Opinion: SQL, NoSQL or NewSQL: How Information organizations can make the right pick. July 18, 2018 Information-management.com. Management Information Baesens, B., Lemahieu, W., vanden Broucke, S. (2018). Opinion: How database management practices impact business continuity. June 11, 2018 Information-management.com. Management Lemahieu, W., Baesens, B., vanden Broucke, S. (2018). To SQL Or Not To SQL: That's The DataScience.com Question. DataScience.com. Analytics India Mag Lemahieu, W., Baesens, B., vanden Broucke, S. (2018). To SQL Or Not To SQL: That's The Ouestion! Analytics India Magazine. **KDnuggets** Lemahieu, W., vanden Broucke, S., Baesens, B. (2018). To SQL or not to SQL: that is the question! KDnuggets. Baesens, B., vanden Broucke, S., Lemahieu, W. (2018). Big Data Experts: Top Job Titles. May 1, Datamation 2018, Datamation. Cutter Consortium Baesens, B., vanden Broucke, S., Lemahieu, W. (2018). Data Integration Vs. Data Quality: Friends or Foes? May 1, 2018, Cutter Consortium. DBTAWells, J., vanden Broucke, S. (interviewee) (2017). Using Web Scraping as a Data Science Tool. Database Trends and Applications, 4/12/2017. Van Sas, E.J., vanden Broucke, S. (interviewee) (2017). Voorbij de hype... Big data gaat volgende Financieel Management fase in. Financieel Management, 27/11/2017. Vangelder, J., vanden Broucke, S. (interviewee) (2017). Geld verdienen met big data blijkt Trends moeilijker dan gedacht. Trends, 31/08/17. **KDnuggets** vanden Broucke, S., Baesens, B. (2017). Web Scraping for Data Science with Python. KDnuggets. Zhu, B. Baesens, B., vanden Broucke, S. (2017). Do We Need Balanced Sampling? KDnuggets. **KDnuggets** vanden Broucke, S. (2017). Process Mining with R: Introduction. KDnuggets. **KDnuggets ECONnect** vanden Broucke, S., De Weerdt, J. (2016). Van groot naar groots: toekomstige uitdagingen in big data en analytics. ECONnect 2016. Cutter Consortium Baesens, B., Backiel, A., vanden Broucke, S. (2015). The State of Database Access in Java: Passchendaele revisited! Cutter IT Email Advisor, January 19, Cutter Consortium. vanden Broucke, S., Baesens, B., Lismont, J., Vanthienen, J. (2014). Sluit de lus: moderne Informatie technieken in Business Process Analytics. Informatie. Baesens, B., vanden Broucke, S., Dejaeger, K., Eerola, T., Goedhuys, L., Riis, M., Wehkamp, R. Informatie (2013). Cloudcomputing in analytics: de hype ontraadseld. Informatie. Cutter Consortium vanden Broucke, S., Baesens, B., Vanthienen, J. (2013). Closing the loop: state of the art in business process analytics. Data Insight & Social BI: Executive Update, Cutter Consortium.

ECONnect vanden Broucke, S. (2013). What's in a name: Bitcoin, de digitale munteenheid. ECONnect (Q2),

Techila Technologies Dejaeger, K., **vanden Broucke, S.**, Eerola, T., Wehkamp, R., Goedhuys, L., Riis, M., Baesens, B. (2012). Beyond the hype: cloud computing in analytics. Finland: Techila Technologies.

Cutter Consortium Dejaeger, K., vanden Broucke, S., Eerola, T., Wehkamp, R., Goedhuys, L., Riis, M., Baesens, B. (2012). Beyond the hype: cloud computing in analytics. Data Insight & Social BI: Executive Update, Cutter Consortium.

Tech Report Ponce-de-Léon, H., Carmona, J., vanden Broucke, S. (2015). Incorporating negative information in process discovery. FEB Research Report KBI_1510, 17 pp. Leuven (Belgium): KU Leuven - Faculty of Economics and Business.

Tech Report De Smedt, J., vanden Broucke, S., De Weerdt, J., Vanthienen, J. (2015). A full R/I-net construct lexicon for declare constraints. FEB Research Report KBI_1506, 20 pp. Leuven (Belgium): KU Leuven - Faculty of Economics and Business.

Tech Report vanden Broucke, S., Vanthienen, J., Baesens, B. (2014). Straightforward Petri net-based event log generation in ProM. FEB Research Report KBI_1417, 12 pp. Leuven (Belgium): KU Leuven - Faculty of Economics and Business.

Tech Report vanden Broucke, S., Muñoz-Gama, J., Carmona, J., Baesens, B., Vanthienen, J. (2013). Event-based real-time decomposed conformance analysis, 21 pp: Polytechnic University of Catalonia, Department of Information Languages and Systems.

Tech Report vanden Broucke, S., De Weerdt, J., Vanthienen, J., Baesens, B. (2013). On replaying process execution traces containing positive and negative events. FEB Research Report KBI_1311, 17 pp. Leuven (Belgium): KU Leuven - Faculty of Economics and Business.

Tech Report De Weerdt, J., vanden Broucke, S., Vanthienen, J., Baesens, B. (2012). Leveraging process discovery with trace clustering and text mining for intelligent analysis of incident management processes. FEB Research Report KBI_1215, 9 pp. Leuven (Belgium): KU Leuven - Faculty of Business and Economics.

Tech Report vanden Broucke, S., De Weerdt, J., Vanthienen, J., Baesens, B. (2012). An improved process event log artificial negative event generator. FEB Research Report KBI_1216, 1-17 pp. Leuven (Belgium): KU Leuven - Faculty of Economics and Business.

Teaching

Bachelor Course, UGent 2019-2020 - present - Databasesystemen (F000910)

- Lecturer
- On database modelling and design, SQL, relational databases, NoSQL

Bachelor Course, UGent 2019-2020 - present - Informatica (F000886)

Lecturer

Lecturer

Basic theory on hardware, algorithms, data, business information systems

Master Course, KU

2023 - present - Realization of AI (B30778)

Leuven

Development and deployment of AI models in practice

Master Course, KU Leuven 2016-2017 - present - Advanced Analytics in Business (D0S07a)

Lecture

 On advanced topics in business analytics and data mining (supervised and unsupervised data mining, deep learning, text mining)

Master Course, KU Leuven 2016-2017 - present - Big Data Platforms & Technologies (D0S06a)

Lecturer

On big data tooling, frameworks, platforms (Hadoop, Spark, H2O, NoSQL)

Postgraduate Course, KU Leuven 2016 - present - Postgraduate Studies: Big Data & Analytics in Business and Management

Academic coordinator and lecturer

 On data analytics, big data, business applications of analytics, process mining and big data management

Visiting Lecturer, Beijing Jiatong University November 2018 - Frontiers of Information Systems

- Visiting lecturer, Beijing Jiatong University, China
- Project: "Management Data Science"

For master student's audience

Master Course, KU Leuven 2018-2019 – Basic Programming (IOD41A)

Lecturer

 Master course for statisticians, information management students, bio-engineers on Java programming

Visiting Lecturer, Beijing Jiatong University September 2017 - Web Scraping with Python and Context-aware and Declarative Process Mining

- Visiting lecturer, Beijing Jiatong University, China
- Project: "Management Data Science"

For master student's audience

Bachelor Course, KU Leuven 2015-2016 – 2017-2018 – Grondslagen van Beleidsinformatica (D0T06A, D0H17A, HBN74b)

Lecturer, campus Leuven and Brussels

Introductory course to IT and management informatics (Dutch)

Master Course, KU Leuven 2015-2016 - Knowledge Management and Business Intelligence (D0I74A)

Substitute lecturer

On knowledge engineering, knowledge management, data mining, AI, business intelligence

Course Assistant

September 2011 - October 2014 - Various Courses, KU Leuven

- Business Information Systems: exam coordination and grading, set up online SQL exercise environment
- Architecture and Modeling of Information Systems: assisting with exam setup
- Software Development and Programming: exam setup, coordination, grading, student aid, developed an automatic correction system to provide objective, detailed, and immediate feedback
- Basic Programming: course materials preparation, co-authored book on Java Programming, set up online e-learning platform

Teaching intermediate Excel and Access usage to students in practical hands-on sessions

Academic Miscellanea

Chairs and Committee Memberships

- 2022, 2023 Week: CAiSE
- 2019, 2020, 2021, 2022, 2023: Program committee member for the International Conference on Process Mining (ICPM)
- 2020, 2021, 2022, 2023: Program committee member for the International Conference on Business Process Management (BPM)
- 2016, 2017, 2018, 2019: Program committee member for Process Querying (PQ)
- 2015, 2016, 2017, 2018, 2019: Program committee member for the International Workshop on Business Process Intelligence (BPI)
 - 2018: Program committee member for Data Mining in Marketing DMM 2018 (DMM)
- 2018: Program committee member for Cost-Sensitive Learning Workshop at SIAM (COST)
- 2017: Program chair for the International Workshop on Learning with Imbalanced Domains: Theory and Applications (LIDTA)
- 2015, 2016, 2017: Program chair for Algorithms & Theories for the Analysis of Event Data (ATAED)
- 2013, 2014, 2015, 2016: Program committee member for the International Workshop on Decision Mining & Modeling for Business Processes (DeMiMoP)
- 2017: Program committee member for the International Workshop on Declarative/Decision/Hybrid Mining & Modeling for Business Processes (DeHMiMoP)
- 2017: Program committee member for the International Workshop on Quality Data for Process Analytics (QD-PA 2017)
- Member of LRISK the Leuven center for research, training and advice in the field of insurance and financial risk analysis (KU Leuven)
- Member of the Leuven Big Data Platform (KU Leuven)
- Co-chair of DataMiningApps (www.dataminingapps.com)

Projects and Grants

- 2023: Research Chair holder Brussels Airport "Smart Operational Airport Analytics" (3 years)
- 2023: Research Chair holder Euroclear "Predictive Process Mining for Financial Market Infrastructure Services" (3 years)
- 2019: Research Chair co-holder FedNOT "Real Estate Analytics" (3 years)
- 2019: Beneficiary of UGent BOF start-up grant (EUR 100.000)
- 2018: Research Chair holder Brussels Airport "Smart Operational Airport Analytics" (3 years)
- 2018: Funding for visiting lecturer Beijing Jiaotong University (60.000 RMB)
- 2017: Beneficiary of KU Leuven start-up grant (STG/16/027, EUR 100.000)
- 2017: Funding for visiting lecturer Beijing Jiaotong University (45.500 RMB)
- 2016: Beneficiary of FWO grant for project "Profit Driven Analytics: New Techniques and Applications", together with Prof. dr. Bart Baesens, (G063217N, EUR 209.668,25)

Foreign Collaboration and Visits

- 2018: China (Beijing Jiaotong University, invited by Prof. dr. Ying Wang), visiting lecturer
- 2017: China (Beijing Jiaotong University, invited by Prof. dr. Ying Wang), visiting lecturer
- 2017: China (Wuhan University, invited by Prof. dr. Guobin Zhu), visiting researcher
- 2014, 2016: South Korea (Kyung Hee University, invited by Prof. dr. Jae-Yoon Jung), visiting researcher
- 2014: China (Wuhan University, invited by Prof. dr. Guobin Zhu), visiting researcher
- 2013, 2014: Australia (Queensland University of Technology, invited by Prof. dr. Arthur ter Hofstede), visiting researcher
- 2013: Spain (Technical University of Catalonia, invited by Prof. dr. Josep Carmona), visiting researcher
- 2012, 2013: China (Tsinghua University, invited by Prof dr. Guoqing Chen), visiting researcher
- 2013: China (Beijing Jiaotong University, invited by Prof. dr. Wang Ying), visiting researcher

Supervision and Mentoring

PhD students:

- Ongoing: Promotor of: Yameng Guo
- Ongoing: Member of supervisory committee of: Margot Geerts
- Ongoing: Member of supervisory committee of: Carlos Eduardo Ortega
- Ongoing: Member of supervisory committee of: Jari Peeperkorn
- Ongoing: Member of PhD committee of Abdel Aberkane
- Ongoing: Member of PhD committee of Georgios Georgiadis, "Big data, GDPR en EA"
- 2023: Member of supervisory committee of Hans Weytjens, "Machine Learning for Predictive and Prescriptive Process Monitoring"
- 2023: Promotor of: Gunnarsson, Björn Rafn, "Deep Learning for Process and Business Analytics"
- 2022: Member of supervisory committee of Thomas Dierckx, "Data Science in Portfolio Allocations"
- 2020: Member of supervisory committee of: Höppner, Sebastiaan, "Advanced statistical techniques for fraud detection"
- 2019: Member of supervisory committee of: Nelissen, Klaas, "Measuring user engagement in various domains"
- 2016: Member of supervisory committee of De Smedt, Johannes. "Studies on declarative process modeling and its relation to procedural techniques"
- 2018: Member of supervisory committee of Óskarsdóttir, María. "Leveraging Mobile Phone Data and Social Network Analytics for Profit Driven Modeling"
- 2018: Co-supervisor of Stripling, Eugen. "Business-Oriented Data Analytics: Advances in Profit-Driven Model Building and Fraud Detection"
- 2019: Member of supervisory committee of De Koninck, Pieter. "Advanced Trace Clustering Techniques for Business Process Executions"
- 2019: Co-supervisor of Nelissen, Klaas. "Essays on measuring user engagement with online news"

Master (graduate) students:

- 2015 2016: Business Intelligence for data-driven healthcare in hospitals: Using process mining for building a BI tool to
 optimize nursing assignment
- 2015 2016: Customer journey predictors for consumer loans (co-promotor)
- 2015 2016: Decision Tree Induction with User-Defined Classification Metrics (3 students)
- 2015 2016: Feature-based sequence classification for predicting unemployment duration
- 2015 2016: Log analysis using binary classification techniques
- 2015 2016: Log analysis using sequential pattern classification and feature selection
- 2016 2017: Analysis of software tools for data science
- 2016 2017: Analysis of the appointment process of a financial institution (3 students)
- 2016 2017: Analyzing traffic and sales on digital assets In collaboration with KBC
- 2016 2017: Backtracking / ID stitching 2.0 (2 students)
- 2016 2017: How to commercialize software solutions and algorithms? The case of software solutions and algorithms for energy efficiency of buildings
- 2016 2017: Predicting the occupancy of Belgian trains: a further investigation
- 2016 2017: Prediction of occupancy on Belgian trains (2 students)
- 2017 2018: Building a Predictive Model to Predict Bankruptcy of Belgian Firms
- 2017 2018: Exploring the possibilities of t-SNE in a predictive setup
- 2017 2018: A Study of the Social Cooling Effect
- 2017 2018: An AI Conversational Assistant for Education
- 2017 2018: Bootstrap aggregating of profit driven decision trees for churn prediction 2017 2018: Building a firstborn name recommender system
- 2017 2018: An analysis of bias in news sources using word embeddings
- 2017 2018: An Overview of Business Applications of Deep Learning
- 2018–2019: Modelling customer behaviour: Explanatory model for customer digital propensity in a Belgian health care insurance company
- 2018–2019: Constructing a Recommender System based on a Douban Movie Data set
- 2018- 2019: Analysis of customer churn to enhance user retention of an e-learning platform: case study of CodeChef
- 2018–2019: A Systematic Approach for Converting Black Box Ensemble Models to Logistic Regression
- 2018–2019: Bot or not: A comparison of predictive models for Twitter Bot Detection
- 2018–2019: On the Applicability of Deep Learning to Construct Process Models from Natural Text (2 students)
- 2018–2019: On the Applicability of Deep Learning to Construct a Forex Trading Robot (2 students)
- Ongoing: Preprocessing for credit scoring

Expertise

Computer Usage Operating systems: Microsoft Windows, Linux (Debian, Ubuntu, Arch, Redhat, SuSE...)

Data/process mining, AI: R (caret, dplyr, rml, iml, others), Matlab, Julia, Python (Numpy, scikit-learn, Pandas), ProM, Disco, Weka, Rapidminer, CPN Tools, Hadoop, Spark, Tensorflow, Keras, CNTK, Pytorch

Editing: Office suites, LaTeX, Adobe Photoshop, Openshot, SketchUp, 3d Max, others

Databases: MySQL (MariaDB), PostgreSQL, Neo4j, Memgraph, SQLite, NoSQL (MongoDB, CouchDB),

InterSystems Caché, others

Programming

Java, Python, R, PHP, HTML (5), CSS, Delphi (Pascal), CPN ML, JavaScript, Bash, Visual Basic .NET,

Languages Prolog, others

Languages Fluent: English, Dutch

Basics: Mandarin (Level 3 certified), French, German

Open Source and Side Projects

Open Source Contibutor: R CRAN "EMP" package, Tablix, Apache ("mu_antiloris") GitHub: https://github.com/macuyiko (side projects and public repositories)

Areas of Expertise

Economics: micro/macro, industrial theory, entrepreneurship, strategy

Analytics: big data mining, machine learning, process mining, constraint programming, operations

research, business analytics/intelligence, deep learning

Information Systems: management, programming, planning

Digital Technology: mobile web, the cloud, conversational commerce, cyber security, digital money

(crypto currencies), blockchain

Public Speaking

International conferences, invited seminars and workshops (Tsinghua University, Wuhan University, Queensland University of Technology, T/U Eindhoven, Kyung Hee University, Universiteit Hasselt, Ben Gurion University of the Negev)

Company presentations, courses and trainings (e.g. banking, consulting sector, The SAS Institute, The
OR Society, European Data Innovation Hub, Business Analytics 4 All, SAI, Analytics Experience,
London Financial Studies, CFA Society Belgium, Acerta, and many more)

Education

PhD September 2011 - October 2014 – **PhD in Applied Economics at KU Leuven**

Thesis: Advances in Process Mining: Artificial Negative Events and Other Techniques (Accessible at: http://www.seppe.net/phd.pdf)

Master of Science

2009 - 2011 – Master of Science, Business Economics: Information Systems Engineer at KU Leuven, Belgium

• Major: Management Information Systems

Minor: Entrepreneurship

Thesis: Building a MERODE Pattern Catalogue at Smals

Grade: magna cum laude

Bachelor of Science

2006 - 2009 - Bachelor of Science, Business Economics: Information Systems Engineer at KU Leuven, Belgium

Major: Industrial Organization and Strategy

Acting Degree At Academy for Music, Spoken Word and Dance, Ninove, Belgium

Lower and Middle Education

- Sint-Aloysiuscollege Ninove (ASO): Science-Mathematics (8h) (Belgium)
- Koninklijk Atheneum Ninove (ASO): Latijn (Belgium)
- Basisschool Meerbeke (Belgium)
- Basisschool Denderwindeke (Belgium)

Miscellaneous

Google Scholar Statistics Citations: 1742

H-index: 23

https://scholar.google.be/citations?user=uIfUaMMAAAAJ

Date of Birth 9 November, 1986

Myers-Briggs Type INTJ

Casual Interests Reading (fiction and non-fiction), cinema, gaming, recreational computer programming, blogging

(http://blog.macuyiko.com), physics, technology. Ask me about current trends in big data, artificial intelligence, the mobile web, the cloud, cyber security, digital money (crypto currencies),

blockchain, and China's transition in the global economy.