

Curriculum vitae

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

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Profile

Prof. dr. **Seppe vanden Broucke** is currently working as an assistant professor at the department of Decision Sciences and Information Management at KU Leuven. His research interests include business data mining, data science and analytics, machine learning, process management, and 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

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

- Research focusing on data mining and analytics, data science and machine learning at the Leuven Institute for Research on Information Systems (LIRIS)
- Holder of the “Smart Airport Operational Analytics” research chair, sponsored by Brussels Airport
- Co-beneficiary of FWO grant for project “Profit Driven Analytics: New Techniques and Applications” (G063217N, EUR 209.668,25)
- Co-academic organizer of Postgraduate in Big Data & Analytics in Business and Management
- 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, 2008 - present – **Freelance Journalist at Hitpoint**
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
- Acquired strong knowledge of computer security

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

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

Publications

Articles in Internationally Reviewed Academic Journals

- European Journal of Operational Research* Höppner S., Stripling E., Baesens B., **vanden Broucke S.**, Verdonck T. (2018). Profit Driven Decision Trees for Churn Prediction. *European Journal of Operational Research*, accepted.
- International Journal of Logistics* Wang, Y., Huang, L., **vanden Broucke, S.** (2018). An activity theory based approach for ontological 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. *Big Data*, 6(2), 69-71.
- ACM Transactions on Information Systems* Nelissen K., Snoeck M., **vanden Broucke S.**, Baesens B. (2018). Swipe and tell: using implicit feedback to predict user engagement on tablets. *ACM Transactions on Information Systems*.
- Swarm and Evolutionary Computation* Stripling, E., **Vanden Broucke, S.**, Antonio, K, Baesens, B, & Snoeck, M. (2018). Profit maximizing logistic model for customer churn prediction using genetic algorithms. *Swarm and Evolutionary Computation*, 40, 116-130.
- Information Sciences* Ponce de Leon H., Nardelli L., Carmona J., **vanden Broucke S.** (2018). Incorporating negative information to process discovery of complex systems. *Information Sciences*, 422, 480-496.
- Business & Information Systems Engineering* Lismont J., Van Calster T., Oskarsdottir M., **vanden Broucke S.**, Baesens B., Lemahieu W., Vanthienen J. (2018). Closing the gap between experts and novices using analytics-as-a-service: an experimental study. *Business & Information Systems Engineering*.
- Decision Support Systems* Stripling E., Baesens B., Chizi B., **vanden Broucke S.** (2018). Isolation-based conditional anomaly detection on mixed-attribute data to uncover workers' compensation fraud. *Decision Support Systems*.
- Journal of the Operational Research Society* Zhu, B., Baesens, B., Backiel, A., **vanden Broucke, Seppe KLM.** (2018). Benchmarking sampling techniques for imbalance learning in churn prediction. *Journal of the Operational Research Society*, 69(1), 49-65.

- Decision Support Systems* **vanden Broucke S.**, De Weerd J. (2017). Fodina: a Robust and Flexible Heuristic Process Discovery Technique. *Decision Support Systems*, 100, 109-118.
- Data Mining and Knowledge Discovery* De Koninck P., De Weerd J., **vanden Broucke S.** (2017). Explaining clusterings of process instances. *Data Mining and Knowledge Discovery*, 31 (3), 774-808.
- 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 Weerd J., van der Aalst W. (2016). Revising history for cost-informed process improvement. *Computing*, 98 (9), 895-921.
- Journal of Information Technology and Management* **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 & Management*, 17 (4), 393-410.
- Decision Support Systems* Zhu, X., **vanden Broucke, S.**, Zhu, G., Vanthienen, J., Baesens, B. (2016). Enabling flexible location-aware business process modeling and execution. *Decision Support Systems*, (83), 1-9.
- Computers in Biology and Medicine* Lismont, J., Janssens, A., Odnoletkova, I., **vanden Broucke, S.**, Caron, F., Vanthienen, J. (2016). A guide for the application of analytics on healthcare processes: a dynamic view on patient pathways. *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 Knowledge and Data Engineering* **vanden Broucke, S.**, De Weerd J., Vanthienen, J., Baesens, B. (2014). Determining process model precision and generalization with weighted artificial negative events. *IEEE Transactions on Knowledge and Data Engineering*, 26 (8), 1877-1889.
- Expert Systems with Applications* Seret, A., **vanden Broucke, S.**, Baesens, B., Vanthienen, J. (2014). A dynamic understanding of customer behavior processes based on clustering and sequence mining. *Expert Systems with Applications*, 41 (10), 4648-4657.
- IEEE Transactions on Knowledge and Data Engineering* De Weerd J., **vanden Broucke, S.**, Vanthienen, J., Baesens, B. (2013). Active trace clustering for improved process discovery. *IEEE Transactions on Knowledge and Data Engineering*, 25 (12), 2708-2720.
- Journal of Biomedical Informatics* Van den Bulcke, T., Vanden Broucke, P., Van Hoof, V., Wouters, K., **vanden Broucke, S.**, Smits, G., 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

- 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 Weerd 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 Utility-Driven Mining Workshop* Stripling, E., Baesens, B., **vanden Broucke, S.** (2018). Regularized Empirical EMP Maximization Framework for Profit-Driven Model Building. Workshop on Utility-Driven Mining in conjunction with the 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, Date: August 19 - 23, 2018. London, United Kingdom.

- 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 Weerd 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.
- DeMiMoP'16* 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'14* 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'14* **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'14* 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'14* De Weerd, 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 Weerd, 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 Weerd, 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'13* **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'13* **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'13* 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 Weerd, 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 Weerd, 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'12 **vanden Broucke, S.**, De Weerd, 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. (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, *forthcoming*.
- Book* Baesens, B., Backiel, A., **vanden Broucke, S.** (2015). Java для начинающих. Объектно-ориентированный 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

- KDnuggets* Lemahieu, W., **vanden Broucke, S.**, Baesens, B. (2018). Principles of Database Management: The Practical Guide to Storing, Managing and Analyzing Big and Small Data. KDnuggets.
- Information Management* 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.
- Cutter Consortium* Baesens, B., **vanden Broucke, S.**, Lemahieu, W. (2018). Relational Databases vs. NoSQL 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.
- Information Management* Lemahieu, W., **vanden Broucke, S.**, Baesens, B. (2018). Opinion: SQL, NoSQL or NewSQL: How organizations can make the right pick. July 18, 2018 Information-management.com.
- Information Management* Baesens, B., Lemahieu, W., **vanden Broucke, S.** (2018). Opinion: How database management practices impact business continuity. June 11, 2018 Information-management.com.

- DataScience.com* Lemahieu, W., Baesens, B., **vanden Broucke, S.** (2018). To SQL Or Not To SQL: That's The Question. DataScience.com.
- Analytics India Mag* Lemahieu, W., Baesens, B., **vanden Broucke, S.** (2018). To SQL Or Not To SQL: That's The Question! Analytics India Magazine.
- KDnuggets* Lemahieu, W., **vanden Broucke, S.**, Baesens, B. (2018). To SQL or not to SQL: that is the question! KDnuggets.
- Datamation* Baesens, B., **vanden Broucke, S.**, Lemahieu, W. (2018). Big Data Experts: Top Job Titles. May 1, 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.
- DBTA* Wells, J., **vanden Broucke, S. (interviewee)** (2017). Using Web Scraping as a Data Science Tool. Database Trends and Applications, 4/12/2017.
- Financieel Management* Van Sas, E.J., **vanden Broucke, S. (interviewee)** (2017). Voorbij de hype... Big data gaat volgende fase in. Financieel Management, 27/11/2017.
- Trends* Vangelder, J., **vanden Broucke, S. (interviewee)** (2017). Geld verdienen met big data blijkt moeilijker dan gedacht. Trends, 31/08/17.
- KDnuggets* **vanden Broucke, S.**, Baesens, B. (2017). Web Scraping for Data Science with Python. KDnuggets.
- 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.
- ECONnect* **vanden Broucke, S.**, De Weerd, 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.
- Informatie* **vanden Broucke, S.**, Baesens, B., Lismont, J., Vanthienen, J. (2014). Sluit de lus: moderne technieken in Business Process Analytics. Informatie.
- Informatie* Baesens, B., **vanden Broucke, S.**, Dejaeger, K., Eerola, T., Goedhuys, L., Riis, M., Wehkamp, R. (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), 40-41.
- Techila Technologies White Paper* 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 Weerd, 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 Weerd, 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 Weerd, 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 Weerd, 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

- Visiting Lecturer, *November 2018 – **Frontiers of Information Systems***
Beijing Jiatong University
- Visiting lecturer, Beijing Jiatong University, China
 - Project: “Management data science”
 - For master student’s audience
- Master Course, *2017-2018 – **Basic Programming (IOD41A)***
KU Leuven
- Lecturer
 - Master course for statisticians, information management students, bio-engineers on Java programming
- Postgraduate Course, *2016 - present – **Postgraduate Studies: Big Data & Analytics in Business and Management***
KU Leuven
- Postgraduate course for professionals: academic coordinator and lecturer
 - On data analytics, big data, business applications of analytics, process mining and big data management
- Master Course, *Second term 2016-2017 - present – **Advanced Analytics in Business (DOS07a)***
KU Leuven
- Lecturer
 - On advanced topics in business analytics and data mining
- Master Course, *Second term 2016-2017 - present – **Big Data Platforms & Technologies (DOS06a)***
KU Leuven
- Lecturer
 - On big data tooling, frameworks, platforms
- Visiting Lecturer, *September 2017 – **Web Scraping with Python and Context-aware and Declarative Process Mining***
Beijing Jiatong University
- Visiting lecturer, Beijing Jiatong University, China
 - Project: “Management data science”
 - For master student’s audience
- Bachelor Course, *Second term 2015-2016 – 2017-2018 – **Grondslagen van Beleidsinformatica (DOT06A, DOH17A, HBN74b)***
KU Leuven
- Lecturer, campus Leuven and Brussels
 - Introductory course to IT and management informatics (Dutch)
- Master Course, *Second term 2015-2016 – **Knowledge Management and Business Intelligence (DOI74A)***
KU Leuven
- Substitute lecturer
 - On knowledge engineering, knowledge management, data mining, AI, business intelligence
- PhD Student Co-supervision *November 2014 - present – **Applied Economics PhD Programme, KU Leuven***
- Co-supervising PhD candidate (Drs. Eugen Stripling) in the Applied Economics PhD Programme next to principal advisors
 - Acting as daily coordinator for research activities
- Master Thesis Supervision *September 2011 - present – **Master Business Economics: Information Systems Engineer and Master of Information Management, KU Leuven***
- Supervising graduate student teams, daily coordination and project follow-up
 - Students originating from diverse educational and cultural backgrounds
- 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

Practical Session, 2013 – Intermediate Excel and Access, KU Leuven
KU Leuven

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

Academic Miscellanea

Chairs and Committee Memberships

- 2018: Program committee member for Data Mining in Marketing DMM 2018 (DMM)
- 2018: Program committee member for Cost-Sensitive Learning Workshop at SIAM (COST)
- 2016, 2017, 2018: Program committee member for Process Querying (PQ)
- 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)
- 2015, 2016, 2017, 2018: Program committee member for the International Workshop on Business Process Intelligence (BPI)

- 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

Accepted:

- 2018: Research Chair holder Brussels Airport “Smart Operational Airport Analytics”, holder, together with co-holders Prof. dr. Jochen De Weerd and Prof. dr. Wilfried Lemahieu
- 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:

- 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-promotor 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”
- Ongoing: Promotor of: Gunnarsson, Björn Rafn, “Smart airport operational analytics”
- Ongoing: Member of supervisory committee of: Höppner, Sebastiaan, “Advanced statistical techniques for fraud detection”
- Ongoing: Member of supervisory committee of: Nelissen, Klaas, “Measuring user engagement in various domains”

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: ProfitBoost: a modification of the AdaBoost boosting algorithm where the EMP profit measure is used as an error measure
- 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
- Ongoing: Building a model to predict adoption of digital channels by customers of a health insurance company
- Ongoing: Constructing a Recommender System based on a Douban Movie Data set
- Ongoing: An online learning recommender system for e-learning
- Ongoing: Detecting Bots in Social Media
- Ongoing: On the Applicability of Deep Learning to Construct Process Models from Natural Text (2 students)
- Ongoing: On the Applicability of Deep Learning to Construct a Forex Trading Robot (2 students)

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
Editing: Office suites, LaTeX, Adobe Photoshop, Openshot, SketchUp, 3d Max, others
Databases: MySQL (MariaDB), PostgreSQL, Neo4j, SQLite, NoSQL (MongoDB, CouchDB), InterSystems Caché, others
- Programming Languages* Java, Python, R, PHP, HTML (5), CSS, Delphi (Pascal), CPN ML, JavaScript, Bash, Visual Basic .NET, Prolog, others
- Languages* **Fluent:** English, Dutch
Basics: Mandarin (Level 3 certified), French, German
- Open Source and Side Projects* **Open Source Contributor:** 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, Queensland University of Technology, Technische Universiteit 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)

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: 394
H-index: 11
<https://scholar.google.be/citations?user=ulfUaMMAAAAJ>
- Date of Birth* 9 November, 1986
- Myers-Briggs Type* INTJ
- Casual Interests* Reading (fiction and non-fiction), cinema, gaming, recreational computer programming, swimming, piano, blogging (<http://blog.macuyiko.com>), physics, philosophy. Ask me about current trends in the big data, mobile web, the cloud, conversational commerce, cyber security, digital money (crypto currencies), blockchain, and China's transition in the global economy.
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