SIMON DE VOS

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10/03/1996 – Leuven

SUMMARY

Social and technical business professional with a background in applied science and a strong interest in turning ML research into practical solutions. Experienced in data-driven decision-making and AI/ML development in cross-functional teams. Holds a B.Sc. and M.Sc. in Business Engineering and an Advanced Master's in Artificial Intelligence. Currently finalizing a PhD in Data Science, focused on ML in business contexts. Eager to apply this experience beyond business, including in healthcare or other high-impact domains. Amateur musician, runner, and fantasy reader.

SKILLS

- **Technical:** A/B testing, Artificial intelligence, Business process management (BPM), Causal machine learning, Cost-sensitive learning, Data-driven decision-making, Decision-focused learning, Deep learning, Demographic parity, Dynamic hyperparameter tuning, HR analytics, Individual treatment effects, Fairness, (Mixed) (Integer) Linear Programming, Multi-task learning, Predictive analytics, Predictive process monitoring, Prescriptive analytics, Process mining, Recommender systems, Robust statistics, Time series forecasting, Uplift modeling

  Soft: *Academic writing*: wrote 8 scientific articles. *Public speaking*: presented at top-tier international conferences. *Mentoring*: supervised 20+ master's theses (50+ students). *Cross-functional collaboration*: bridged business and technical teams at KU Leuven and Acerta. *Business-to-tech communication* (and vice-versa): explained complex ideas to non-technical managers and clients. *Stakeholder management*: aligning academic and company interests during PhD.

- **Tech stack:** Python •••••, SQL •••○○, Gurobi ••••○, CPLEX ••○○○, Power BI •••○○, Java ••○○○, Prolog •○○○○

- **Languages:** Dutch (native), English (full professional), French (working), Chinese (elementary)

WORK EXPERIENCE

Acerta - Data Scientist **[Part-time]** Sep 2021 - Sep 2025
Belgium

- PhD industry partner (Baekeland Mandate), bridging academic research and business impact.
- Developed employee journey mapping frameworks for internal use and client delivery.
- Built predictive models for employee turnover — both tailored for individual organizations and a general model trained on payroll data from 600+ companies, now used for lead-generation of analytics services.
- Built a proof-of-concept recommender system for internal mobility to support talent reallocation.
- Conducted a causal deep dive for a client to identify drivers of unwanted turnover to recommend interventions.
- Led cross-functional focus groups (HR, IT, and data teams), and briefed C-level executives on strategic insights.

Belgian Consulate in Shanghai - Flanders Investment and Trade **[Intern]** July 2018 - Aug 2018
China

- Matched Flemish companies with Chinese partners; facilitated a deal for one of Belgium's largest breweries.
- Represented FIT at seminars and trade events.
- Authored market reports on trade opportunities and sector trends.

EDUCATION

KU Leuven - Doctor of Philosophy, Data Science (PhD) Sept 2021 - Sept 2025
Belgium

- Faculty of Economics and Business, Research Center for Information Systems Engineering (LIRIS), supervised by Professor Wouter Verbeke
- Title: *Essays on data-driven decision support: Applications in HRM and methodological advances*
- Baekeland Mandate holder, Acerta as partner company, acquired ∼400K EUR in funding
- Specific research interests: Fairness, Causal ML, Cost-Sensitive Learning, HR analytics
- Authored papers in top-tier international journals and presented at conferences (see below).
- Research stay at Humboldt University of Berlin, hosted by Professor Stefan Lessmann
- Contributed to teaching through exam design, guest lectures at (advanced) master's level, and assistantship for the master's course *Data Science for Business*.

KU Leuven - Advanced Master's in Artificial Intelligence Sept 2020 - June 2021
Belgium

- Major: Engineering and Computer Science (ECS)
- Research Internship at LIRIS, KU Leuven: *Instance-Dependent Cost-Sensitive Learning for Detecting Transfer Fraud*

KU Leuven - B.Sc and M.Sc. in Business Engineering Sept 2015 - June 2020
Belgium

- Majored in *Risk & Finance* and *Data Science*.
- Thesis: *Populism and credit: Effect of the 2016 presidential campaign in the US on minorities' access to mortgages*
- Master exchange semester: Stellenbosch University, South Africa (*THE Africa* ranking #2)
- Bachelor exchange semester: Tsinghua University, Beijing, China (*THE worldwide* ranking #12)

PUBLICATIONS

S. De Vos, J. Van Belle, A. Algaba, W. Verbeke, S. Verboven, "Decision-centric fairness: Evaluation and optimization for resource allocation problems," *arXiv*, 2024. doi: 10.48550/arXiv.2504.20642. [Under revision at *EJOR*]

S. De Vos, J. De Smedt, C. Wuytens, and W. Verbeke, "Leveraging Process Mining to Optimize Internal Employee Mobility Strategies," in *Business Process Management Cases Vol. 3: Implementation in Practice*, Cham, Switzerland: Springer Nature, 2025, pp. 15–28. doi: 10.1007/ 978-3-031-80793-0. ISBN: 978-3-031-80792-3.

J. Peeperkorn, **S. De Vos**, "Achieving Group Fairness through Independence in Predictive Process Monitoring," *arXiv*, 2024. doi: 10.48550/arXiv.2412.04914 [Accepted at *CAiSE 2025*, main track]

S. De Vos, C. Bockel-Rickermann, S. Lessmann, and W. Verbeke, "Uplift modeling with continuous treatments: A predict-then-optimize approach," *arXiv*, 2024. doi: 10.48550/arXiv.2412.09232. [Under revision at *EJOR*]

D. Caljon, J. Vercauteren, **S. De Vos**, W. Verbeke, and J. Van Belle, "Using dynamic loss weighting to boost improvements in forecast stability," *arXiv*, 2024. doi: 10.48550/arXiv.2409.18267. [Accepted at *IJF*]

S. De Vos, C. Bockel-Rickermann, J. Van Belle, and W. Verbeke, "Predicting Employee Turnover: Scoping and Benchmarking the State-of-the-Art," *Business & Information Systems Engineering*, 2024. doi: 10.1007/ s12599-024-00898-z.

S. De Vos, J. De Smedt, M. Verbruggen, and W. Verbeke, "Data-driven internal mobility: Similarity regularization gets the job done," *Knowledge-Based Systems*, vol. 295, Art. no. 111824, 2024. doi: 10.1016/ j.knosys.2024.111824.

S. De Vos, T. Vanderschueren, T. Verdonck, and W. Verbeke, "Robust instance-dependent cost-sensitive classification," *Advances in Data Analysis and Classification*, 2023. doi: 10.1007/ s11634-022-00533-3.

A full publication list is available on Google Scholar.

MISCELLANEOUS

Academic Services

· Conducted over 15+ peer reviews for leading journals and conferences, including ICML, NeurIPS, Management Science, European Journal of Operational Research, Scientific Reports, Omega, Journal of Business Analytics, Engineering Applications of Artificial Intelligence, Decision Analytics Journal, and Array.

Grants

· Secured ∼400K EUR in funding through Flanders Innovation & Entrepreneurship (VLAIO – HBC.2021.0833) for a 4-year multidisciplinary research project on HR analytics.
· Awarded a 3,400 EUR grant for an exchange at Stellenbosch University through the Priority Country Program.

PERSONAL

Amateur Musician

· Instruments: Trombone, oboe, and cor anglais.
· 2022–present: Founded a 6-piece jazz/funk band (*Spoorvos*) where I play trombone and compose/adapt arrangements.
· 2018–2020: Member of KU Leuven Student Symphonic Orchestra.

Youth Work - Chiro Vlierbeek

· 2014-2019: Led weekly activities for 200+ children and organized large-scale events.
· 2015-2017: Group leadership - Coordinating and motivating a group of 40 peers

Other interests

· Regularly play strategic board games; currently involved in multiple long-form games.
· Enjoy reading both fiction and non-fiction — from data science literature to epic multi-volume fantasy.
· Recreational runner; recently completed my first marathon.