



Martial Luyts

Curriculum Vitae

Education

- 2015 – 2021 **Doctor of Philosophy in Biomedical Science, Biostatistics**,
Catholic University of Leuven, L-Biostat, International certificate.
- 2013 – 2015 **Academic Master in Statistics, Industrial Statistics**,
Catholic University of Leuven, Campus Heverlee, International certificate.
- 2009 – 2013 **Academic Bachelor in Mathematics**,
University of Hasselt, Campus Diepenbeek, Dutch certificate.
- 2007 – 2009 **Industriële Wetenschappen**,
Technisch Heilig Hartinstituut, Campus Heilig-Hart, Dutch certificate.
- beginning 2007 **Voorbereidend Wetenschappelijk Onderwijs**,
Pleincollege Sint-Joris, Eindhoven.

Dissertations

PhD thesis

- Title ***Principled Hierarchical Models for dealing with Correlated, Overdispersed and/or Underdispersed Data***
- Promotor Prof. dr. Geert Molenberghs Co-promotor Prof. dr. Geert Verbeke

Masterthesis

- Title ***Exploration of Extended Models for Overdispersed, Repeated Time-to-event Data***
- Promotor Prof. dr. Geert Molenberghs

Bachelorthesis

- Title ***Overdispersion and Correlation in Generalized Linear Models***
- Promotor Prof. dr. Geert Molenberghs

Academic contributions

Articles

- 1 **Luyts, M.**, Tibaldi, F., Van de Putte, B., Geys, H., Matthijs, K., Molenberghs, G., and Verbeke, G. (2024). Two clustered time-to-event models to study inheritance in historic survival data. Submitted to *Mathematical Population Studies*.
- 2 Sichien, J., Lesaffre, E., **Luyts, M.**, Swinkels, S., and Verbeke, G. (2024). Analysis of growth trial data: Which statistical model to choose? In preparation.
- 3 **Luyts, M.**, Molenberghs, G., Verbeke, G., and Matthijs, K. (2024). A flexible finite mixture model family for analyzing over- and underdispersed, and/or zero-inflated and -deflated discrete data, with possibly negative weights. Submitted to *Biometrical Journal*.
- 4 **Luyts, M.**, Molenberghs, G., Verbeke, G., and Matthijs, K. (2024). Fitting negative variance components in a mixed approach for counts: A flexible marginalized estimation approach, In preparation.
- 5 Delporte, M., **Luyts, M.**, Molenberghs, M., Verbeke, G., Demarest, S., and Hoorens, V. (2023). Do optimism and moralization predict vaccination? A 5-wave longitudinal study. *Health Psychology*, **42(8)**, 603–613.
- 6 Lemmens, S., **Luyts, M.**, Gerrits, N., Ivanova, A., Landtmeeters, C., Peeters, R., Simons, A.-S., Vercauteren, J., Sunaric-Mégevand, G., Van Keer, K., Molenberghs, G., De Boever, P., and Stalmans, I. (2022) Age-related changes in the fractal dimension of the retinal microvasculature, effects of cardiovascular risk factors and smoking behavior. *Acta Ophthalmol.*, **100(5)**, 1112–1119.
- 7 Delporte, M., De Coninck, D., D’Haenens, L., **Luyts, M.**, Verbeke, G., Molenberghs, M., and Matthijs, K. (2021). A longitudinal perspective on perceived vulnerability to disease during the COVID-19 pandemic in Belgium. *Health Promotion International*, **38(2)**, 1–10.
- 8 Verbeeck, J., **Luyts, M.**, Smolnik, R., Reimitz, P.-E., Tijssen, J., Goette, A., Vranckx, P., and Molenberghs, G. (2021) Repeated bleeding event analysis with a Weibull-Poisson-binomial model. Submitted to *Statistics in Medicine*.
- 9 **Luyts, M.**, Molenberghs, G., Verbeke, G., Matthijs, K., Ribeiro Jr., E. E., Demétrio, C. G. B., and Hinde, J. (2020). A Weibull-count approach for handling under- and overdispersed longitudinal/clustered data structures. *Statistical Modelling*, **19(5)**, 569–589.

Books

- 10 Verbeke, G., Molenberghs, M., Ivanova, A., **Luyts, M.**, Poveda, A. E. (2021). *Mixed Models*. Taylor & Francis Inc., 450 pages.

International meetings

- 11 Negative variance components in an underdispersed, clustered time-to-event setting. *Leuven Statistical Days*, 21/10/2016.
- 12 A Weibull-count approach for handling under- and/or overdispersed clustered data structures. *ENAR 2018 Spring Meeting*, 28/03/2018.

- 13 A flexible finite mixture model family for analyzing underdispersed discrete data, with negative weights. *2019 Joint Statistical Meetings*, 08/01/2019.
- 14 FLAMES (Flanders training network for methodology and statistics): A longitudinal analysis of our doctoral training initiative. *2022 International Conference on Teaching Statistics*, 12/09/2022.
- 15 Empowering tomorrow's data scientist: Innovative teaching strategies within FLAMES (Flanders training network for methodology and statistics) for doctoral students in Belgium. *2024 Open Data Science Conference (ODSC) East*, 13/05/2024.
- 16 Harnessing Large Language Models for Enhancing Education: Opportunities, Challenges, and Ethical Considerations. *The 31st International Conference on Computational Linguistics (COLING)*, 19/01/2025.

Newspaper interviews

- 17 Veto. (2025, March 10). 90% van de studenten gebruikt AI: Tijd voor nieuwe evaluatievormen? Veto. <https://www.veto.be/onderwijs/90-van-de-studenten-gebruikt-ai-tijd-voor-nieuwe-evaluatievormen/352943>

Experience

Professional & Teaching

- 2022 – ... **University of Gent**, Gent.
 Visiting assistant professor in Statistics & Data Science (10%)
Teacher of the following full course:
 ○ **[C003559] Statistiek 2: Project** (2nd year Bachelor in Mathematics).
- 2021 – ... **Catholic University of Leuven**, Leuven.
 Postdoctoral associate (50%) @ Leuven Statistics Research Centre
Teacher of the following full courses:
 ○ **[G0A17B] Fundamental concepts of Statistics** (1st year Master in Statistics and Data Science);
 ○ **[G0B66A&B] Statistical Consulting** (1st year Master in Statistics and Data Science).
 ○ **[G0Z39C&B] Modern Data Analytics** (1st year Master in Statistics and Data Science).
 ○ **[G00C8A] Text Mining** (2nd year Master in Statistics and Data Science).
 Promotor & jury member of mastertheses (see later)
ISP coördinator & responsible
- 2021 – ... **Catholic University of Leuven**, Leuven.
 FLAMES coördinator & trainer (50%)
Lead data science coördinator of FLAMES
Teacher of several short courses in data science (see later)

2015 – 2021 **Catholic University of Leuven**, Leuven.

Teaching Assistant in Biostatistics.

Teaching assistant in following full courses:

- **[E04Y6A] Initiation to Medical Scientific Research** (1st year Bachelor in Medicine);
- **[E08X1A] Initiation to Medical Scientific Thinking and Reasoning (incl. Biostatistics)** (1st year Bachelor in Dental Health);
- **[E06Y7A] Introduction to Biostatistics** (3rd year Bachelor in Medicine);
- **[K08B6A] Pharmaceutical Data Analysis** (3rd year Bachelor in Farmaceutical Sciences);
- **[G0A18A] Generalized Linear Models** (1st year Master in Statistics);
- **[K09M1A] Statistics for Drug Development** (1st year Master in Drug Development);
- **[E0G66A] Applied Statistics: Exercises** (1st year Master in Sexuology);
- **[E0C56A] Clinical Scientific Preparation for the Master Thesis** (2nd year Master in Medicine).

2015 – 2016 **Keyrus NV**, Brussels.

Data scientist & Business Intelligence Consultant

2013 – 2021 **Het Bijlesbureau (Studiehulp vzw)**, Leuven.

Tutor in Statistics & Mathematics

[Promotor mastertheses](#)

- 1 Rana Cansu Kebabci, 'Impact measurements of (extra) curricular interventions', Master in Statistics and Data Science, KULeuven, 2021–2022.
- 2 Josiah McMillan, 'An alternative Conway-Maxwell-Poisson model to handle dispersion settings', Master in Statistics and Data Science, KULeuven, 2021–2022.
- 3 Haijia Chen & Zhihao Zhao, 'Cost-benefit analysis of V2X implementation from the point of view of EV fleet owners', Master in Statistics and Data Science, KULeuven, 2022–2023. In collaboration with ORTEC.
- 4 Elias Makonnen & Ying Huang, 'The application of recommender systems in board game reviews: Which are best to use?', Master in Statistics and Data Science, KULeuven, 2022–2023.
- 5 Pieter-Jan Cnudde & Despoina Bourmpou, 'The importance of checking for zero in/deflation and under/overdispersion in count data', Master in Statistics and Data Science, KULeuven, 2022–2023.
- 7 Brent Hendrickx, 'Digital emotion contagion during the black lives matter movement' Master in Statistics and Data Science, KULeuven, 2022–2023.
- 8 Bowen Yang, 'Over- and underdispersed models for analyzing univariate count data in sociological and/or medical settings', Master in Statistics and Data Science, KULeuven, 2022–2023.
- 2 Penelope Giorgi & Shinichi Moribe, 'Integrating multi-source data for electric vehicle state-of-charge estimation', Master in Statistics and Data Science, KULeuven, 2023–2024. In collaboration with ORTEC.
- 9 Andreas Papaioannou, 'Text mining from social media platforms to apply analytical techniques and identify consumer behavior in the airline industry', Master in Statistics and Data Science, KULeuven, 2023–2024.

- 10 Zi Yu Toh & Zhenyu Xu, 'Optimizing Rheumatoid Arthritis Treatment Sequences Using Q-Learning', Master in Statistics and Data Science, KULeuven, 2024–2025. In collaboration with ABBVIE.
- 11 Mira Luna Leenders & Alhamd Faisal, 'Segmenting and understanding the Esports audience', Master in Statistics and Data Science, KULeuven, 2024–2025. In collaboration with Unlocked.
- 12 Wendy De Wit, 'European networks in R&D and innovation: What topics are covered by the societal challenges projects?', Master in Statistics and Data Science, KULeuven, 2024–2025. In collaboration with BELSPO.

Teacher short courses

- 1 'Basic Parametric statistics', Flames Summerschool, 2021–...
- 2 'Data visualization with R Shiny/Shiny for Python', FLAMES IU course, 2022–...
- 3 'Basic concepts of clustering techniques for data science', FLAMES IU course, 2022–...
- 4 'Data management in SQL', FLAMES IU course, 2023–...
- 5 'Text Mining in R/Python', FLAMES IU course, 2023–...
- 6 'State-of-the-art deep learning for AI: Transformers', FLAMES IU course, 2024–...
- 7 'Deep learning in practice: Programming a language model from scratch in Python', FLAMES IU course, 2023–....
- 8 'Machine learning', Flames Summerschool, 2024–...
- 9 'Data science practices with applications in marketing and retail', FLAMES IU course, 2024–...

Membership

- 2018 – 2020 **AAP/BAP representative**,
Catholic University of Leuven, Department of Public Health and Primary Care.
 Description: Member of the department board, as AAP/BAP representative.
- 2016 – 2021 **AAP representative**,
Catholic University of Leuven, L-Biostat.
 Description: Member of the L-Biostat board, as AAP representative.
- 2015 – ... **Board member of POC Master of Statistics & Data science**,
Catholic University of Leuven, L-Stat.
 Description: Member of the POC Master of Statistics & Data science, as ombuds.
- 2011 – 2012 **Board member of the student association Filii Lamberti**,
University of Hasselt, Campus Diepenbeek.
 Description: Responsible in the organization of sport activities and member to the management of the association.
- 2009 – 2011 **Student representative of bachelor Mathematics**,
University of Hasselt, Campus Diepenbeek.
 Description: As student representative, my task exists in listening to the opinions of the students and transfer this (in a professional manner) to the professors and faculty.

Other activities

2016 – ... **Catholic University of Leuven**, Leuven.
Ombudsperson of the Master of Statistics & Data Science.

Certifications

Keyrus **Data Science Bootcamp**

Trainings

Big data	Cloudera Hadoop Training	Visualizing	Tableau, D3, Shiny tool in R
BI	Data Warehousing	Other	Consultancy skills training
Analytics	Text-mining, Alteryx		

Language skills

Dutch	Mother Tongue	French	Basic
English	Advanced		

Computer skills

Statistics	SAS/(Base, Macro, IML, VA), R, SPSS	Programming	C++, Python, HTML, CSS
Mathematics	Maple, (Matlab)	Other	Dreamweaver, iWork
Text processor	L^AT_EX, MS Word, Pages		