

Lorenz Roebbers, MSc

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Current Employer: Tilburg University

Nationality: Dutch



Employment History

- 2019 – present **PhD Candidate**, Tilburg University
Lectured courses: *Decision Making with Business Analytics, Optimization, Linear Algebra, Advanced Linear Algebra*
Research topic: *Non-SOS certificates of non-negativity for Polynomial Optimization.*
Supervisors: *Dr. J.C. Vera Lizcano, Prof. Dr. M. Laurent*
- 2018 – 2019 **Research-Teaching Assistant**, Tilburg University.
Lectured courses: *Operations Research Methods, Optimization*
Research topic: *Globally solving non-convex QP via Cutting Planes.*
- 2017 – 2018 **Research-Teaching Assistant**, Tilburg University.
Lectured courses: *Operations Research Methods*
Research topic: *Bounds on Kissing Number*
- 2017 – 2017 **Student Worker**, FrieslandCampina.
Department: *Cooperative Affaires*
Description: Data management; Optimization of truck collection routes; Research on influence of capacity adjustments of factories on primary transport costs.



Education

- 2007 – 2013 **Atheneum, Schaersvoorde.**
Course Profile: *Nature & Technology*
Average grade: 8
- 2013 – 2017 **B.Sc., Tilburg University**
Program: *Econometrics & Operations Research*
Thesis title: *Minimization of Riesz-potential energy of point charges on the 2-sphere*
Supervisor: *Dr. J.C. Vera Lizcano*
Thesis grade: 9
- 2017 – 2018 **M.Sc. Cum Laude, Tilburg University**
Program: *Business Analytics & Operations Research*
Thesis title: *Bounds on the Generalized Kissing Number*
Supervisor: *Dr. J.C. Vera Lizcano*
Thesis grade: 9,5
- 2018 – 2019 **Research Master in Business. Cum Laude, Tilburg University**
Track: *Operations Research*
Thesis title: *Solving Quadratic Problems using Cutting Planes*
Supervisor: *Dr. J.C. Vera Lizcano*
Thesis grade: 8,5






Research Publications

- 1 Roebbers, L. M., Vera, J. C., & Zuluaga, L. F. (2021). Sparse non-sos putinar-type positivstellens\ " atze. *arXiv preprint arXiv:2110.10079*.
- 2 Roebbers, L. M., Selvi, A., & Vera, J. C. (2019). Using column generation to solve extensions to the markowitz model. *The Engineering Economist*, 64(3), 275–288.



Skills

- Languages  Native: Dutch
Fluent: English
Basic: German, French.
- Coding  MATLAB, JULIA, Python, R, Java, PHP, SQL, HTML, CSS, CPLEX, BARON

Miscellaneous

- 2019  **Finalist O.R. & Analytics Student Team Competition** Redefining Vehicle Delivery with Autonomous Cars.
- 2021  **OR-seminar Tilburg University:** Non-SOS Putinar-like certificates of non-negativity: full and sparse.
-  **OR-seminar Erasmus University:** Non-SOS Putinar-like certificates of non-negativity: semi- and fully- sparse
-  **SIAM OP21:** Non-SOS Putinar-like certificates of non-negativity: And How to Exploit their Sparsity.
-  **IFORS 2021:** Sparse non-SOS Putinar-like Positivstellensätze.

Current Projects

-  **Convergence analysis of non-SOS hierarchies for polynomial optimization.**
Co-author: J.C. Vera Lizcano.
-  **Relaxations for polynomial optimization.**
Co-authors: X. Shi, J. C. Vera Lizcano, and L. F. Zuluaga