

Jean RUPPERT

CURRICULUM VITAE

Nationality: Luxembourgish
Marital status: Married, 2 children
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Peer-Reviewed Scientific Publications and Academic Research

2022 : Development of *generalized topological sorting* methods that select subsets with maximum choice and diversity. Publication at the the AISTATS 2022 conference.

- [k-Pareto Optimality-Based Sorting with Maximization of Choice.](#)
- Jean Ruppert, Marharyta Aleksandrova, Thomas Engel Proceedings of The 25th International Conference on Artificial Intelligence and Statistics, PMLR 151:1138-1160, 2022.

2021 and 2022: Development of a *genetic algorithm*.

Publication at the **GECCO 2021** conference,

- [k-Pareto Optimality for Many-Objective Genetic Optimization,](#)
- Jean Ruppert, Marharyta Aleksandrova, Thomas Engel, GECCO 21: Proceedings of the Genetic and Evolutionary Computation Conference Companion, 63–64, <https://doi.org/10.1145/3449726.3462732>.

Publication in the ‘*Algorithms*’ journal,

- [k-Pareto Optimality-Based Sorting with Maximization of Choice and Its Application to Genetic Optimization,](#)
- Ruppert J, Aleksandrova M, Engel T. k-Pareto Optimality-Based Algorithms. 2022; 15(11):420. <https://doi.org/10.3390/a15110420>.

Work Experience

From August 2020 onwards: *Research and development of solutions to optimization problems for Mathematics and Computing S.à-r.l..*

- Development of sorting methods that respect a preference relation and maximize at the same

time choice and diversity. Publication at the [AISTATS 2022](#) conference. Applications to search engines socioeconomic indicators, scheduling problems,

- Development, implementation and validation of new algorithms for multi-objective optimization. Presentation and publication of some of the results at the [GECCO2021](#) conference in LILLE France.

November 2017 – July 2020 (half-time contract): *Statistician at the Statec (National Institute of statistics and economic studies, Luxembourg), production of national accounts.*

- Migrating the balancing application towards a new product application. Conversion of the historic data of this application.
- Migration towards a new product nomenclature of the SAS program computing the fixed capital stock. Optimization, simplification and documentation of the application. Identification of methodological issues, presentation of the issues and of their possible solutions. Implementation of a solution.

Since May 2016: Creation of Mathematics and Computing S.à.r.l. Manager and consultant. *The activities of the company are detailed on its internet site (www.mathcomp.lu).*

- Consulting in statistics and in algorithmics.
- Programming of search engines.

February 2014 – May 2015 (half-time contract): *Statistician at the Statec (National Institute of statistics and economic studies, Luxembourg), production of national accounts.*

- Porting SPSS programs to SAS, refactoring and documentation.
- Computation of price indices, processing of time series.

April 2013 – August 2014: *Statistician at the Statec (National Institute of statistics and economic studies, Luxembourg), production of national accounts.*

- Production of quarterly sector accounts for enterprises of the financial services industry using data reported to the CSSF (supervisory authority of the financial services industry).
- Design of the necessary data-transformation, data-validation and data-correction steps.
- Implementation (and documentation) of the corresponding application using SAS as well as Excel and Vba macros.

March 2010 - April 2012: *IT team leader at New Media Lux S.A.*

- Applicative and operational maintenance of web sites, documentation, development of modules of web sites.
- Reorganization and redevelopment in JAVA for Eurostat of the MOD application (detection of outliers of the foreign trade of the European Union) in partnership with Computer Resources International Luxembourg:
 - **Simplification and improvement of the internal architecture of the application, thus cutting down the execution time from three days to two minutes!**
- Development of a search algorithm for doing fuzzy faceted search on classifieds. Development of the underlying methodology based on probability theory, maximizing the choice offered to the user.
- IT coordination web projects, dashboards, infrastructure, ...).
- IT coordination and governance with the management committee.

November 2006-February 2010:*Statistician, Computer Resources International Luxembourg S.A*

- Statistic studies for Eurostat
- Development and documentation of SAS macros for analyzing the data of the household panel study SILC (Statistics on Income and Living Conditions) for Eurostat, and writing of studies and reports. Using R for doing principal component analysis, ...
- Maintenance of the MOD application (detection of outliers of the European foreign trade) for Eurostat
- Writing technical parts of responses to calls for tender.

April 2004-April 2006: *Commissariat aux Assurances. (Supervisory authority of the insurance companies)*

- Maintenance of the reporting application of reinsurance companies (Access, Excel).
- Monitoring of the quarterly reporting (assets covering the technical, provisions).
- Annual reporting (analysis of annual accounts, actuarial reports, statistics and writing of official letters to reinsurance companies), on the spot audit of reinsurance companies,
- Creation of an on-line register of insurance intermediaries (design of the register, extraction of the data, transformation to Xml and transfer of the data to the website)

January 2003-September 2003: *Teacher of Mathematics* at the *Lycée Michel Rodange*.

- Lessons in mathematics, learning support.

October 1999 - September 2001: *Mathematician* at the IGSS (*Inspection Générale de la Sécurité Sociale*),

- Processing of the files of the social security and statistical analysis of the data.
- Forecasting of social and economic data (for example; numbers of contributors, future insured persons by gender, residence professional status) for planning budgets.
- Use of SAS (PROC IML, PROC FORECAST, PROC TABULATE, PROC SQL, etc.), VBA, PHP, Microsoft Access, ...
- Use of exponential smoothing methods.
- Reception of a study of the International Labor Office on the general public pension system in Luxembourg.
- Construction of a multi-dimensional data reporting system; programming of a web interface for the application in PHP. Planning and design of a Data Warehouse.

Computer Skills:**Operating systems:**

- Linux (administration, installation, configuration),
- Windows 2000 (basic skills in administration).

Networks:

- Basic knowledge of TCP/IP networks
- Protocols: Http, Smt, ...

Statistical software:

- SAS : Usage of SAS modules (PROC ...) for data processing and data analysis.
- R (open source implementation of S+).

Databases:

- RDBMS: MySQL, Oracle, Structured Query language (SQL) ,
- Construction of entity-relationship models.
- Access, Excel, basic knowledge of Business Objects

Web programming:

- HTML,
- PHP version 5.

Object oriented programming:

- Mastering Eiffel (design by contract),
- Java,
- Unified Modeling language (UML).

Languages

- Luxembourgish (mother tongue),
- French,
- German (very good),
- English (good).

Education and Training

2001-2002: *Catholic University of Louvain*, Louvain-la-Neuve Belgium (Université catholique de Louvain).

Master (“Diplôme d'études approfondies”) *in mathematics*.

Final Thesis on “The distribution of eigenvalues of unitary random matrices”

1994-1999: *Catholic university of Louvain*

Undergraduate and graduate studies in *mathematics*, receiving the mention “*distinction*” (honors) for the last two graduate years

My **Final thesis on: "Knot invariants and the braid group"**, obtained the price "**Robert F.BALLIEU**" for outstanding quality of the mathematics department of the university.

Lectures on calculus, algebra, geometry, physics, probability theory, measure theory, statistics, numeric calculus, ...

1993-1994: *Catholic University of Louvain.*

First year of undergraduate studies in *political, economic and social sciences*, obtaining the mention honors (“distinction”).

1986-1993: *Lycée de garçons de Luxembourg*, Classic secondary school, section mathematics (B).