



Christoph Waldhauser

Curriculum vitæ

Education

- 2013–2016 **PhD Quantitative Methods**, *Department of Methods*, University of Vienna.
Topic: Text mining, sentiment analysis and topic models in social media (*suspended*)
- 2009 **Master of Arts**, *University of Vienna*, Vienna, *With distinction*.
- 2000–2009 **Studies in Statistics, Political Science, Data Engineering, and African Studies**, *University of Vienna & Vienna University of Technology*, Vienna.

Experience

- 2018–present **Senior Data Scientist**, Raiffeisen Bank International, Vienna.
Driving data science projects from idea to production deployment
- Pipeline of deep learning models for information classification and extraction in free text and forms
 - ATM replenishment solution based on XGBoost and genetic algorithms
 - Implementation of cloud-based end-to-end predictive systems
 - Agile Tribe strategy development and empowerment
 - Communicating data science to the management board
 - Data science training program development and execution
- 2017–2018 **Principal Data Scientist**, Think Big Analytics, A Teradata Company, Vienna.
Developing, selling, and executing big data projects in telecommunications and finance
- Social network analysis of call data records
 - Spectral analysis of smart city time series sensor data
 - Predictive modeling of diverse data
 - Development of enterprise-grade R solutions
 - Development and implementation of GDPR compliance programs
 - Implementation of deep learning-based AI applications
 - Data science agile team lead
- 2016–2017 **Data Scientist**, e-dialog GmbH, Vienna.
Bootstrapping cloud-based data science solutions focusing on web analytics, consumer intelligence and workflow automation; development recommendation engines and data visualization solutions.
- 2013–2017 **Founder & CEO**, KDSS K Data Science Solutions, Vienna.
Providing business intelligence and data analytical services to clients; focus on spatial statistics, visualization, and interactive data apps.

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- 2016 **Chief Data Scientist**, Clozer Ltd., London, UK and Vienna, Austria.
 Developing industry classifications and matching, growth hacking
- Fuzzy industry classifications
 - algorithms for tree traversal and proximity matching
 - textmining Common Crawl corpus, 145 TB
 - DB design and administration
 - data validation
 - geospatial data
 - Product development
- 2014–2016 **Data Scientist**, *Dialog Data*, HEROLD Business Data GmbH, Mödling.
 Development of state of the art methods in CRM, customer segmentation and profiling
- CRM
 - development of classification methodologies
 - PCA based clustering of businesses
 - survival models for customer lifetime value
 - interactive visualizations
 - automated report generation
 - Big Data
 - integration of heterogeneous data sources
 - profiling based on Google Analytics/BigQuery
 - process automation
 - Spatial statistics & location based services
 - propensity modelling based on kNN and krigging
 - GIS applications
- 2012–2014 **Researcher**, *Institute for Statistics and Mathematics*, WU Vienna University of Economics and Business.
 Classification of large data sets from aerial surveying
- Development of methods for automated classification:
 - unsupervised learning: k-means and fuzzy cluster
 - supervised learning: CART decision trees
 - Smoothing: kNN and k-d-trees
 - Prototyping:
 - Package development in R for Linux/Windows
 - Data management (> 10 TB)
 - Presentations at conferences and publications
- 2012–2014 **President**, *Verein StudentInnenkinder daycare center*, Vienna.
 Managing a daycare center with 70 children and 12 employees
- 2010–2012 **eDeveloper**, *Institute for Statistics and Mathematics*, WU Vienna University of Economics and Business.
 Development of interactive learning and teaching aids for Web, Android and iOS
- 2008–2012 **Researcher**, *SORA Institute for Social Research & Consulting*, Vienna.
 All levels of research and consulting: conception, surveying, analysis, interpretation, reporting

Teaching experience

- 2016–present **Lecturer for Data Warehousing & Data Mining**, *FH Burgenland*, Eisenstadt.
 Seminar covering the foundations of Data Science, Data Warehousing, and Data Mining
- 2017–present **Lecturer for Statistics**, *FH WKWien*, Vienna.
 Seminar introducing statistical concepts to business majors

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2010–2016 **Lecturer for Statistics**, *Institute for Statistics and Mathematics*, WU Vienna University of Economics and Business.

Conducting, grading and enhancing WU's introductory course in statistics

○ Contents:

- Inferential statistics
- Linear models
- Robust analyses
- Time series analysis, econometrics
- Stochastic processes

○ Mode: Lecture, ca. 180 students/term

○ Administration:

- Led team in designing interactive web-based learning environments (Shiny web apps)
- Exam development using R/exams

2015 **R Workshops**, *Webster Vienna Private University*, Vienna.

Introductory and advanced R workshops for students and faculty

○ Contents:

- R/RStudio workflow
- Inferential statistics
- Visualization
- Programmatic access to data via APIs

○ Mode: interactive software course (in English)

2014 **R Course**, *GIGA German Institute of Global and Area Studies*, Hamburg.

Introduction to R for Social Sciences and Economics

○ Contents:

- R/RStudio workflow
- Inferential statistics
- Cross Sectional Time Series, Panel data
- Visualization
- Visualization of geo-referenced data

○ Mode: interactive software course at postgraduate level (in English)

2014 **R Courses**, *ECPR Winter School in Methods and Techniques*, Vienna.

Introduction to R for Social Sciences and Economics

○ Contents:

- R/RStudio workflow
- Inferential statistics
- Linear models
- Decision trees
- Principal component analysis
- Factor analysis
- Missing value treatment
- Survey weights
- Visualization
- Report generation using Markdown

○ Mode: 2 interactive software courses at postgraduate level (in English)

2012 **Statistical software**, *SOQUA+ Statistikwochen*, Vienna.

Managerial implications of statistical package choices

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2011 **Event history and multi-level analyses**, *SOQUA Program*, Vienna.

Seminar on advanced methods

- Contents:
 - Data consideration
 - Non-parametric methods
 - Cox' PH-model
 - Mixed-effects models
 - Interpretation
 - Visualization
- Mode: Small-group course with focus on theory at postgraduate level

2010 **Quantitative Methods**, *SOQUA Program*, Vienna.

Introduction to statistics for social sciences with R

- Contents:
 - Working with R
 - Inferential statistics
 - Linear models
 - Decision trees
 - Principal component analysis
 - Factor analysis
 - Missing value treatment
 - Survey weights
- Mode: interactive software course at postgraduate level

Selected Publications

Waldhauser, C., Hochreiter, R., Otepka, J., Pfeifer, N., Ghuffar, S., Korzeniowska, K., and Wagner G. 2014. Automated Classification of Airborne Laser Scanning Point Clouds. In: S. Koziel, L. Leifsson, and X. Yang, Eds., *Solving Computationally Extensive Engineering Problems: Methods and Applications*. Springer: Berlin Heidelberg, *in press*.

Hochreiter, R. und Waldhauser, C. 2014. Effects of Sampling Methods on Prediction Quality. The Case of Classifying Land Cover Using Decision Trees. *Proceedings of COMPSTAT 2014*, 585–592.

Hochreiter, R. and Waldhauser, C. 2014. Data Mining Cultural Aspects of Social Media Marketing. In: P. Perner, Ed., *Advances in Data Mining, Lecture Notes in Computer Science*. Springer: Berlin Heidelberg, 130–143.

Hochreiter, R. and Waldhauser, C. 2013. A Stochastic Simulation of the Decision to Retweet. In: P. Perny, M. Pirlot and A. Tsoukiàs, Eds., *Algorithmic Decision Theory. Lecture Notes in Computer Science*. Springer: Berlin Heidelberg, 221–229.

Otepka, J., Ghuffar, S., Waldhauser, C., Hochreiter, R., and Pfeifer, N. 2013. Georeferenced Point Clouds: A Survey of Features and Point Cloud Management. *ISPRS International Journal of Geo-Information* 2, 4, 1038–1065.

Hochreiter, R. and Waldhauser, C. 2013. Solving Dynamic Optimisation Problems with Revolutionary Algorithms. *International Journal of Innovative Computing and Applications* 5, 3, 143–151.

Tatzl, G. and Waldhauser, C. 2010. Aggregating Opinions: Explorations into Graphs and Media Content Analysis. *Proceedings of textGraphs-5, Association for Computational Linguistics*, 93–97.

Methods

Statistics

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- Inferential statistics
- Principal component analysis
- Geostatistics
- Regression (OLS, logistic, Poisson)
- Event history & survival analysis
- Panel methods
- Complex samples
- Cluster & factor analysis
- Multidimensional scaling
- Mixed-effects models
- Network analysis
- Questionnaire development

Data mining & Optimization

- Text mining
- Genetic algorithms
- Web scraping
- Machine learning

Software

Programming

- R Interactive analyses, scripting, package development, web apps with Shiny, parallelization, Spark
- Python Interactive analyses, scripting, module development, Spark
- Teradata Big data management, aggregation, machine learning, Aster
- Scala Process automation, data manipulation, machine learning, Spark
- Hadoop Data mangement, data warehousing, MapReduce
- Spark Machine learning, stream processing, graph processing
- SPSS Interactive analyses, scripting
- SAS Basic analyses, data mining
- VBA Process automation, user interfaces
- Bash Scripting
- SQL Database and query design
- Git Application, collaboration, administration
- HTML Websites in HTML4 and HTML5 using CSS and JS; Bootstrap
- Javascript Full stack web apps using Angular.js, Node.js, and MongoDB

Applications

- Office Proficient in text processing, spreadsheets, presentations
- LaTeX Creating of complex documents; class authoring
- Emacs ESS, AucTeX, NoWeb for embedding R code in LaTeX and Markdown
- Linux Using Gnome desktop and CLI
- GIS Preparing cartographic material and visualizing data
- BI Designing and implementing reports in Data Studio, PowerBI, QlikView, and Tableau

Administration

- Linux Administration of Ubuntu, Gentoo instances; Virtualization, Docker
- Web server Administration of Apache, LightHTTP, Nginx

Languages

- | | | | |
|---------|----------|---------|-------|
| German | Native | Hausaa | Basic |
| English | Native | Polish | Basic |
| French | Advanced | Spanish | Basic |

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Memberships & Reviewing

- ACM Association for Computing Machinery
- EPSA European Political Science Association
- ÖSG Austrian Statistical Society
- IASE-ISLP International Association for Statistical Education, *ISLP Country coordinator*
- TISE Technology Innovation in Statistics Education, *Reviewer*

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