

# Joel Beck

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## EXPERIENCE

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### Data Scientist

*HUK-Coburg*

Dec. 2023 – Present

*Coburg, Germany*

### Data Science Intern

*eoda GmbH*

Nov. 2022 – Jan. 2023

*Kassel, Germany*

- Implemented a Gradient Boosting classifier, enhancing yield potential prediction accuracy by 30%.
- Developed an ML model forecasting electricity consumption of industrial machines.
- Boosted test coverage of two Python projects by up to 300%.
- Updated Docker images and CI/CD pipelines.

### Teaching Assistant

*University of Göttingen, Econometrics*

Oct. 2021 – Sep. 2022

*Göttingen, Germany*

- Led weekly tutorials for the master's course *Econometrics I*.
- Responsible for student queries and exam grading; tripled tutorial attendance.

### Research Assistant

*University of Göttingen, Chair of Statistics*

April 2021 – April 2022

*Göttingen, Germany*

- Contributed to the [Liesel](#) project, an R & Python Bayesian regression framework.
- Enhanced MCMC sampling with diagnostics plots and convergence checks.
- Authored two detailed tutorials for the [Liesel documentation](#).

### Content Creation Intern

*Studybees GmbH*

March 2020 – June 2020

*Mannheim, Germany*

- Crafted two video courses for [Studybees](#), focusing on advanced statistics and econometrics.
- Produced 50+ instructional videos, totaling 10+ hours.

### Teaching Assistant

*University of Mannheim, Stochastics*

Sep. 2018 – March 2020

*Mannheim, Germany*

- Conducted weekly tutorials for the bachelor's course *Stochastics I* at the Faculty of Mathematics.
- Assessed weekly assignments and exams, covering probability and measure theory.

### Social Service Volunteer

*TBS Saarbrücken*

Aug. 2015 – Aug. 2016

*Saarbrücken, Germany*

- Coached children (1-16 years) in six sports; acquired track and field athletics license.
- Organized a summer festival for 200+ attendees.

## EDUCATION

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### Georg-August-University of Göttingen

*Master of Science: Applied Statistics*

Göttingen, Germany

Sep. 2020 – Sep. 2023

- Overall Grade: 1.0 (Top 1%)
- Focus: Machine Learning, Deep Learning (NLP)
- Thesis: [Bridging Citation Analysis and Language Models: A Hybrid Recommender System for Computer Science Papers](#)

### University of Oslo

*ERASMUS Study Abroad*

Oslo, Norway

Aug. 2018 – Dec. 2018

- Courses in Risk Analysis & Actuarial Science

## University of Mannheim

Bachelor of Science: Mathematics in Business and Economics

Mannheim, Germany

Sep. 2016 – March 2020

- Overall Grade: 1.2 (Top 5%)
- Focus: Statistics, Probability Theory, Econometrics

## Ludwigsgymnasium Saarbrücken

Abitur

Saarbrücken, Germany

Sep. 2007 – July 2015

- Overall Grade: 1.0 (Top 1%)

## SCHOLARSHIP

### Stiftung der deutschen Wirtschaft

Oct. 2016 – Sep. 2023

- Awarded for academic excellence and social engagement

## TECHNICAL SKILLS

**Languages:** Python (3 Years), R (2 Years), Go (6 Months), Typescript (6 Months), SQL (SQLite), Bash

**Developer Tools:** Git, GitHub, GitHub Actions, GitLab, GitLab CI, Docker, Jira, Confluence, VS Code

**Writing:** LaTeX, Markdown, RMarkdown, Quarto, Jupyter Notebooks, MkDocs

## PROJECTS

**readnext** | *Python, transformers, sklearn, gensim, spacy, polars, requests, pydantic, pytest, MkDocs* 2023

- Developed a hybrid recommender system for computer science papers, resulting in 67% higher Mean Average Precision (MAP) than the baseline.
- Constructed a dataset from Semantic Scholar API and preprocessed it using spaCy and polars.
- Applied multiple language models including SciBERT, FastText, and TF-IDF for recommendations.
- Ensured code stability with 88% test coverage, user input validation and continuous integration.
- Provided comprehensive [documentation](#), deployed to GitHub Pages.

**drafts** | *Typescript, Javascript, Bun* 2023

- Developed action scripts for the [Drafts](#) app, automating text editing tasks.
- Solved [the challenge](#) to develop actions in Typescript using external editors, enhancing productivity.
- Implemented bundling process with Bun to bundle Typescript files into Javascript and ensure compatibility with Drafts.

**postforecasts** | *R, tidyverse, testthat, RMarkdown* 2022

- Crafted an R package for post-processing of Covid-19 forecasts.
- Implemented customized post-processing methods (Conformalized Quantile Regression and Quantile Spread Averaging).
- Utilized tidyverse packages for data wrangling and visualization, and testthat for unit testing.

**airbnb-oslo** | *Python, pytorch, sklearn, pandas, seaborn, beautifulsoup, LaTeX* 2022

- Predicted Airbnb prices in Oslo using an ensemble regression model, outperforming Ridge, Random Forest, XGBoost and Fully Connected Neural Networks.
- Enhanced data by scraping apartment images using BeautifulSoup.
- Developed a CNN with PyTorch for image-based price categorization.
- Analyzed latent space distribution from a Variational Autoencoder (VAE).

**asp21bridge** | *R, tidyverse, testthat, S3, roxygen2, RMarkdown* 2021

- Created an R package featuring a Bayesian MCMC sampler with Ridge penalization.
- Offered numerical and visual diagnostic tools for MCMC sampling.
- Facilitated comparison between frequentist and Bayesian estimates with/without Ridge penalization.
- Introduced a S3 class for sampling outputs, incorporated unit testing with testthat, documented with roxygen2.