Joel Beck

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EXPERIENCE

Data Scientist   Dec. 2023 – Present
HUK-Coburg   *Coburg, Germany*

Data Science Intern   Nov. 2022 – Jan. 2023
eoda GmbH   *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   Oct. 2021 – Sep. 2022
University of Göttingen, Econometrics   *Göttingen, Germany*

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

Research Assistant   April 2021 – April 2022
University of Göttingen, Chair of Statistics   *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   March 2020 – June 2020
Studybees GmbH   *Mannheim, Germany*

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

Teaching Assistant   Sep. 2018 – March 2020
University of Mannheim, Stochastics   *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   Aug. 2015 – Aug. 2016
TBS Saarbrücken   *Saarbrücken, Germany*

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

EDUCATION

Georg-August-University of Göttingen   Göttingen, Germany
Master of Science: Applied Statistics   *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   Oslo, Norway
ERASMUS Study Abroad   *Aug. 2018 – Dec. 2018*

- Courses in Risk Analysis & Actuarial Science

University of Mannheim — Mannheim, Germany

Bachelor of Science: Mathematics in Business and Economics — *Sep. 2016 – March 2020*

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

Ludwigsgymnasium Saarbrücken — Saarbrücken, Germany

Abitur — *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.
- Contributed custom methods (Conformalized Quantile Regression and Quantile Spread Averaging) for enhanced post-processing.
- 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 Network.
- Enhanced data by scraping apartment images using BeautifulSoup.
- Developed a CNN with PyTorch for image-based price categorization.
- Analyzed latent space distribution using Variational Autoencoder (VAE).

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

- Created an R package featuring a Bayesian MCMC sampler with Ridge penalization.
- Offered extensive diagnostic visuals and summaries using ggplot2.
- Facilitated comparison between frequentist MLE and Bayesian estimates with/without Ridge penalization.
- Introduced a custom S3 class for sampling outputs, incorporated unit testing with testthat, documented with roxygen2.