

# Adam Czepielik

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## Summary

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Data Scientist with 7 years of experience specializing in custom modeling infrastructure and statistical analysis. Background in mathematical optimization and causal inference, with a track record of building production-grade solutions for complex product and regulatory environments. Experience spans the full data science lifecycle from first-principles derivation to automated deployment.

## Professional Experience

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### Data Scientist | Verisk Analytics | November 2020 – Present

*International team, English working language, cross-continent collaborations*

- **Causal Inference & Fairness (FairCheck):** Led the implementation of an insurance pricing fairness product. Developed methodology and algorithms for bias detection to ensure compliance with Colorado SB 21-169; collaborated with a major US insurer to translate regulatory requirements into statistical models. | *scipy, statsmodels, h2o, polars, DVC*
- **Custom Modeling Infrastructure (JAX):** Built a GPU-accelerated modeling library using JAX for domain-specific problems with limited precedent. Derived mathematical optimizations that reduced model training time by 80% while lowering AWS infrastructure costs; managed the end-to-end lifecycle including CI/CD and unit testing. | *JAX, Equinox, pyarrow, GitLab CI/CD, poetry*
- **NLP Classification (Court Side):** Developed a court document filtering system using BERT-family models (PyTorch). Improved balanced accuracy score by 12% over the baseline, resulting in more efficient expert review workflows.
- **Pipeline Optimization (ISO Risk Analyzer):** Refactored the data preprocessing pipeline for a core company product, using DuckDB and PySpark to achieve a 30% speed improvement.
- **Technical Contributions:** Maintainer of in-house Python tools; developer of internal matplotlib branding theme; mentor in internal training program; POC development for local AI assistants (llama.cpp).

### Data Analyst | AVSystem | March 2019 – October 2020

*Good Lood Team (Ice cream retail network automation) | Agile/Scrum environment*

- **Operational Optimization:** Provided analytical support for a delivery zone delimitation project. Used software simulations (OR-Tools) and real-world testing to optimize logistics zones for production deployment. | *Google OR-Tools, OSRM, Docker, Grafana*
- **Demand Forecasting:** Implemented time series forecasting using Bayesian methods to support inventory management.
- **Data Integration:** Built a custom R package for automated ETL, integrating data from sales, warehouse, and loyalty systems into a BigQuery environment for reporting.

# Technical Skills

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- **Programming:** Python (main), R, SQL
- **Math & Stats:** Causal Inference, Mathematical Optimization, Bayesian Methods, Experimental Design, Quantile Regression
- **Libraries:** JAX, PyTorch, h2o, polars, PySpark, DuckDB, mainline python DS stack (numpy, pandas, scikit-learn etc.)
- **MLOps & Tools:** AWS (EC2, S3, EMR, Glue), Docker, DVC, GitLab CI/CD, Poetry, Git, Jira
- **Methodologies:** Agile/Scrum, Lean Six Sigma (Green Belt candidate)

# Education

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**MSc in Mathematics** | Jagiellonian University, Kraków | 2014 – 2020

*Erasmus Exchange: KU Leuven, Belgium (Fall 2018)*

# Selected Projects

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**Tram Delays Analysis:** End-to-end transport analysis using API automation, quantile regression, and interactive visualizations. Findings were featured in local media and appreciated by transport specialists.

[aczepielik.github.io/en/post/kraktram.en/](https://aczepielik.github.io/en/post/kraktram.en/)

**NGO Donor Analytics:** Modeled donor behavior patterns using Hidden Markov Chains; deployed as a dashboard using Docker and Google Cloud.

**Epidemiological Modeling:** Applied SIR differential equations to the 1665 Great Plague of London. Critiqued existing academic transmission hypotheses by evaluating model consistency with historical mortality records.

[aczepielik.github.io/en/post/upon-a-journal-of-the-plague-year/](https://aczepielik.github.io/en/post/upon-a-journal-of-the-plague-year/)

**Historical Translation:** Translated fragments of Diophantus' *Arithmetics* from ancient Greek to Polish, focusing on the mathematical structure of the original text. [aczepielik.github.io/files/Arithmetica.pdf](https://aczepielik.github.io/files/Arithmetica.pdf)