



# Gabriel Bénédict

## Research Interests

A mix of theoretical and applied AI research. The main themes are metrics-as-losses for neural networks, normative diversity metrics for news recommendation, intent-satisfaction modelling, video-to-music AI and now diffusion. [Google Scholar

## Education

**Contact**  
Av. de Senalèche 2A  
1009 Pully  
Switzerland  
  
gabriben.github.io  
gbndict@gmail.com

**Technical Expertise**  
 Python, R, JAX, Tensorflow, Pytorch, Keras, Airflow, AX, L<sup>A</sup>T<sub>E</sub>X, Lisp, Java, SAS, Stata, VBA, C++, SQL, Stan, MATLAB  
 Dataiku, Salesforce, Nielsen, JMP, Office

**Awards**  
Best Paper Runner up @Recsys22, MVP 22 @IRLab

**Nationalities**  
Swiss, French, Brazilian  
  
**Sports**  
Ski-touring, bouldering, tennis, rugby

**Literature**  
Absurdism, philosophy

**Languages**  
**Native** in French  
  
**Fluent** in English, German, Portuguese & Swiss German

**Good knowledge** of Hebrew, Dutch

**Extracurricular**  
Robust Statistics lecturer at Yeshiva University  
Statistical Consultant for *Lionbase*  
Co-president of *Club de Lecture* HSG  
Co-founder at *Mia*

Oct. 20 - Present	<b>University of Amsterdam</b> AMSTERDAM, NL <i>PhD candidate in AI for personalization</i> <b>(i)</b> Metrics-as-losses for deep learning and in particular for multilabel classification . <b>(ii)</b> Normative Diversity in News Recommendations via custom distribution-aware (Jensen Shanon) rank-aware metrics  – best-paper runner-up. <b>(iii)</b> ProsAIC – Music similarity, music labelling, video-to-music. Intent-satisfaction modelling with behavioral data on video streaming platforms . <b>(iv)</b> Intent-satisfaction modelling – under review. <b>(v)</b> Diffusion for multilabel classification – experimenting.
2018 – 2019	<b>KU Leuven &amp; Columbia University</b> LEUVEN, BE NEW YORK, US <i>Master in Statistics (1st &amp; 2nd year respectively)</i> <b>Thesis</b> Compilation of an R-package for the digitization and reconstruction of data underlying Kaplan Meier Survival Curves. Includes a showcase meta-analysis and a formulation for infinite mixture Weibull models with Dirichlet Process priors.
2012 – 2016	<b>Universität St Gallen [HSG]</b> ST GALLEN, CH <i>Bachelor in Economics</i> <b>Thesis</b> Counterfactual regression analysis to measure the efficiency of debt relief (WB and IMF) on over-indebted countries.

## Experience

Oct. 20 - Present	<b>RTL NL</b> AMSTERDAM, NL <i>Artificial Intelligence Researcher</i> <b>(i)</b> Co-founder @ProsAIC: a webapp for AI music recommendations for videos (Music similarity, music labelling, video-to-music tasks). We raised €415k over the first year internally and hired 6 employees. Potential second round of €800k in 2023. Learned Kubernetes and React for POC. Familiarised myself with Cloud Run to run parallel neural network inference at high scale on millions of songs and thousands of videos. <b>(ii)</b> Multilabel classification for personalized trailers / posters on Videoland (SVOD). <b>(iii)</b> Diversity in News Recommendations metrics. Upcoming evaluations on RTL-Nieuws. <b>(iv)</b> Intent-satisfaction modelling: conduct an online live survey on 3k users on Videoland (SVOD). Linked survey and behavioral data via ID matching. Modelled satisfaction based on the intent and behavioral data modelling. <b>(v)</b> Co-founder @data-academy – an internal project to incentivise RTL employees to be more data-driven: setup and planning of workshops, HR data onboarding process, data courses.
Oct. 19 - Oct.20	<b>Bertelsmann</b> HAMBURG, GE / AMSTERDAM, NL / LYON, FR <i>Data Scientist at Gruner &amp; Jahr and Bedrock</i> Building a personalisation roadmap. Bayesian / Bandits testing (productioning with Airflow + AX.dev), reinforcement learning. Finetuning imageNets (CNNs, 3DCNNs) with custom heads and loss functions to create personalised stills and trailers (productioning with AWS + Databricks). Scoring of news articles by surveying 100 employees. Predicting article scoring by fine-tuning BERT on article texts (productioning with Airflow + GCP + Databricks). Causal Inference with Bayesian structural time series models to assess impact of recommendation system.
Aug. – Sep. 19	<b>Cambridge University</b> CAMBRIDGE, UK <i>Deep Learning Researcher</i> Research in self-supervised learning with autoencoders for genomics. Training of -omics datasets, including UK Biobank with 50k respondents and millions of variables (Single Nucleotide Polymorphism) on Cambridge supercomputers. Establishment of a new baseline for Genome Wide Association (GWAS) studies, and for tabular data in general, against typical xgboost models, thanks to a multi-task multi-view perspective.
Jul. – Sep. 18	<b>Cytel</b> BARCELONA, ES <i>Statistician</i> Research and R-package development for adaptive survival clinical trials: (i) mathematical derivation of the conditional power linked to non-parametric survival modelling with compounded outcomes, implementation of efficient matrix comparisons in C++ (ii) digitization and reconstruction of Kaplan Meier survival plots with the combination of hough transforms and an iterative survival estimation process.
14 – 18	<b>Internships and Short Term Research</b> <i>Master Thesis Statistical Assistant at KUL</i> LEUVEN, BE Structural Equation Modelling to model fear of terrorism <i>Category Management Intern at Danone</i> ZURICH, CH Consumer and trade data analysis; establishment of processes, eventual innovations and weekly briefings for the salesforce team of 7 employees roaming Switzerland and collecting data; analysis and strategic decision making <i>Research Assistant at Institute of Political Science</i> ST GALLEN, CH Research and written contribution to a quantitative paper on the democratic legitimacy of transgovernmental networks <i>Controlling and Finance Intern at Aeris Capital</i> ZURICH, CH Backend software updates, monthly F&C Report updates, data cleaning, proposal and implementation of an automatization of monthly updates <i>Internal Audit at Adecco Group</i> ZURICH, CH Working papers preparation, interviews, business processes and procedures analysis, audit reports composition <i>Risk Management at Spinnaker Capital</i> SAO PAULO, BR Risk exposure calculation, history risk reports management and creation

## Publications

2022	<b>Gabriel Bénédict</b> , Hendrick Vincent Koops, Daan Odijk, Maarten de Rijke. <i>sigmoidF1: A Smooth F1 Score Surrogate Loss for Multilabel Classification</i> . TMLR
2022	<b>Gabriel Bénédict</b> , Daan Odijk, Maarten de Rijke. <i>Intent-Satisfaction Modeling: From Music to Video Streaming</i> . TORS
co-first-author 2022	Sanne Vrijenhoek*, <b>Gabriel Bénédict*</b> , Mateo Gutierrez Granada, Daan Odijk, Maarten de Rijke. <i>RADio–Rank-Aware Divergence Metrics to Measure Normative Diversity in News Recommendations</i> . Recsys
2021	Ali Vardasbi, <b>Gabriel Bénédict</b> , Shashank Gupta, Maria Heuss, Pooya Khandel, Ming Li, Fatemeh Sarvi. <i>The University of Amsterdam at the TREC 2021 Fair Ranking Track</i> . TREC