SILAS BRACK

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EXPERIENCE

AI Research Engineer **Nov 2025 – Present**
Teton.ai — AI Research and Computer Vision *Copenhagen, Denmark*

- Computer vision, transformers, forecasting, embedded machine learning

Machine Learning Engineer **Sep 2021 – Oct 2025**
Saxo Bank A/S — Department of Predictive Models and AI *Copenhagen, Denmark*

- Designed, built and deployed a real-time recommendation system serving relevant financial news to clients; to do so, we learn user and content embeddings and perform efficient nearest neighbour retrieval followed by reranking.
- Built a RAG-based chatbot yielding a 170% improvement in question-answering accuracy and decreasing the yearly number of manual agent chats by 20k, saving around $150k in yearly agent costs.
- Built, trained and deployed an NLP-inspired embeddings model for finding similar stocks. As of February 2025, the tool sits at around 110k monthly interactions.

EDUCATION

M.Sc. Mathematical Modelling and Computation **Sep 2020 – Feb 2023**
Technical University of Denmark *Copenhagen, Denmark*

- Thesis: "Effortless Bayesian Deep Learning: Tapping Into the Potential of Modern Optimizers," with Søren Hauberg.

PROJECTS

Marginal Likelihood Training of Linearized Laplace Approximations Without Hessian Reductions **Sep 2022 – Feb 2023**
Copenhagen, Denmark
Supervised by Søren Hauberg — DTU Compute

- Developed a novel method for computing the Laplace approximation using only Jacobian-vector products in JAX, implementing posterior sampling (for inference) and the log-determinant (for optimising the marginal likelihood during training) of the Laplace covariance without explicitly instantiating it.

Bayesian Metric Learning for Uncertainty Quantification in Image Retrieval **Apr 2022 – May 2023**
Copenhagen, Denmark
Supervised by Søren Hauberg — DTU Compute

- Developed a method for training Bayesian neural networks in metric learning and demonstrate its effectiveness on small- to large-scale image datasets in yielding well-calibrated uncertainty estimates. We proved that contrastive loss constitutes a valid log-likelihood in spherical space and present a novel decomposition of its Generalized Gauss-Newton (GGN) approximation.
- Our paper was accepted to NeurIPS 2023 [1] in New Orleans, which I had the fortune of attending.

SKILLS

Languages: Python, SQL, C#

Technology: Spark, Databricks, Docker, Kubernetes, Airflow, Kafka, Terraform

Modelling: Gradient boosting (LightGBM), deep learning (PyTorch, JAX), Word2Vec, embeddings, LLMs

PAPERS

[1] F. Warburg, M. Miani, S. Brack, and S. Hauberg, "Bayesian Metric Learning for Uncertainty Quantification in Image Retrieval," in *Advances in Neural Information Processing Systems*, 2023.