Robin Kras

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Education

Universiteit Leiden — Leiden, ZH
Master of Science in Computer Science, Specialization: Data Science & AI — *Feb. 2024 – Jul. 2025*

Vrije Universiteit Amsterdam — Amsterdam, NH
Bachelor of Science in Computer Science, Minor: Data Science — *Sep. 2020 – Dec. 2023*

Experience

Work Student Data Scientist — May 2025 – Jul. 2025
Zilveren Kruis — *Leiden, ZH*

- Designed and implemented an interactive dashboard powered by the OpenAI API, enabling clients to independently manage and authorize hearing aid insurance requests—significantly reducing manual processing.
- Enhanced contract data processing performance by adopting asynchronous programming in Python, achieving a 1800% reduction in load time.

Projects

Data Science | *Competitions, Research, Real-World Applications* — Ongoing

- Developed ensemble models (XGBoost, CatBoost, RF) using stacking and out-of-fold validation.
- Built GPU-accelerated deep neural networks (TensorFlow/Keras) for binary classification tasks.
- Applied Optuna and Grid/RandomizedSearchCV for hyperparameter tuning; explored meta-learning techniques (SVM, KNN, Ridge).
- Performed extensive EDA with Pandas, NumPy, Matplotlib, and Seaborn on diverse datasets.
- Engineered features using libraries like `itertools`; implemented SMOTE, scaling, and encoding strategies.
- Designed cross-validation frameworks tracking metrics such as RMSE, ROC-AUC, precision, and recall.
- Utilized SHAP for model explainability and diagnostics.
- Built reproducible ML pipelines with version control and GPU-based training workflows.
- Project domains: regression (e.g., housing prices, podcast duration, soil composition) and classification challenges.

MSc Dissertation Research | *Supervised by T. Verhoef (LIACS)* — Feb. 2025 – Jun. 2025

- Explored cross-modal sound symbolism using vision-language models (LLaMA 3.2-11B-Vision-Instruct, Molmo 7B-D-0924).
- Designed evaluation pipelines for probabilistic image-text alignment and phonetic congruence analysis.
- Integrated SAM2 segmentation for visual grounding and combined it with phonetic prompt interpretation.
- Quantified model behavior in response to sound-shape associations using statistical techniques.
- Revealed a 61% bias toward pairing curved images with sonorant pseudowords through attention analysis.
- Constructed purpose-built test datasets for assessing cognitive perception in multimodal AI.
- Applied cutting-edge architectures in interdisciplinary AI to evaluate perceptual reasoning.
- Established reproducible methodology for cross-modal AI experiments.
- Research domains: Computational Linguistics, Computer Vision, Cognitive AI, Multimodal Learning.

Technical Skills

Languages: Python, C, C++, Assembly, Scala, HTML/CSS/JavaScript
ML Algorithms: XGBoost, CatBoost, Random Forest, k-NN, SVM, Ridge, Logistic Regression, Ensemble Methods
AI & Vision Models: LLaMA 3.2-11B-Vision-Instruct, Molmo 7B-D-0924, SAM2, Vision-Language Models
ML & Data Libraries: Pandas, NumPy, Scikit-Learn, Matplotlib, Seaborn, SHAP, SMOTE, SciPy, itertools
Deep Learning: TensorFlow, Keras, PyTorch, CNNs, RNNs, GANs, Custom Architectures
Optimization: Optuna, GridSearchCV, RandomizedSearchCV, Cross-Validation, OOF Validation
Specialized: HuggingFace Transformers, Computer Vision, Multimodal AI, Feature Engineering, Interpretability
Tools & Other: Git, SQL/MySQL, Jupyter Notebooks, Web Scraping, Data Mining, Version Control
Soft Skills: Research Methodology, Competitive Programming, Time Management, Adaptability, Technical Communication

Certifications

English C1 Advanced — May 2018
Cambridge Assessment International Education