WITOLD KOŚCIUKIEWICZ

Machine Learning Engineer, Wrocław, Poland

SUMMARY

Experienced software engineer with expertise in machine learning, microservice architecture, and natural language processing. Proven ability to design, develop, and deploy high-performance machine learning models and backend services. Passionate about optimization techniques and innovation, seeking opportunities to apply cutting-edge technologies to solve real-world problems.

LINKS

- contact@kosciukiewicz.tech
- github.com/kosciukiewicz
- linkedin.com/in/witold-kościukiewicz
- kosciukiewicz.tech

SKILLS

Natural language processing, Generative language modeling, Large Language Models

Pytorch, Numpy, Pandas, matplotlib, tensorboad, huggingface transformers, DVC

FastAPI, asyncio, sqlalchemy,

Python, Rust, Typescript, MongoDB, SQL, PortgreSQL, MySQL, Docker, K8S

Problem Solving, Critical & Creating thinking, Effective communication, Leadership, Project management

Languages: Polish, English

EDUCATION

Master's Degree in Data Science

Wrocław University of Science and Technology
2019 - 2020

Bachelor's Degree in Computer Science

Wrocław University of Science and Technology
2015 - 2019

PROFESSIONAL EXPERIENCE

Machine Learning Engineer

Alphamoon | 2020 - Present | Wrocław, Poland

Inteligent document processing platform
- Developed critical features in **microservice-based** architecture utilizing **Python** frameworks like **FastAPI**, **asyncio**, and **SqlAlchemy**.
- Designed and implemented **machine learning** models deployment, versioning, and effective, layer-based storing techniques for optimized downloading on production.
- Lead the development of machine learning tasks such as **NER** and **classification** in **zero-shot** manner leveraging external **LLMs**.
- Played a pivotal role in the creation of **continual learning** initiatives, implementing both **zero-shot in-context learning** and **supervised methods with memory**, optimizing system adaptability and performance.

Relation extraction
- Conducted Natural Language Processing research for knowledge graph extraction from notarial acts.
- Developed **SOTA** transformer architecture-based **deep learning models** to extract knowledge graph entities and relationships.
- Achieved over 90% F-Score on knowledge graph extraction task, significantly improving accuracy compared to previous methods.
- Employed **data augmentation** techniques to enhance model generalization and robustness.

Worker Employment support system
- Developed an innovative worker recruitment support system that significantly enhanced the worker employment process for one of Alphamoon's client company.
- Leveraged deep learning techniques, including **Siamese networks** and **LSH**, using **Python** and **PyTorch** to create a recommendation system that accurately matches job requirements with candidate profiles.
- Implemented genetic algorithms in **Rust** to solve **multi-objective optimization problem** to maximize employee allocation efficiency over a given period.

Predictive maintenance service
- Utilized **Python** and **statistical analysis** and **data visualization**, prepared and preprocessed a vast dataset of 2 year worth of historical equipment data.
- Developed and evaluated a predictive maintenance system using supervised decision tree based machine learning algorithms, such as **Random Forest** or **XGboost** to predict equipment failures and optimize maintenance schedules.
- Deployed the predictive model as a **REST API** using **Celery** and RabbitMQ to enable real-time anomaly detection which resulted in a significant reduction in real-life production downtime.

Machine Learning Engineer Intern

Alphamoon | 2019 | Wrocław, Poland

Handwritten character recognition
Developed and evaluated a deep learning, **sequence to sequence**, model for handwritten character recognition using **Pytorch**. Leveraged a self-annotated custom dataset of handwritten characters for model training and evaluation. Achieved over 10% accuracy gain on the test set, demonstrating the effectiveness of the developed model. Performed hyperparameter tuning to optimize the model's performance and generalizability.

SELECTED PUBLICATION & AWARDS

Kościukiewicz, W., Wójcik, M., Kajdanowicz, T., & Gonczarek, A. (2023, June). Similarity-Based Memory Enhanced Joint Entity and Relation Extraction. In Proceedings of the International Conference on Computational Science (pp. 290-297). Cham: Springer Nature Switzerland. DOI:10.1007/978-3-031-36021-3_29

Wójcik, M., **Kościukiewicz, W.**, Baran, M., Kajdanowicz, T., & Gonczarek, A. (2023, July). Domain-Agnostic Neural Architecture for Class Incremental Continual Learning in Document Processing Platform. In Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (Volume 5: Industry Track) (pp. 527-537). DOI: 10.18653/v1/2023.acl-industry.51

Best poster award on the MLinPL 2022 conference for presenting the following work: **Kościukiewicz, W.**, Wójcik, M., Kajdanowicz, T., & Gonczarek, Memory Enhanced Document-level Joint Entity and Relation Extraction.