KONRAD KARANOWSKI

Machine Learning Researcher and Engineer

CONTACT

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https://github.com/konrad-karanowski

https://konrad-karanowski.github.io

https://scholar.google.com/citations?user=_Cn3jmsAAAAJ&hl=pl

PROFILE

I am a machine learning researcher based in Wroclaw, Poland. I have over three years of experience in the field, both commercially and in academia. Along this journey, I've co-authored 12 scientific publications. My main interests include generative AI, probabilistic machine learning, AI in medicine and AI in biochemistry. I am currently collaborating with researchers from the Federal Institute of Technology Zurich (ETHZ) on the applications of artificial intelligence in electron cryomicroscopy (CryoEM).

SKILLS

- Used Technologies — Python, Pandas, SQL, Matplotlib, Plotly, Jupyter Notebook, PyTorch, PyTorch Lightning, Scikit-Learn, Numpy, OpenCV, Transformers, Diffusers, Git, DVC, Hydra, Wandb, Linux
- Known concepts — Neural Networks, Computer Vision, Natural Language Processing, Generative AI, Probabilistic Machine Learning
- Other skills — Teamwork, Self-organisation, Scientific methodology

WORK EXPERIENCE

Machine Learning Researcher *August 2024 - present*

TOOPLOOX

I am responsible on conducting research on Diffusion Models in order to improve their performance in the client's use-case scenarios.

Machine Learning Specialist *January 2023 - August 2024*

BIOCAM

I was responsible for applying generative models to capsule endoscopy images and developing new methods of data augmentation. I had the opportunity to work with models such as Denoising Diffusion Probabilistic Models or Latent Diffusion Models. My work resulted in a pipeline that improves the performance of classifiers for rare pathologies.

NLP Engineer / Researcher *August 2021 - February 2023*

CLARIN-PL

I was responsible for doing research on natural language processing in subjective tasks, taking into account the context of the user. I also worked on the development of an automatic speech recognition system for the Polish language. I had the opportunity to work with models such as Transformers, Whisper or Normalizing Flows. My work resulted in 5 scientific papers.

Junior Data Scientist (Intern) *September 2020 - January 2021*

ESPORTSLABGG

I was working on image classification and object detection using neural networks. I have worked with models such as FasterRCNN or YOLO.

EDUCATION

Master's Degree in Artificial Intelligence *2023-2024*

WROCLAW UNVIERSITY OF SCIENCE AND TECHNOLOGY *Final grade: A*

Master Thesis: *Diffusion Probabilistic Models For Denoising Micrographs In Cryogenic Electron Microscopy* (in collaboration with ETHZ)

Achievements

- Scholarship of the Minister of Science and Higher Education for Significant Achievements for Students

Activities

- Member of the genwro.AI research group led by Prof. Maciej Zięba
- Member of the BioMedical.AI scientific circle

SDU Summer School 2022, Deep Learning *2022*
SYDDANSK UNIVERSITAT *Grade: A*

Bachelor's Degree in Applied Computer Science *2023-2024*
WROCLAW UNVIERSITY OF SCIENCE AND TECHNOLOGY *Final Grade: A*
Activities

- Member of BioMedical.AI scientific circle
- Member of KN Robocik scientific circle

PUBLICATIONS

Piotr Miłkowski*, **Konrad Karanowski***, Patryk Wielopolski, Jan Kocoń, Przemysław Kazienko, and Maciej Zięba (2023). *Modeling Uncertainty in Personalized Emotion Prediction with Normalizing Flows*. 2023 IEEE International Conference on Data Mining Workshops (ICDMW), 757-766. [* - denotes equal contribution]

Kamil Kanclerz, **Konrad Karanowski**, Julita Bielaniewicz, Marcin Gruza, Piotr Miłkowski, Jan Kocoń and Przemysław Kazienko. *PALS: Personalized Active Learning for Subjective Tasks in NLP* Conference on Empirical Methods in Natural Language Processing (2023).

Marcin Sendera, Marcin Przewięźlikowski, Jan Miksa, Mateusz Rajski, **Konrad Karanowski**, Maciej Zięba, Jacek Tabor and Przemysław Spurek. *The general framework for few-shot learning by kernel HyperNetworks* Machine Vision and Applications 34 (2023): 1-16.

Konrad Karanowski*, Adam R. Chłopowiec*, Tomasz Skrzypczak, Mateusz Grzesiuk, Adrian B. Chłopowiec and Martin Tabakov. *Counteracting Data Bias and Class Imbalance—Towards a Useful and Reliable Retinal Disease Recognition System* Diagnostics 13 (2023): n. pag. [* - denotes equal contribution]

Martin Tabakov, Krzysztof Galus, Artur Zawisza, Adam R. Chłopowiec, Adrian B. Chłopowiec and **Konrad Karanowski**. *Synthetic Data Generation for Morphological Analyses of Histopathology Images with Deep Learning Models* Vietnam. J. Comput. Sci. 10 (2023): 373-389.

Przemysław Kazienko, Julita Bielaniewicz, Marcin Gruza, Kamil Kanclerz, **Konrad Karanowski**, Piotr Miłkowski and Jan Kocoń. *Human-centered neural reasoning for subjective content processing: Hate speech, emotions, and humor.* Inf. Fusion 94 (2023): 43-65.

Maciej Zamorski, Michał Stypułkowski, **Konrad Karanowski**, Tomasz Trzciński and Maciej Zięba (2022). *Continual learning on 3D point clouds with random compressed rehearsal*. Comput. Vis. Image Underst., 228, 103621.

Marcin Sendera, Marcin Przewięźlikowski, **Konrad Karanowski**, Maciej Zięba, Jacek Tabor and Przemysław Spurek. *HyperShot: Few-Shot Learning by Kernel HyperNetworks* 2023 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) (2022): 2468-2477. DOI: 10.1109/WACV56688.2023.00250

Julita Bielaniewicz, Kamil Kanclerz, Piotr Miłkowski, Marcin Gruza, **Konrad Karanowski**, Przemysław Kazienko and Jan Kocoń. *Deep-SHEEP: Sense of Humor Extraction from Embeddings in the Personalized Context* 2022 IEEE International Conference on Data Mining Workshops (ICDMW) (2022): 967-974.

Martin Tabakov, **Konrad Karanowski**, Adam R. Chłopowiec, Adrian B. Chłopowiec and Mikolaj Kasperek. *Data Augmentation for Morphological Analysis of Histopathological Images Using Deep Learning* International Conference on Computational Collective Intelligence(2022).

Kamil Kanclerz, Marcin Gruza, **Konrad Karanowski**, Julita Bielaniewicz, Piotr Miłkowski, Jan Kocoń and Przemysław Kazienko. *What If Ground Truth Is Subjective? Personalized Deep Neural Hate Speech Detection* NLPERSPECTIVES (2022).

Artur Zawisza, Martin Tabakov, **Konrad Karanowski** and Krzysztof Galus. *Morphological Analysis of Histopathological Images Using Deep Learning* International Conference on Computational Collective Intelligence (2021).

HOBBIES

- Composing orchestral music
- Playing the guitar

LANGUAGES

- Polish - Native
- English - B2/C1