

Atabay Ziyaden, PhD candidate

ML/DL Researcher and Engineer, awaiting final defense

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ML/AI Researcher and Engineer with 7+ years of scientific, academic and industry experience in machine learning, deep learning, computer vision, intelligent data analysis, data mining and 4 years of development experience as Backend/Mobile developer.

EDUCATION Thesis: Text Data Augmentation for enhancing text classification of low-resource languages (NLP, LLMs)		
PhD of Computer Science	Kazakh-British Technical University	2020-Present
Master of Computer Science	Kazakh-British Technical University	2018-2020
Bachelor of Computer Science	Kazakh-British Technical University	2014-2018

WORK EXPERIENCE

Surfaice.pro.

Head of AI & Research Apr 2024 - Present
Speech, LLMs
Construction automation.

Republican Institute Of Information And Computational Technologies Apr 2019 - Present
Machine Learning, Natural Language Processing and Computer Vision Engineer

- **Data Augmentation for better Language Modeling.** NLP, PyTorch, Transformers. LLMs.
Led a groundbreaking 3-year research grant on data augmentation for low-resource language processing.
 - o Proposed novel method published in PeerJ Computer Science. Published 3 Scopus indexed papers.
 - o Established an international collaboration with ADA University in Baku, fostering cross-border academic exchange and research development in NLP and language modeling.
- **Aerospace Expert System.** NLP, PyTorch, Transformers. LLMs.
Spearheaded a major project for the Ministry of Digital Development and Aerospace Industry of Kazakhstan as Lead ML Researcher and engineer.
 - o Developed monitoring of 10+ million new documents and 2+ million articles from different scientific sources.
 - o Innovated text summarization and NER systems, with 10x improvement in expert decision time and discovering 15 million new connections between documents and events.
 - o Implemented an aerospace related event detection system and knowledge base for the aerospace domain.
 - o Designed automated generation of decision support scenarios for aerospace experts and calculated scientometric and bibliometric indicators for scientific documents.
- **Diabetic retinopathy detection.** CV, PyTorch, cv2. EfficientNets, Flask.
Led Medical AI project aimed at detecting diabetic retinopathy from digital fundus images from smartphone cameras, which was recognized with an award at DARlab.asia 2019.
 - o Led a multidisciplinary team in collaboration with ophthalmologists, conducting extensive testing on over 500 patients with diabetes, which informed the iterative development of effective detection models.
 - o Achieved significant advancements in the detection of diabetic retinopathy, evidenced by the development of optimized model architectures and the publication of a Scopus indexed article on the project's findings.

Other projects and scientific grants:

- **Lecturer** at Kazakh-British Technical University, Machine Learning and Python Courses, 4 Semesters.
- **NLP research:** "Developing Machine Learning Techniques for Enhancing Text Coherence in Quasi-referencing of Large Text Arrays", "Development of deep learning methods for semantic probabilistic inference".
- **CV research:** "Nevus classifier", "Cancer segmentation on computed tomography scan of lung".

IcyFlame Studios CEO July 2017 - Present

- **AI Consulting. Small NLP projects.** Python, Pytorch, Transformers, Flask.
- **PlayTennis.** Backend, Android, IOS. Web/mobile application for holding amateur tennis championships, online matchmaking, trainer search etc. Java, Swift, NodeJS

Baybak Exust Lead Backend Developer (python+django) Feb 2016 - June 2017
Initiated, led and implemented software solutions and trained new employees

- **Cowork.** Backend. Electronic classroom for competitions and lessons with collaboration. Python, Django
- **CRM-System** NCRM.kz. Full CRM-system backend. Python, Django.

SELECTED PUBLICATIONS and PATENTS (more in Scopus profile)

- [Text data augmentation and pre-trained Language Model for enhancing text classification of low-resource languages](#) PeerJ Computer Science Journal 69th percentile
- [Comparative analysis of deep learning methods of detection of diabetic retinopathy](#)
- [Comprehensive Survey: Approaches to Emerging Technologies Detection within Scientific Publications](#)
- [Long-context Transformers: A survey | IEEE Conference Publication | IEEE](#)
- [Certificates of authorship "Constructor for building productions based on a knowledge base for generating decision-making scenarios", "Aerospace Expert Systems Crawler \(AES C\)", "Information system for structuring analysis results using the example of medical statements", "Diabetic retinopathy diagnosis using smartphone"](#)
- 3rd place at XXII International Olympiad "Intellectual marathon" in Mathematics, Barcelona, Spain, 2013

TECHNICAL SKILLS

Machine Learning/Deep Learning: Proficient in Python, PyTorch, TensorFlow, Lightning AI, and essential libraries such

as numpy, pandas, and scikit-learn. Versatile in Jupyter and JupyterHub.

Natural Language Processing: Skilled in Transformers, LLMs, and applying PyTorch for a variety of NLP tasks.

Computer Vision: Experienced in openCV, plt, and classical algorithms for image processing.

Backend Development: Have experience in Django/flask, django-rest-framework, Django-channels, and websocket.

Programming and Development: C++, C, C# + Unity3D, Swift IOS, Java, SQL, Docker, OOP, Git, and Linux.