# Alibek Erkabayev

Machine Learning | Computer Vision Engineer
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## SUMMARY

Machine Learning and Computer Vision Engineer with 10+ years of software development experience, specializing in designing and optimizing Machine Learning models, implementing computer vision algorithms, and deploying scalable, production-ready applications. Proven expertise in integrating advanced technologies, improving model performance, and delivering impactful solutions across diverse domains. Skilled in full-stack development, API integration, and end-to-end project delivery, with a strong focus on WebAR, Machine Learning, and Computer Vision.

## TECHNICAL SKILLS

- **Languages:** Python, C/C++, JavaScript, TypeScript, SQL
- **Frameworks:** FastAPI, Django, Flask, Boost, WebGL, OpenGL
- **ML:** PyTorch, Keras, Tensorflow, OpenCV, Scikit-learn, Pandas, Numpy
- **Data Visualization & Analytics:** Matplotlib, Seaborn, ggplot, D3.js, Tableau, Power BI
- **Databases:** PostgreSQL, MySQL, Redis, MongoDB, RabbitMQ, Elasticsearch
- **DevOps/Tools:** Docker, Kubernetes, Git, CI/CD, AWS, GCP, Azure

## WORK EXPERIENCE

***Founder & AI/ML Consultant*** @ **ERA Tech** *(July 2016 – Present)* *Remote, Türkiye*
*Tech: Python, OpenCV, Tensorflow, PyTorch, ETL, Langchain, OpenAI, GCP, AWS, Azure*

- Designed and optimized AI/ML models for cloud and edge deployment by applying quantization, pruning, and TensorRT/TFLite conversions, reducing latency by up to 60%.
- Built scalable data pipelines using automated ETL workflows in Python with API integration and web scraping, cutting data preparation time from days to hours.
- Delivered AI consulting in WebAR, Computer Vision, and AI applications by leading cross-functional teams, enabling clients to launch innovative AI-driven products.

***Team Lead - Computer Vision Department*** @ **Web-AR.Studio** *(November 2021 – February 2025)* *Remote, USA*
*Tech: C++, Python, OpenCV, WebGL, OpenGL, WebAssembly.*

- Led the Computer Vision team, overseeing project development, technical strategy, and cross-functional collaboration to deliver AI-powered solutions.
- Enhanced AR experiences with SLAM methodologies for resulting accurate positioning and mapping.
- Researched and implemented object recognition using feature detection and matching techniques.
- Developed real-time visual tracking using local feature detectors and descriptors.

***Machine Learning Engineer*** @ **UZAKTA Bilişim ve Tasarım Ltd. Şti.** *(February 2019 – October 2021)* *Istanbul, Türkiye*
*Tech: Python, OpenCV, Tensorflow, Pandas, NumPy, GAN, CNN*

- Implemented Conditional and Markovian GANs for obstacle clearance by training on real-world datasets, improving navigation accuracy in challenging environments.
- Researched the effect of CNN architectures and image resolution through controlled experiments, achieving an optimal balance between model accuracy and inference speed.
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***ROS Developer*** @ **Polonom Robotics** *(March 2018 – January 2019)* *Hybrid, Turkey*
*Tech: C++, Python, ROS, OpenCV, Gazebo, FPGA*

- Developed and integrated ROS nodes for navigation, perception, and control, enabling seamless communication between robotic subsystems.
- Implemented sensor drivers and data processing pipelines for LiDAR, cameras, and IMUs, improving real-time environment awareness.
- Created and maintained launch files, URDF models, and simulation environments in Gazebo, accelerating robotic system testing and deployment.

***Researching Trainee at ROBOTIC Lab.*** *@ YTU (June 2017 – September 2017)* *Istanbul, Turkey*
*Tech: C++, Python, ROS, OpenCV, Gazebo, FPGA*

- Worked with FPGA platforms to design and test custom digital logic circuits, enhancing hardware processing capabilities.
- Implemented a basic computer model on FPGA using Verilog, demonstrating core CPU architecture and instruction execution.
- Created FPGA tutorials for computer science students with step-by-step lab exercises, improving learning outcomes and engagement.
- Designed and built a robotic model integrating sensors and controllers, enabling autonomous navigation.
- Developed automated 3D mapping algorithms for exploration tasks, generating accurate environment reconstructions.
- Implemented real-time obstacle detection and avoidance using sensor fusion, improving robotic safety and efficiency.

## EDUCATION

**Konya Technical University** *Konya, Turkey*
*Master of Cyber Security and Cryptography* *August 2024 -*

**Yildiz Technical University** *Istanbul, Turkey*
*Bachelor of Computer Engineering* *May 2021*

## PROJECTS

- Web Augmented Reality System – Real-time GPU-based image pipeline with WebGL shaders, WebAssembly-ported C++ detectors, and modular JavaScript/TypeScript architecture – Project
- Image Cleaning and Super Resolution – Image-to-image Pix2Pix GAN for obstacle removal, TeCoGAN super-resolution, optimized for Nvidia Jetson AGX Xavier, with WebRTC demo UI – Github
- Object Detection with YOLO and LSTM – Custom hospital image dataset, YOLOv3 training for tiny object detection, LSTM-based object tracking – (Private Project)
- NSFW Classifier API – Content moderation model trained on 100k+ images, fast API with low latency, Dockerized and I/CD deployed to DigitalOcean – Project
- AI-based Logo Generation – Prepared real and synthetic logo datasets, conditional StyleGANv2 training, Flask based web demo – Github
- Android Malware Detection System – Opcode hashing optimization, training with GloVe and Word2Vec, evaluation using Weka – Github

## LANGUAGES

- English - Upper-Intermediate
- Russian - Native
- Turkish - Native
- Uzbek - Native
- Turkmen - Native
- German - Basic

## CERTIFICATIONS & PROFESSIONAL TRAININGS

Machine Learning & Data Science:

- Data Scientist Associate - DataCamp (2025)
- Introduction to Data Science in Python – DataCamp (2025)
- Supervised Learning with scikit-learn – DataCamp (2025)
- AWS Machine Learning Foundations – Udacity (2021)
- Supervised Machine Learning: Regression – Coursera (2021)

Data Engineering & ETL:

- Data Engineer - DataCamp (2025)
- ETL and ELT in Python – DataCamp (2025)
- Exploratory Data Analysis for Machine Learning – Coursera (2021)

DevOps & MLOps:

- MLOps Concepts – DataCamp (2025)
- CI/CD for Machine Learning – DataCamp (2025)
- Introduction to Docker – DataCamp (2025)
- Introduction to Containers w/ Docker, Kubernetes & OpenShift – Coursera (2021)