PERSONAL INFORMATION

Fikrat Gasimov
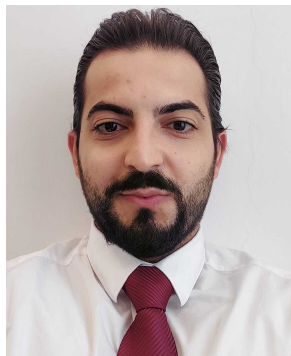
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Date of birth 08/07/1995 | Nationality Azerbaijan

MY WEBSITE AND PERSONAL PROJECTS

March 2022 – Ongoing

Udemy Instructor

San Francisco/United State
Udemy Business

- My PERSONAL Projects, **Get to know me.** (Click on me)

— **My Udemy Courses**:

- BootCamp for TensorFlow, PyTorch, TensorRT, ONNX from Scratch(Click/Copy Past)

- BootCamp for Large Language Models, Web Applications and CPLUS(Click/Copy Past)

WORK EXPERIENCE

September 2024 – Ongoing

Technical Leader e Tutor

Rome/Italy
International Telematic University of UNINETTUNO

- Spearhead the Engineering/Project Design of Full-Stack Generative AI chatbot systems using customized LLMs for text, image, and audio understanding, including advanced capabilities like voice cloning and Dynamic RAG-based knowledge along with MultiThread Agents.
- Advanced ML: Deep Learning, NLP, LLM fine-tuning, Hugging Face Transformers Proven experience deploying LLMs (e.g., OpenAI, Anthropic, Mistral) into production environments at scale Cloud and MLOps: AWS/Azure/GCP MLflow, Kubeflow, containerization.
- Serve as a University Tutor at UNINETTUNO, delivering lectures on immersive technologies, AI,robotics,Augmented Reality for Bachelor and Master degree students within a digital learning ecosystem.
- Lead cross-functional development teams to deliver AI-powered 2D/3D avatars by integrating Unity technologies and external APIs, facilitating projects listed under immersive technologies (VR, AR, Robotics, and AI) to enhance interactive user experiences.
- Responsible at designing Cloud based solution as Solution Architect for end-to-end deployment pipelines using Azure, AWS, and GCP, incorporating Docker/Kubernetes for containerized AI model deployment.
- Gained AWS Machine Learning Specialist Certification.
- Developing AI based Security Guardrails based on ML OWASP Top 10 for Custom Generative AI Models to ensure certified LLM Model Output and Input.
- Drive agile project execution using Jira, manage weekly sprint planning and reviews, and ensure milestone delivery across multiple stakeholders, including spin-off initiatives.
- Tech stack: Python, C++, Unity (.NET), React, JavaScript.

March 2023 – September 2024 **Senior Generative AI Scientist**

Rome/Italy

TopNetwork Spa-Software Factory

— Developing Web Applications with Generative LLM Models such as Flan-T5, BERT, BART, GPTNeoX for PDF-Content Analizer, Summarization, Sentiment Analises (IMDB datasets and Dialog Summarization for Collaborative ChatBot Development).

— Fine Tunning LLM Models with Prompt Engineering, Perimeter Efficient Fine Tunning(LORA, QLORA), and Additive Soft prompts techniques. Deep dive into diverse scientific publications to create Multi-Tasking Model to avoid catastrophic forgetting. Evaluating LLM Models with ROUGE, BLUE Score metrices.

— Quantization of LLM Models (with bfloat/float precision) for development of cloud services such as EC2 AWS, Sagemaker Studio and Azure GPU instances.

— Aligning LLM models based on Human FeedBack with PPO Reinforcement Learning of Hugging Face TRL library, designing Reward Model, Supervised Model such as Bert.

— Fine Tunning and Prompt Engineering on DIALO-GPT, GPT2 models with dataset of MedQuad dataset (medical) and Medical Synthetic Dataset, prototyping Web User Medical GPT for FIRST-AID-Support. According to threshold generated by model , it uses customized RAG, refering to SQL database, additional source of data, and 3rd party.

— Distributing Computing for (DDP) Distributed Data Parallelization and Fully Shared Data Parallel across multi GPU/CPU with Pytorch together with Retrieval Augmented Generation(RAG)(Scaling Laws)

— Developing robotic arm with ROS2 to deploy on UGV robot for Autonomous Navigation, Door Opening/Closing, taking/deliving items, executing dangerous tasks in banned industrial zones via various sensors

— Developing Tiny ML applications on Microcontrollers(ESP32, Raspberry PI 4B) in C and C++ Language via Uart, GPIO, SPI peripherials via water level sensor, temperature sensor for anomaly / unknown chemical classification. Linux Driver Development , Object Oriented In C language.

— Automatic Informational Retrieval and Text-Generation with GPT2 Large, Medium together with Pytorch Automatic Mixed Precision on dataset of medium articles, evaluating model with BLUE Score.

— Being Tutor/Team-Leader at **ITSAcademy** for Internship Based Data Scientist Team. Providing continuous technical support and managing their projects via JIRA Agile Methodology

— Mimic Large LLM Model Behavior on Small LLM Models Fine tune for Human-Machine Interaction on Intelligent Automative Cars.

— Good knowledge on Automative Security protocols: Tara, ISO 21434, Hashing, Digital Signature and Verification, Cryptography Management, Security JTAG.

— Huge Motivation on Cybersecurity in Automative and Embedded Robotics Sector.

Rome/Italy
TopNetwork Spa-Engineering Ingegneria Informatica S.p.A.

— Prototyping Digital Pathology Medical Machine based on Back-End and Front-End Web App

— Back-End ML Models: Unsupervised Models used : Deep Convolution GAN for Stain Matrix Normalization, in order to balance occlusione and ligthness throughout the image. Object Detection Model and Tracking: TpH yolov5 Plus Plus, resolution: 1536. Instance Segmentation: Unet3++ model, to analyze weight and growth of Mitosis. Classification Model is Fine-Tuned applied with Feature Extraction.

— Deployment: Real Time Inferences are developed with C++ on embedded medical devices, for Fast Inference with TensorRT for Azure Microservice and as Pickle for Cloudera
— Idea: To analyze , detect and segment, Mitosis (Cancer) on Body Cells, in order to create prototype for medical sector.

— Utilized Frameworks: pytorch for deployment, tensorflow/keras for research.
— Prototyping Unsupervised Anomaly Detection Back-End and Front-End Web App, based on Advance Analytics on ML
— All Projects Back-End: Flask Server Rest API, together with Python. Security used as werkzeug, JWTManager.
— Back-End ML Models: Unsupervised Multivariate Isolation Forest, Variational Auto-Encoders, Hierarchical Random Forest used as classifier: models introduced as embedded vector. F1 Score: 98 percent.

— All Projects Front-End: React-JSX-Js, React Router, React-Bootstrap, React-Hook have been used, CSS styling, HTML, Node JS.
— Idea: According to patient informations, collaborations with doctors, models is supposed to understand and retrieve anomaly behavior such as expired appointment, early cancelation and etc.

— Utilized Frameworks: pytorch for deployment , tensorflow/keras for research , Hugging Face for Fast Prototyping.

— Strong Knowledge on Reinforcement learning algorithms both Q-Deep Neural Network and REINFORCE(GYM, Gymnasium) I use DQN for robotics tasks, to make them autonomous. REINFORCE is used for Question-Answering Deep Learning mechanism for Large Language Models, such as OpenAI GpT2/BERT transformers
— Database: Sql server, MySql.

Rome/Italy
TopNetwork Spa-ENEL Spa

— Small Target Detection Inference on Mountain Human Rescue Services with YOLOV5 P6 models, with Flying Drones.
— Analyzing predictive maintenance, asset management, vulnerability on big data collected through IoT sensors from source electrictrical Power Grids, together with Renewable Energy.
— Question Answering Service: Developing chatbot based algorithms of NLP(human-to-machine service) and collecting big data from various IOT hardware sources establish on domestic houses and energy sources.

— Prototyping of a flying drone for electricity grid surveillance based on AI and Augmented Reality: recognition of wind turbines, solar panels and batteries, tracking of wind turbine movement.
— Semantic Segmentation and Detection: Energy Equipment, Damage, Defects, Anomaly Behaviors on Power Grids via Flying Drone and Ground Drones
— Construction of the 3D Map: To take multiple images of equipment from different angles, creating 3D Triangulation

— Data Science Tools: RoboFlow, MlFlow, Cloudera, Azure Devops, GCP, AWS Sagemaker, AWS Elastic Search.
— Control the drone via human gestures based on augmented reality. Using Deep Q Learning of Reinforcement Learning , Drone can give better awards with respect to known and unknown environment.
— Leading the Innovation Lab team on Valohai platforms: how to train and test AI algorithms with Google Cloud and Azure Devops platforms, and developing, managing docker containers within Cloud Microservises

— Prototyping an autonomous car with augmented reality: developing virtual mirrors and developing an AR-based HUD system that overlays information, such as navigation instructions, speed, and other relevant data on a dedicated display in the driver's field of vision, develops a augmented reality-based navigation system that uses real-time camera feeds and GPS data to overlay navigation instructions. This includes virtual arrows indicating turns and lane guidance, and real-time information on upcoming points of interest or dangers.

— UAV Flying drone : Auotonomous Drone needs to analyze ship "saldatura": devices pixhawk 6 with Mavlink/Mavros. Autonomous Navigation based With ROS/RL and Deep Object Tracking and Recognition with jetson nano orien 8GB and Gimbal Camera SIYI ZR10
— ISO 214234 standard Knowledge Cybersecurity for Automative sector and embedded IOT devices

July 2021 – March 2023 | ## Senior Embedded Software and AI Scientist

Rome/Italy
EurolinkSystems

— Programming and Prototyping Unmanned Ground Vehicle (Unitree Aliengo, Boston Dynamics Spot)and Unmanned Area Vehicle(Eurolink-Beluga)

— Programming AI Algorithms: Target Detection and Tracking with Extended Kalman Filter, Detection of Object Disappeared and Newly Added from/to Static Environment(Anomaly Detection), Face Recognition and Tracking, Detection of Human Fall Down or on Foot, Detection of HandGun, Trifle, Detection and Segmentation of Fire and Smoke on environment, Detection of Anomaly Sound Detection(DSP Filtering) on the Background, like Gun Shot. Detection of Door Opened or Closed. Alarm System Development on Remote PC with Socket Programming based on MultiThread Programming. Precision Farming Algorithms: Leafs Status Detection and Analysis on Different Seasons with UGV and UAV Robots based on Particle Swarm Intelligence.

— Self-Supervised and Reinforcement Learning Algorithms for Ground Mobile Robots with Unknown Environments

— AI Frameworks and Models:Tensorflow/Tensorflow2, Pytorch. Yolov3/4/7, YOLOVX, PoseNet, Darknet, DetecNet and state-of-art techniques.
— Other Projects: Stereo Vision Depth Estimation, Camera Calibration, Depth Estimation, Disparity Mapping, Distance Calculation in 3D environment with two Logi270.
— Robot Operating System Algorithms: Obstacle Avoidance and Human Following Algorithms based on Darknet(ROS/ROS2)
— Excellent in Studying Scientific Papers and Transforming them to practical code.
— Main Programming Languagues: C/C++, Assembly, Python, generating static and dynamic libraries for Machine Learning Production, Driver Development.

— Hardware Knowledge: Jetson Family, GPU, Nvidia Family, Qualcomm RB5, Intel-Core Family, STM32F407, Ardunio One, RaspBerry PI Models(3A+/3B/4B), Ardupilot(pixhawk/CubeOrange/CubeBlack).
— Experience with I/O: PCI express, I2C, SPI, Serial, JTAG and Ethernet(TCP/IP, UDP/IP, RTSP).
— Developing Stream Videos Based TCP/RTSP and UDP protocols for Low Cost Sensors.
— Camera Hardware Knowledge: IntelD435/435i, Intel265, Zed2i, ZedMini, Logi270 ,Pixy2, MicaSense MultiSpectral Camera.
— Excellent knowledge managing on RTOS, Linux Administration and different OS.
— Development on Hardware: Writing HW Drivers on MCU, and Making Updates with Linux Patches on Drivers of Jetson Family, Qualcom RB5, Intel Core Family. Updating Frameworks for our custom case, ardupilot(PX4/CubeOrange)

— Excellent Knowledge: HW/SW Agile Methodology, Zoho, Azure Devops, HW/SWs UML
— Parallel Programming for GPU Inference Accelaration based on CUDA and C Mixed Programming
— Intermediate knowledge of C++ Qt Desktop/QUI development for embedded devices
— Teaching Reinforcement Learning Policy to Mobile Robots in case of Dog Robot on Simulation Phase, in order to imitate as Real Animal.
— Huge Motivation for Embedded Software/Hardware Development for AeroSpace and Defense.

December 2020 – August 2021	**AI Scientist-Team Leader**

Milan/Italy
Foolfarm (Via Morimondo)

— Prototyping Algorithms for mainly Androids and Embedded Systems.
— Specialized in AI-Signal Processing, developing Voice Authentication System, Voice Activity Detection, Voice Spoofing, Voice Cloning, Noise Suppression, Voice Enrollment, Identification and Verification for Android Systems.
— Inventor of IRIS Recognition, and Eyes Movement Localization, for Safe Driver, Virtual Keyboard, Emotion Analysis from Text (22 emootions).

— Additional work:Object Detection to Unlock Androids, Document Identity Recognition, Human Liveness Detection, Emotion Detection from Human Facial Expressions, Emotion Detection From Voice (11 emotions), Speech Recognition, Fraud Detection from Bank Account, Human Gesture Analysis, Voice Cloning, NLP Resume Analysis for Personality Detection, Human Gender Detection.

Excellicent Knowledge on Frameworks such as Keras, Pytorch, TF2, caffee , Spacy, Nltk.
— Specialized in Natural Language, developing NLP Chatbots, Emotion Sentiment Analysis, Topic Based-Detection systems, based on state-of-art.
— Robust Knowledge on Python/Scala/C++ with Ml Models, DJango with JavaScript,Typescript, .Net technology.

— Brilliant Management with Scrum of AGILE methodology, on Jira, Gitlab, BitBucket, GCP, Azure, AWS Platforms, Docker, KuberFlow, KafKa
— As Team Leader in Research and Development sector, with up to 12 International developers, being responsible for High-Tech Infrastructure, and Management.
— Developed ML models for Analysis of Weather Pollutants, with Traffic Jam, Weather Forecast High-Level Data Leak.

— Inventor of Innovative AI based Patents, designing High-Tech Infrastructure for Deployment, and aiming at integrating with hardware, electrical, embedding systems for new revolutionaries.

August 2020 – November 2020	**Intern- .NET Full Stack Developer**

Milan/Italy
Alascom (Via Caduti Di Marcinelli 5)

— I have developed Web Applications, such as Login, Logout pages, Sign-Up,creating Forms (Index, Update, Delete, Insert) using Registration table, Employer table . In Addition, I have utilized technologies as the following:
— Back-End Technologies utilizied:.NET, OOP, LINQ, Repository, Asp.Net, Asp.Net core, Entity Framework and Entity Framework Core, MVC 5/6, SOLID Design Principles, Asp.Net Web API
— Front-End Techologies utulizied : Jquery.js, Javascript, Angular2, Asp.Net Web Api, HTML, CSS, Bootstap3,Angular CRUD Operations(Create, Delete, Update), XML, JSON.
— Database: Sql Server and MySql
— Daily and Weekly Meetings via Scrum software of AGILE Methodology on Jira Platform.
— Retrieve data also from Schneider Electric PLC Modicon M262, to interact with OPC UA Client and Server.
— Involved in Research and Development Team(twelve engineers).
— Communities: VS 2019 with Asp.Net Core; VS 2017 with ASP.NET, ASP.NET MVC; VS 2015 with ASP.NET WEB API, Javascript Jquery.js, Angular2
— Computer Vision and Deep Learning YOLo objection detection algorithm deployment

July 2020 – August 2020	**Universal Robots Certified Training**

Torino/Italy
Universal Robot (Via Lessolo 3)

Corso Base
CERTIFICATO DI PARTECIPAZIONE

Fikrat GASIMOV

Universal Robots Academy Torino

Data: 2020-09-21
Numero di certificato: E20200921778010

Corso Avanzato
CERTIFICATO DI PARTECIPAZIONE

Fikrat GASIMOV

Universal Robots Academy Torino

Data: 2020-09-21
Numero di certificato: E20200921778011

- Universal Robots Basics Functionality
- Universal Robots Advance Programming

Business or sector   Research-Development

| July 2019– June 2020 | **Computer Vision and Deep Learning Researcher** |

Bologna/Italy- University of Bologna

- Data Normalization and Cleaning with Apolloscape Dataset for Lane Marking Semantic Segmentation, on the behalf of Deep Learning
- Preparation of Ground Truth Images from Raw Apolloscape Dataset.
- Data Labelling on Apolloscape Dataset
- Preparation of Look-up table containing RGB as well as 38 encoded labels
- Standard Cross-Entropy Loss on Semantic Segmentation with Binary Classification Challenge
- Weighted Cross Entropy Loss with 38 MultiClass Classification Challenge
- Optimization of Data Augmentation Techniques with PyTorch framework
- Lane Marking Semantic Segmentation in Autonomous Driving Scenario, with a Deep Convolution Neural Networks.

Business or sector   European institution-CVlab

| May 2014 – December 2014 | **Intern-Industrial Automation** |

Baku/Azerbaijan
Rapid Solution

- .NET technology with Visual Basic, to develop Control Panel and Desktop as Human Machine Interface to control remotely Gas-Lift Devices.
- Back-end: VP.Net, Asp.Net Core, Entity Framework Core for CRUD operations
- Front-End:Bootstrap3, JavaScript, React.js

Business or sector   Engineering

EDUCATION AND TRAINING

| 2017–2019 | **Master of Robotics and Artificial Intelligence** |

Bologna/Italy- University of Bologna

- Master thesis-title : Lane Marking Segmentation in Autonomous Driving Scenario, with a Deep Convolution Neural Networks.

| 2013–2017 | **(Tempus Program) Bachelor degree of Automation and Software Engineer** |

Azerbaigian State Oil and Industry University along with Glasgow-United Kingdom, The University of Glasgow

- Bachelor Thesis: Controlling/Optimization of Two stage of Gas-Lift Wells on Matlab Simulink

PERSONAL SKILLS

Mother tongue   Azerbaijani

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	IELTS–7.0				
Russian	B2	A2	B2	A2	A2
Turkish	C2	C2	C2	C2	C2
Italian	C1	C1	C1	C1	C1
Chinese	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills
− team work: I have been working in any dimensional international teams and projects, from 2-5 up to 40-45, being highly sociable.
− mediating skills: I participated in Olympic Games, involved in diverse scientific fields, chemistry, math and physics.

Organisational / managerial skills
− while collaborating with team members and managing them, via software platforms as AGILE software methodology - SCRUM.
− Friendly and Supportive approach toward team members for any incoming situations and challenges.

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Basic user	Independent user	Proficient user	Independent user	Basic user

Digital competences - Self-assessment grid

Computer skills
− General Knowledge of Programming Languages: Senior knowledgee in C/C++language, Matlab software (Computer Vision and Image Processing Toolbox), Scala, Python skill, Intermediate knowledge on Javascript with Node.Js, UR5(Universal Robots) Script programming, e-Series and CB3 robots, .Net Framework
− Big data : Apach-Spark with Scala, Hadoop, Sql, Sql Server; Sagemaker, S3 services, Docker on AWS server,
− Virtual environments: Pip3, Anaconda.
− COCO, ApolloScape, CityScape, Celeba, Iris, Mnist, Titanic.
− Operating System : Linux and Windows
− Framework: DeepLabV3 Plus, Xception Network, LSTM network, RNN, CNN, Attention algorithm, TensorFlow, Pytorch, Keras, Caffe, Numpy, Matplotlib, Seaborn, Scipy, PIL, Scikit-Learn, OpenCV

PUBLICATIONS

[1] Fikrat Gasimov and Sela. "Establishing databases based on computer experiments on key characteristics of continuous gas lift wells." In: *International Journal Engineering and Application* (2017).

Certifications	— Universal Robots Academy-Basics

Certifications
- Universal Robots Academy-Basics
- Universal Robots Academy-Advance
- Awarded on Olympic Games with Certification because of High skills performances in terms of Math,Chemistry as well as Physics.
- Recommendation Letter nominated by EurolinkSystems Company (CTO-Davide Allegri)
- Recommendation Letter nominated by Professor of the University of Bologna(professor Vincenzo Parenti Castelli)
- Recommendation Letter nominated by Professor of the University of Bologna(Supervisor: Luigi Di Stefano)
- Being involved in multiple challenging tasks.
- Coursera:Deep Learning and Neural Networks taught by Professor Andrew Ng.
- Coursera: Convolution Neural Networks taught by Professor Andrew Ng
- Coursera: Natural Language Processing with Classification and Vector Spaces taught by Professor Andrew Ng
- Coursera: Natural Language Processing with Probabilistic Models taught by Professor Andrew Ng
- Coursera: Natural Language Processing with Sequence Models taught by Professor Andrew Ng
- Coursera:Natural Language Processing with Attention Models taught by Professor Andrew Ng
- GPU programming specialization

Additional Projects
- Conditional Generative Adversial Convolution Neural Network: Training with Celeba Dataset, based on 40 attributes, in order to analyse Frechet Inception Distance between two dataset. (InceptionV3 network, keras and tensorflow, Discriminator-Generator)
- Machine Learning Labs : Data Exploration(Irish dataset, Titanic dataset); Logistic and Linear Regression, Pruning of Decision Tree; Classification; Clustering; Preprocessing, Association Rules
- Emotion Detection on Images of Faces with Keras
- Construction of Residual Network on Keras and Tensorflow
- Car detection with YOLOX with keras
- Art Generation with Neural Style Transfer with Tensorflow
- Face Recognition and Verification with Keras and Tensorflow
- Multiple field image analysis procedure for characterization of fibre alignment in composites: Matlab Software(Computer Vision Toolbox) and C++ with OpenCV Library
- Industrial Robotics: development of PUMA560 robotic manipulator control schemes in Matlab Simulink. Lego Mindstorm classroom contest for obstacle avoidance and path following.
- Mechatronic Systems: Shape Memory Alloy actuator control scheme developed on BeagleBone with Matlab/Simulink, to control a Spring-Mass system