

# Burakhan Şamlı

Forensic Informatics Engineer | AI, Computer Vision, NLP & MLOps

AI Specialist with a background in Forensic Informatics Engineering, specializing in Computer Vision(CV), Natural Language Processing(NLP), and Remote Sensing-based AI systems. Experienced in developing end-to-end, scalable AI solutions including biometric identification, object detection and tracking, multi-camera video analytics, and satellite image analysis for real-world applications. Strong hands-on experience with Transformer-based architectures across vision and language domains, as well as deploying AI models in production using containerized and microservice-based architectures with Docker and Kubernetes.

✉ burakhansamli@proton.me

☎ 0.0.0.0

📍 Ankara

👤 Burakhan Şamlı

🔗 github.com/blitzkrieg0000

🌐 https://blitzkrieg0000.github.io/

## WORK EXPERIENCE

### Hexaops A.Ş.

Teknokent, Kahramanmaraş

10/2024 - 05/2025

#### AI Engineer & Software Developer

- Contributed to LLM fine-tuning workflows with an emphasis on machine translation models.
- Provided engineering support for TTS, STT, and voice cloning pipelines in production environments.
- Applied Fully Sharded Data Parallel (FSDP) techniques to enable LLM fine-tuning on limited GPU resources.
- Improved training efficiency by reducing memory footprint, training time, and overall compute costs.

### DGH Arge Yazılım LTD.

ASBÜ Teknokent, Ankara

08/2021 - 10/2024

#### Remote Sensing & GIS Developer

- Performed satellite image analysis and GIS-based workflows using multispectral and hyperspectral remote sensing data.
- Applied remote sensing techniques to agriculture-focused projects, including Land Use and Land Cover (LULC) classification and analysis.
- Worked with satellite platforms and geospatial tools such as Sentinel, Landsat, Google Earth Engine (GEE), ArcGIS Pro, and Copernicus datasets.
- Conducted satellite image preprocessing, analysis, and interpretation to support real-world GIS and environmental applications.

#### NLP & Transformer Developer

- Developed and applied Transformer-based architectures across NLP and computer vision domains.
- Applied Transformer architectures for text-based analysis, feature representation, and deep learning workflows.
- Worked on computer vision projects integrating Transformer-based approaches with modern deep learning pipelines.

#### Specialized Research & Advanced Systems

- Trained deep learning models for fault detection using YOLO-based architectures in containerized (Docker) environments on remote Huawei Atlas 800 servers with NPU acceleration.
- Developed and managed server-side AI training workflows for computer vision-based infrastructure fault detection systems.
- Designed and implemented backend-oriented web applications using ASP.NET Core to support AI system management and data workflows.
- Conducted applied research in remote sensing for environmental and agriculture-related use cases.

#### AI & Computer Vision Engineer

- Developed AI-based image processing and computer vision applications using OpenCV and deep learning techniques, including OCR, image segmentation, object detection, and multi-object tracking.
- Built and curated datasets through data preparation, labeling, and augmentation to support supervised deep learning workflows.
- Applied GAN and Transformer-based image enhancement techniques, including super-resolution and feature representation learning.
- Designed and deployed real-time AI systems such as quality control pipelines, face recognition and identification platforms, and infrastructure inspection solutions, including high-voltage transmission line fault detection.
- Developed deep learning models using PyTorch and deployed inference services using Triton Inference Server and TorchServe.

#### Software Engineer - Backend & Deployment

- Developed AI backend services using Python and FastAPI, with model inference served via NVIDIA Triton Inference Server.
- Designed and implemented microservice-based architectures to support scalable and modular software systems.
- Deployed and managed containerized applications using Docker, Kubernetes, and Proxmox for orchestration and virtualization.
- Built and maintained CI/CD pipelines using GitHub Actions, GHCR, ArgoCD, and Ansible to automate deployment workflows.
- Implemented real-time data processing pipelines using Kafka, Redis, and RTMP-based streaming systems.
- Monitored system performance and reliability using Prometheus and Grafana.

### Forensic Informatics Engineering Intern - I

07/2021 - 08/2021

#### DGH Arge Yazılım

İnönü Teknokent, Malatya

- Gained foundational experience in AI-based software development using Python, PyTorch, TensorFlow, and OpenCV.
- Assisted in developing and integrating backend services using ASP.NET Core and frontend components with Vue.js
- Explored real-time communication mechanisms using Socket.IO for web-based applications.
- Supported real-time web integration tasks as part of short-term internship projects.

### Forensic Informatics Engineering Intern - II

07/2020 - 08/2020

#### Telehouse İstanbul - Teknotel

Kozyatağı, Kadıköy/İstanbul

- Worked on basic network infrastructure tasks, including routing and protocol configurations using Cisco Packet Tracer.
- Assisted in server setup and configuration on HP enterprise servers, including SAS disk configuration and RAID setup.
- Gained practical experience with REST-based architectures and web hosting systems, including WHMCS-based service management workflows.
- Supported network and IT operations related to server, storage, and connectivity management.

## PROJECTS

#### LULC Analysis & Remote Sensing

- Performed land use and land cover (LULC) segmentation using multispectral Sentinel-2 and Landsat satellite imagery.
- Generated composite datasets and conducted geospatial analysis to calculate area distribution of land cover classes using ArcGIS Pro and QGIS.
- Built scalable data collection and processing pipelines for LULC analysis using Google Earth Engine (GEE) APIs and Copernicus datasets.
- Retrieved and processed map tiles via web-based geospatial protocols to support large-scale spatial analysis workflows.
- Produced digital elevation models (DEM) from radar data using InSAR-based techniques for terrain and elevation analysis.

#### Fault Detection Project - High-Voltage Power Lines

- Developed a computer vision-based fault detection system for high-voltage transmission lines using YOLOv11-based object detection and segmentation models.
- Designed and implemented detection and segmentation pipelines for high-voltage line components, including insulators, poles, and structural elements.
- Built object detection models for identifying bird nests on transmission lines to support proactive maintenance and infrastructure safety.
- Prepared and annotated custom datasets to train and evaluate detection and segmentation models.

#### Multi-Camera AI-Based Security & Surveillance System

- Developed an integrated computer vision system combining face detection, recognition, multi-object tracking, and person re-identification for identity-based surveillance applications.
- Integrated additional AI modules including mask detection, emotion recognition, and weapon detection to enhance security monitoring capabilities.
- Designed the system to operate across multiple camera streams with real-time video processing and event-based analytics.
- Architected a microservice-based backend and deployed AI inference services using Docker and Kubernetes for scalable and fault-tolerant operation.
- Built backend APIs to manage video streams, inference services, and coordination across distributed system components.

#### Real-Time Tennis Performance Analysis System

- Developed a real-time computer vision system for tennis ball detection, tracking, and bounce point estimation to support ITN (International Tennis Number) performance evaluation.
- Implemented player detection and tracking pipelines to analyze shot events and score player actions during live gameplay.
- Designed multi-camera calibration, alignment, and synchronization mechanisms to fuse ball trajectories across multiple camera viewpoints.
- Applied human pose estimation techniques to analyze player movements and assess performance progression based on body posture and motion patterns.
- Built low-latency processing workflows to enable real-time feedback in sports performance analysis systems.

#### Blockchain Data Protection for Digital Forensics

- Designed and implemented a blockchain-based system to ensure immutability and consistency of digital forensic data processing and reporting pipelines.
- Applied blockchain mechanisms to preserve evidence integrity and prevent tampering during forensic analysis workflows.
- Developed system components using PHP and Java to support secure data handling and auditability.
- Implemented hash-based (Sha256) verification to validate forensic data consistency across the pipeline.

## TECHNICAL SKILLS

#### PROGRAMMING & CORE

Python C# Linux Git Sockets

#### MACHINE LEARNING / DEEP LEARNING

PyTorch TensorFlow Transformers

Scikit-Learn Onnx-Runtime DeepSpeed

FairScale

#### COMPUTER VISION & IMAGING

OpenCV Mediapipe Rastervision GEE

#### NLP & LLM ECOSYSTEM

LangChain Unsloth LLMA

#### DEVOPS / MLOPS

Docker Kubernetes Terraform

GitHub Workflows ArgoCD Ansible

Prometheus Grafana

#### DISTRIBUTED SYSTEMS

Confluent Kafka gRPC Protobuf

Rook-Ceph Apache Spark Ray

#### WEB FRAMEWORKS & APIS

ASP.NET Core FastAPI Flask Angular

#### DATA & DATABASES

Pandas Numpy Cassandra PostgreSQL

Redis Milvus Qdrant Firebase

Copernicus

#### VISUALIZATION

Matplotlib Seaborn Plotly

#### GIS & REMOTE SENSING TOOLS

ESRI ArcGIS Pro QGIS

## LANGUAGE

#### English - Professional Working Proficiency

#### Turkish - Native

## EDUCATION

#### Firat University

Bachelor of Science in Forensic Informatics Engineering

GNO: 3.73 / 4

2017 - 2022