

ML/CV Tech Leader

SUMMARY

My main focus is on ML/DNN for visual recognition and image processing, with strong knowledge of object-oriented, high-performance, and edge computing. I have experience in AD, ADAS, Localization, optimization, and other related areas. I have led projects from initial research to integration.

BIO

Aleksandr

- production development since 2012
- machine learning/computer vision since 2015
- technical leadership since 2018
- PhD program in Computer science (supervised by Dr. K. Vorontsov) at HSE, Master degree (with honor) in Informatics, BSc in Math at SSAU.

Organizational skills:

- Definition of mid-term plans, goals, technical approaches and technical capabilities
- Process excellence best practices
- Team and task management (interviewing, team forming, task decomposing)
- Research and product optimization

ML/CV skills and frameworks:

- PyTorch, TensorFlow (incl. TFLite), ArmNN, Caffe, SkLearn.
- Deep Learning, convolutional neural networks for detection, segmentation, and etc.,
- DNN optimizations incl. knowledge distillation, pruning, quantization, and low-level math.
- Classical ML incl. Statistics, Boosting, Regressions, Trees and etc., OpenCV, ITK

Programming languages:

- **Python** (numpy, scipy - for scientific and technical computing, flask, django – for backend),
- C++, OpenCL C (a CUDA alternative, GPU computing).
- JS (tf.js, mediapipe.js for ML on frontend, webRTC – for video transmission)

Other: Object tracking, video processing, Filters (Kalman)

Utilities: Git, JIRA, CMAKE, FFMPEG, ROS2.

Operating systems: Linux, Windows.

EXPERIENCE

2022-2023, Docet TI, Lead Embedded ML engineer

- Lead a team of middle/senior developers (computer vision and reinforcement learning); Choose tech approaches, software and hardware components
- Develop CV and ML for self- and remotely- driving vehicle (ego state estimation, SLAM, Localization&Mapping, synthetic data generation in the simulator, CNNs, RNNs, camera-lidar calibration, sensor fusion)

2019-2022 Arrival (Tbilisi/London), Lead Computer Vision Engineer

- NDA, Work related to electrical and autonomous vehicles

2018-2019 Teaching assistance while enrolling PhD

- Class about ConvNets

2018 NDA, ML&CV expert (short-term contract)

- Visual recognition of id documents by classic CV (PoC)

2018 NDA, Tel Aviv, ML&CV Tech Leader

- Launch of R&D project for surveillance system (requirements, estimates, business goals)
- Object detection, tracking prototypes
- Hiring devs, supervising, transfer project

2014 – 2019. Aligned Research Group LLC, Los Gatos, US (mainly Samara Office), Lead Researcher

- Medical image processing, segmentation on CT scans. Developing fully-automatic and semi-automatic methods for segmentation: (Classical ML, CNNs, 3d shape model, Paper publishing),
- Face recognition, Person re-identification (CNN, metric learning, Ensembles)
- Cross-platform C++ development (Windows/Linux/macOS), Parallel computing OpenMP, OpenCL CPU/GPU, GUI on QT
- Porting a Caffe framework to Windows and resolve conflicts within huge project
- Many PoCs with wins and fails.

2012 – 2013. CQG Inc., Denver, US (Samara Development Office), C++ Developer

- C++ internship on high-load system