Maxim Dorogov

Curriculum Vitae

Personal Details

Birth:, *Kaliningrad, Russia. September 21, 1992.*
Citizenship:, *Russia, Argentina.*
Address:, *Villa Urquiza, CABA, Argentina.*
Phone:, *+541166501730.*
email:, *mdorogov@fi.uba.ar.*

Education

2025 - Present **MSc. in Image Processing and Machine Learning**, *Univeristy of Buenos Aires.*
Thesis and research area: Satelite, SAR, Hyperspectral and Remote sensing images processing with pixel-to-pixel generative adversarial networks (GANs)

2013 - 2020 **Electronics Engineering**, *University of Buenos Aires*, (MSc. UE Equivalent).
Degree thesis: FPGA based Parametric Audio acquisition and signal processing system with a SAR ADC (24 bits of resolution) and S/PDIF digital output. A part of this work was presented in the Argentinean Congress of Embedded Systems (CASE 2020) and published in the congress peer-reviewed journal.

April 2019 **X Southern Programmable logic conference**, *FPGA SoC design course: SDSoC and HLS.*
Software application targeting standalone and Linux OS in SDSoC. Using C-callable libraries and multiple accelerators Introduction to Vivado-HLS (High Level Syntesis). Techniques, Directives and IP generation.

March 2019 **EAMTA**, *FPGA Digital Design Course.*
The EAMTA is a week-long school where undergraduate and graduate students attend to intensive courses in the field of microelectronics, device physics and electronics.

Publications

"IP Core for audio acquisition and processing based on FPGA ", Argentinean Congress of Embedded Systems Journal, August 2020, ISBN 978-987-46297-7-7

Work Experience

December 2024 - to date **Computer Vision Solutions Architect**, *Optriment.*
Lead a team of 3 AI developers and 2 web developers to build computer vision and machine learning solutions for the retail market. Developed a mixed (edge + Cloud) architecture for real time, scalable video processing pipeline. Deep Learning model training and optimization for inference (Object detectors, classification and segmentation). Developed a serverless video understanding pipeline based on QWEN 2.5 and ViViT served as a RestAPI in a Cloud RUN service. Responsible for team code reviews and reporting to the company C level executives. Key technologies: GCP, PyTorch, ONNX, TensorRT, Portainer, V-LLMs, K8S, Kafka, MySQL, Cloud RUN, OpenCV, Airflow, Vertex AI.

April 2023 - October 2024 **Computer Vision Engineer**, *SportsVisio*.
Developing computer vision algorithms for real time sports analytics. Dataset creation, algorithms design and state of the art deep learning models training for object tracking, detection and segmentation in order to add A.I. capabilities to the existing solution for extracting insights and statistics from Basketball Games. Key technologies: AWS, Pytorch, Camera Calibration, Object Tracking, Vision Transformers, GANs.

Jul 2022 - Nov 2023 **Computer Vision Advisor**, *December Labs*, Advanced Technology Group.
Computer vision features such as gaze correction, pose detection and object segmentation for video conferencing applications (Zoom, Microsoft Teams). Software development focused in expand computer vision capabilities of current AMD hardware products. Tools development for neural networks training, dataset handling and post-training optimization. Technology Stack: Flask, React, Apache TVM, Docker, onnx, tflite/tensorflow, PyTorch.

Aug 2021 - Jul 2022 **A.I. Developer**, *Intel IoT Group*, Full Time Contractor.
Development of end-2-end computer vision systems, processing +500 video streams in real time with deep learning and GStreamer based solutions. Training deep neural networks with post training optimization for Intel Hardware. A.I pipelines, cameras and hardware definition for specific scenarios. Software development for in-house applications as hardware benchmarking, video stream simulators and A.I. pipelines deployment over edge and cloud. Technology stack: Docker, Kubernetes, OpenVino, GStreamer, Keras, Pytorch, OpenCV, Tensorflow, ONNX and AWS (S3, EC2, Kinesis)

2022 - Present **Postgraduate teacher**, *Computer Vision I*, FIUBA, University of Buenos Aires.
Computer vision and machine learning algorithms for image processing. Color spaces, clustering, segmentation, object tracking and neural networks topics with python programming and OpenCV

2020 - 2022 **Computer Vision and Machine Learning Advisor**, *Zowl Labs*, Freelance.
Artificial Intelligence & Deep Learning custom models for computer vision applications. Developing and training algorithms using OpenCV, Keras, TensorFlow and full Python Machine Learning Stack. The projects I get involved are state-of-the-art segmentation networks, tracking algorithms and video based measurements in industrial environments for Machine Vision systems.

2019 - 2021 **Embedded Firmware Engineer**, *4i Platform Inc.*, Full Time.
Firmware development for Industrial Smart Sensors. C/C++ and Python programming for ARM 32 bits MCUs. Real-time data processing and high speed communication using SPI, I2C, Ethernet, DMA, USART and other peripherals.

2015–2017 **Research Assistant**, *Biomedical Engineering Institute U.B.A.*
Worked as research assistant in the Signal processing and Sensory motor rehabilitation group. Participated in a multidisciplinary hardware and software development teams. C/C++ and Matlab programming for a wireless data acquisition system tested in clinical patients.

Language

Spanish Native
Russian Native
English Fluent (speaking, reading, writing)

Technical Strengths

- Python
- GCP
- C#
- Docker
- AWS (EC2 and S3)
- Bash
- GIT
- PyTorch
- K8S
- Keras/Tensoflow
- OpenCV-EmguCV
- OpenVino
- GStreamer
- Numpy, scikit-learn, etc...

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