VLADIMIR LUCHINSKIY

Computer Vision Engineer

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I am a Master's Degree student and a Computer Vision Engineer with 3 years of experience looking for Middle Computer Vision Engineer position in a field of Deep Learning.

WORK EXPERIENCE

Computer Vision Engineer

IntegraNT LLC

May 2021 – Present Moscow, Russia

- Working on perception tasks for self-driving sweeper robot.
  - Trained 2D one-stage object detection networks (YOLOX, EfficientDet), lightweight 2D (DDRNet, UNet) and 3D (SalsaNext) semantic segmentation networks, wrote optimized inference for them via both Python and C++ TensorRT API. Wrapped inference as ROS (Robotic Operating System) and ROS2 nodes.
  - Currently, 2 of my networks are deployed on our sweeper robot prototype. The networks were targeted for Jetson TX2 and Jetson Xavier embedded systems.
  - Converted convolutional neural networks from Pytorch to TensorRT using ONNX parsers and directly using TensorRT Python API. Successfully performed post-train quantization of UNet segmentation network to int8 for TensorRT.
  - Created simple monitoring system that evaluates lightweight object detection networks (like YOLOX-tiny) on freshly collected data using automatically generated annotations from pretrained heavyweight detection networks (like EfficientDet-d7). The system was implemented on Python via DVC and MLFlow frameworks.

Computer Vision Engineer

Computer Vision Systems LLC

Nov 2018 – Aug 2021 Saint-Petersburg, Russia

- Worked on city objects recognition task in Augmented.City project.
  - Trained FaceNet with center loss to perform image retrieval for corresponding task. The network has won a city objects recognition competition held by FPI.
  - Used generative adversarial network (CycleGAN) for the expansion of training data for the task of city objects recognition in different weather conditions. Specifically, the expansion was done by converting summer pictures to their winter counterpart via GAN. This approach improved accuracy on winter data from 31% to 42%.
- Trained two-headed Unet-EfficientNet for searching defects on steel pipes using Pytorch. Proved the concept and helped my company to earn a contract with TMK.
- Converted Pytorch segmentation and detection models to TensorRT for deploying on NVIDIA Jetson. Created a small C++ library for inferencing these models via TensorRT.
- Speeded up pretrained TensorFlow Lite networks on ARM edge devices with ArmNN library.

SKILLS

Programming languages: Python, C++
Tools: Pytorch, TensorFlow 1.x, NumPy, OpenCV, TensorRT, ROS, Jupyter Notebook, Matplotlib, DVC, MLFlow, Linux, Docker
Mathematics: Calculus, Linear Algebra
Languages: Russian (native speaker), English (Upper-Intermediate)

PET PROJECTS

TensorFlow networks with C++
The project provides instrumentary for inferencing TensorFlow networks using TensorFlow bindings for C++ and can perform image retrieval or segmentation with them.

torch2onnx2trt
A simple python package that simplifies PyTorch models conversion to ONNX and TensorRT.

EDUCATION

Master's degree

Saint-Petersburg State Univercity, Mathematics and Mechanics faculty, Computer Science department

2020 – Present Saint-Petersburg, Russia

Bachelor's degree

Saint-Petersburg State Univercity, Mathematics and Mechanics faculty, System Programming department

2016 – 2020 Saint-Petersburg, Russia

ADDITIONAL COURSES

Stanford's CS231n

2018

Course dedicated to convolutional neural networks for visual recognition. Studied lectures on YouTube and completed home assignments