martinkersner

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work experience

Oct 2017–until now **Machine Learning Engineer** at HyperConnect — Seoul

- Acceleration Of Video Action Recognition On Mobile Device By Exploiting VP8 Data Format

- Face Synthesis
  - Real-time face generation and facial expression transfer on mobile device.
  - Few-shot face image generation using style attention, feature warping and landmark transformer.

  Python, PyTorch, Tensorflow, CoreML, Swift

- Low-bit Neural Networks
  - Researched and implemented various binarization schemes for single and multi-task classification.
  - Implemented conversion tool from PyTorch graph to custom model format.
  - Developed and optimized inference engine for mobile devices.

  Python, PyTorch, C++, SIMD, Android Java

- 8-bit Quantized Neural Networks
  - 8-bit quantized model for Image Classification and Semantic Image Segmentation in Azar.
  - Optimization of Tensorflow Lite for inference of Semantic Image Segmentation model.
  - Multi-label Image Classification in Picai - Smart AI Camera.
  - 2nd place at Low Power Image Recognition Challenge at 2018.

  Python, C++, Tensorflow, Tensorflow Lite, SIMD, Android Java, Swift

Dec 2016–Sep 2017 **Assistant Research Engineer** at Hanyang Information & Communications Co., Ltd. — Seoul

- Researched Object Detection networks and their application on NVIDIA Tegra (TK1, TX1 and TX2).
- Integrated Computer Vision modules (Lane Detection, Vehicle Detection, Tracking, Object Detection and Object Distance Estimation).
- Represented company at CeBIT 2017 exhibition.
- Lead of annotation project for Object Detection (plan for data collection, modification of online annotation tool, work assignment).

C++, Python, Caffe, Tensorflow, OpenCV

Jul 2015–Sep 2016 **Machine Learning Engineer** at Company 100, Inc. — Seoul

- Researched and implemented algorithms for Object Detection and Semantic Image Segmentation.
- Improved fashion recommendation engine for incorrectly segmented parts of clothes.
- Created prototype for detection and segmentation of clothes using Convolutional Neural Networks.
- Created hybrid mobile application and server for communication between mobile application and recommendation engine.

Python, Caffe, C/C++, Matlab

Sep 2014–May 2015 **Junior Researcher** at Certicon a.s. — Prague

- Project of Content Based Image Retrieval
  - Implemented video cut detection.
  - Developed a real-time detection and segmentation of paintings in video.
  - Clustered similar paintings and enhanced image quality using super-resolution algorithm.
- Project of Electronic Waste Recognition from Point Cloud
  - Developed a recognition method for different computer monitors and TV models.

C++, Python, OpenCV

research

Nov 2019 MarioNETte: Few-shot Face Reenactment Preserving Identity of Unseen Targets, arxiv, AAAI 2020

Mar 2019 Temporal Convolution for Real-time Keyword Spotting on Mobile Devices, arxiv, INTERSPEECH 2019

Oct 2018 Towards Real-Time Automatic Portrait Matting on Mobile Devices, arxiv

education

Sep 2012–Jun 2015 Master's degree from Czech Technical University in Prague, Knowledge Engineering
- Thesis Parking Assistant Using Web Cameras

Sep 2009–Jun 2012 Bachelor's degree from University of Technology in Brno, Information Technology
- Thesis Face Recognition