Zhang Qianhao

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Education

Carnegie Mellon University - School of Computer Science Pittsburgh, PA
M.S. in Computer Vision | Current GPA: 4.22/4.3 Dec. 2020

Beihang University - School of Computer Science and Engineering Beijing, China
B.Eng. in Computer Science and Technology | GPA: 3.78/4, Graduation with Honors Jul. 2019

University of Toronto - Faculty of Applied Science and Engineering Toronto, ON
Scholarship-Funded Exchange Program | GPA: 3.88/4 Dec. 2017

Academic Projects

Image-Based Localization for Autonomous Drones Pittsburgh, PA
Carnegie Mellon University | Supervised by Prof. John Galeotti Feb. 2020 - May. 2020

Exploration on deep-learning-based scene coordinate regression for visual relocalization in aerial environments

- Implemented a VGG-style network for scene coordinate regression and relocalizaition
- Increased the precision with structure-from-known motion and differentiable ensemble method
- Tested the relocalization module with km-level flight by drones and achieved sub-meter, sub-degree error

Convolutional Neural Network as Loop Closure Detector Berkeley, CA
University of California, Berkeley | Supervised by Dr. Allen Yang Jul. 2018 - Oct. 2018

Improvement on Visual-Inertial SLAM and exploration on deep-learning-based loop closure detection

- Implemented a feature-pyramid Siamese network in pytorch for loop closure detection
- Synthesized a large-scale indoor environment dataset with Unity3D and SunCG for training and testing
- Improved the stability of OKVIS on Intel D435i camera with ICP algorithm for texture-sparse frames

Professional Experiences

SenseBrain Technology LLC San Jose, CA
Research Intern | Mentored by Jiang Jun and Prof. Gu Jinwei May. 2020 - Aug. 2020

Efficiency study on the remosaic and demosaic tasks for quad-bayer photometric sensors on smartphones

- Compressed the remosaic-net with 50% less computation and original PSNR score for SONY 2x2 OCL
- Quantized demosaic-net in 8-bit and 16-bit quantization-aware training with minimal performance loss
- Deployed the quantized/compressed models on the DSP/CPU of an Oppo Reno 2 and a google Pixel 3

SenseTime Co., Ltd. Beijing, China
Research Intern | Mentored by Yu Fengwei and Dr. Yan Junjie Feb. 2018 - Jul. 2019

Development of automated test-and-deploy tools, and high-efficiency inference frameworks

- Created pytorch-onnx-caffe conversion package in Python, supporting all up-to-date neural layers
- Maintained customized Caffe version in C++ with novel layers for internal research and test purposes
- Developed the MKLDNN-based module for a node-based neural network inference framework in C, achieving state-of-the-art computational efficiency on Intel CPUs compared to PPL, Intel-Caffe and BVLC-Caffe

Awards and Certificates

An Image Retrieval System Based on Natural Language Captioning, CN Patent 201910738598 Aug. 2019
1^{st} Winner with 10,000-RMB Prize, BeyondSoft Tech Challenge on Motion Evaluation Nov. 2018
National Scholarship for Academic Excellency, Chinese Ministry of Education Nov. 2017

Skills

Python, C/C++; Computer Vision with Deep Learning; SLAM; High-Efficiency Deep Neural Networks