Qin Luo

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EDUCATION

Shanghai Jiao Tong University   Sept. 2019– Mar. 2022 (Expected)
M.S. in Control Engineering   Shanghai, China
- Supervisor: **Xiaolin Huang**, Associate Professor, SJTU
- GPA: **3.51/4.0**
- Relevant Courses: Digital Image Processing, Computer Vision, Convex Optimization

Shanghai Jiao Tong University   Sept. 2015–Jun. 2019
B.E in Instrument Science and Engineering   Shanghai, China
- GPA: **3.80/4.3**
- Relevant Courses: Digital Circuit, Signal Processing, Machine Learning, Linear Algebra, C++ Programming, Statistics

PUBLICATION

JOURNAL
[J1] Chu T, **Luo Q**, Yang J, Huang X. Mixed-precision Quantized Neural Networks with Progressively Decreasing Bitwidth[J]. Pattern Recognition, 2021, 111: 107647.

CONFERENCE
[C1] **Luo Q**, Fang K, Yang J, Huang X. Towards Unbiased Random Features with Lower Variance For Stationary Indefinite Kernels[C]//IJCNN 2021.

RESEARCH EXPERIENCE

- **Generalized random feature approximation for kernel and its application**   Mar 2020-Present
  Advisor: Xiaolin Huang
  - Extended random Fourier features to non positive definite or non stationary kernels
  - Utilized orthogonality sampling to reduce the variance for unbiased estimation.
  - Current: Making research on random features learning in the few-shot scenario.
- **Mixed precision neural network quantization**   Nov 2018-Feb 2020
  Advisor: Xiaolin Huang
  - Put forward the idea of mixed precision neural network, visualized the separation ability of the feature maps from different classes and utilized the phenomenon to determine the bits.
  - Conducted classification and object detection experiments to evaluate our proposed mixed precision neural quantization method with evenly quantization methods.
  - Extra: research on regularization and knowledge distillation for quantized neural network.

WORK EXPERIENCE

- **Optimization for action recognition model**   Megvii   Dec 2020-Feb 2021
  Mentor: Yichen Wei, Yuke Zhu
  - **Development of badcase analysis toolkit**
    Realized and compared several CAM algorithms in MegDL Framework to help analyze the badcases of action recognition model.
  - **Research on non local method and its alternatives**
    Introduced non-local method to boost the performance of action recognition model and reduced the computation expense for large-scale feature maps.
- **Computer vision tasks in endoscopic system**   Medtronic, Inc.   Dec 2019-Mar 2021
  - **Image enhancement (image denoising & image super-resolution)**

Baseline model training (DnCNN\RDN\GRDN\SRGAN\MMD-GAN)
- **Monocular stereopsis reconstruction**
  Baseline model training (Monodepth) and inference acceleration (Using Shufflenet and TensorRT)
  Improving the reconstruction fluency for 3d video (disparity exponentially average), written in pattern
- **Multi-channel measurement and calibration Software System**   Jan 2018-Jun 2018
  Advisor: Ping Cai
  - Front end development and testing of measurement and calibration software system allowing several functions, such as obtaining physical quantities like temperature and pressure from PCIe.
- **Human-robot interactive finger-guessing game**   Nov 2017-Feb 2018
  Advisor: Liang Gong
  - Worked as project leader, and arranged the timeline of the project.
  - Designed the gesture recognition algorithm using boundary extraction and invariant characteristics calculation.
  - Node communication in ROS operation system among robotic arms, Kinect and judgement GUI.

SOFTWARE SKILLS

- **Programming Languages:** C++, Matlab, Python, Labview
- **Deep Learning Framework:** PyTorch
- **Software & OS:** LaTEX, Ubuntu, Altium Designer

HONORS & AWARDS

HONORS:
- Outstanding graduate of Shanghai Jiao Tong University   2019
- Excellent student scholarship in Shanghai Jiao Tong Univiersity   2016-2019
- Endress+Hausser Scholarship   2017

COMPETITIONS:
- Third prize in National Post-graduate Mathematical Contest in Modeling   2020
- Third prize in National Undergraduate Mathematical Competition   2016

VOLUNTEER:
- Reviewer for Expert Systems With Applications (2021)
- Reviewer for IEEE Transactions on Neural Networks and Learning Systems (TNNLS, 2021)
- Volunteer for Shanghai Jiao Tong University 120 Anniversary and Shanghai International Marathon