WEIXI FENG

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EDUCATION

University of California, Los Angeles (UCLA)
M.S., Electrical & Computer Engineering — Sept. 2018 - Present
GPA: 4.0/4.0
Courses: Optimization Methods for Large-Scale Systems, DIP, Convex Optimization, Machine Learning Algorithms, Deep Learning and Neural Networks, Computational Imaging, Matrix Analysis, Linear Programming.

Hong Kong Polytechnic University (PolyU)
B.Eng. (First Honour), Electronic & Information Engineering — Sept. 2014 - Jun. 2018
GPA: 4.0/4.0, Rank 1/100+
Courses: Computer Vision & Pattern Recognition, Introduction to HCI, Image & Audio Processing etc.

RESEARCH PROJECTS

Few-shot Learning with Graph Neural Network
Interest motivated

- We propose a dual-metric graph neural network that jointly optimizes a non-Euclidean space metric on edge features and L2 metric on node features.
- We emphasize edges between support nodes and query nodes to improve the generalization ability of the model to infer novel data points.
- The classification accuracy is increased by ~1% in different experiment setup, including transductive and semi-supervised on miniImageNet.

Imaging through Fog and Turbulence
Supervised by Prof. Kadambi

- We propose a new forward model for dense maritime fog based on RTE approximation and experimental validation.
- Simulate atmospheric turbulence with CUDA acceleration and investigate on mitigation methods.
- We propose a multi-projection method for fusing multi-spectral bands to enhance defogging results.

Traffic Sign Detection under Bad Weather Conditions
supervised by Prof. Kenneth Lam

- We propose a two-stage traffic sign detection system that handles various image degradation scenarios include rain, snow, haze, blur etc.
- We jointly optimize the bounding box loss and the classification loss with weights that balance positive and negative anchors, and the uneven distribution of traffic signs of different classes.

Course projects

- Decouple ROI pooling for object detection
- Implementation of convex relaxation methods for certifying robustness of neural networks
- Robust Underwater GPS Via Whole-sky Polarization Model

EXPERIENCE

ECE 102 Systems and Signals
Teaching Assistant — Sep. 2019 - Dec. 2019

- Hold weekly discussion sessions and office hours; Make homework, midterm and final questions.

Visual Machines Group, UCLA
Research Student Apr. 2019-Present

- Focus on physics-based learning on low-level vision tasks like dehazing, superresolution.
- Build thermal non-line-of-sight (NLOS) demo with real-time human pose detection.

Center for Multimedia Signal Processing, PolyU
Undergraduate Research Student Jan. 2017 - Dec. 2017

- Focus on object recognition by designing feature descriptors+traditional classifiers and comparing with deep learning.
- Help with ICME 2017 registration and equipment setup.

PUBLICATIONS

- **Weixi Feng***, Muqiao Yang*. "A Graph Neural Network with Dual Metric for Few-Shot Learning". (in submission)
- **Weixi Feng**, Guangyuan Zhao and Achuta Kadambi. “Seeing through Fog and Turbulence”, Tech Report, 2019.

SKILLS

- Programming Languages: Python, Matlab, C/C++, Pytorch, Tensorflow, Keras, CVXPY.
- Software & Tools: Linux, LaTeX, Git.

AWARDS & ACHIEVEMENTS

- UCLA Graduate Division Fellowship for TA *Fall 2019*
- Best Poster/Demo Runner up, UCLA ECE Annual Research Review *Apr. 2019*
- PolyU Outstanding Student, Class of 2018 (only 1 awardee in the Department of EIE) 2018
- IEEE Video & Image Processing Cup Second Prize *2017*
- HKSAR Government Scholarship *2016/17, 2017/18*
- IEEE(HK Section) Prize *2016/17*
- Dean’s list *2014-18*
- CMA Donors, FHKI, Wong May Yee, Wong Tit-Shing Scholarships *2016-18*