WEIZHI LI

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EDUCATION

Doctor of Philosophy in Computer Engineering September 2018 - Present
Arizona State University, Tempe, AZ GPA: 4.0/4.33
Advisor: Professor Visar Berisha
Research interests: Model robustness and label-efficient learning

Master of Science in Electrical Engineering September 2015 - December 2017
Texas A&M University, College Station, TX GPA: 3.7/4.0
Advisor: Professor Jim Ji
Research interests: Deep learning in histological image segmentation

Bachelor of Science in Electronic Information Science and Technology September 2011 - June 2015
Shandong University, P.R. China Major GPA: 85/100
Research interests: Image processing in image dehazing and filtering

TECHNICAL SKILLS

Languages: Python, C++, Matlab **Libraries**: Tensorflow, PyTorch

SELECTED PROJECTS

Finding the homology of decision boundaries with active learning January 2020 - Present
Outcomes: One paper accepted by NeurIPS'20. ***Python and Matlab were used.***

· For the first time, we proposed to find the homology of decision boundaries with active learning. Furthermore, we analyzed the complexity of the proposed learning algorithm in the framework of the probably approximately correct learning.

Structural label smoothing for deep model regularization September 2018 - December 2019
Outcomes: One paper accepted by AISTATS'20 [Paper link]. ***Pytorch and Python were used.***

· By acquiring the meta-knowledge from the data, we modified the original label smoothing and developed a novel structural label smoothing. This new regularization method, experimented in diversed classification tasks such as CIFAR-10, CIFAR-100 and SVHN, outperforms the original label smoothing by 2% accuracy.

Multi-view 3D object detection network for autonomous driving November 2017 - December 2017
Outcomes: Reproduced the results of a CVPR'17 paper [Project link]. ***Tensorflow and Python were used.***

· I processed the raw LIDAR point cloud and prepared it for the model training. I built an object detection deep network called MV3D with Tensorflow. This is a deep network composed of two subnetworks to receive the LIDAR and RGB image data.

Noise-tolerant deep learning for image segmentation January 2016 - December 2017
Outcomes: One paper accepted by ICIP'17 [Paper link]. ***Tensorflow and Python were used.***

· We innovatively developed a deep network resistant to label-noise for histological image segmentation. The proposed network was applied to identify the Duchenne muscular dystrophy in histological images and achieved the clinicians satisfied segmentation results.

The effects of image dehazing on image compression Dec 2014 - May 2015
Outcomes: Undergraduate thesis. One paper accepted by the journal TIIS [Paper link]. ***Matlab was used.***

· We compared three image filters: median filter, non-local means filter and bilateral filter for their performance on a chained application of image dehazing and JPEG image compression. Furthermore, we developed a noise removal algorithm to diminish the blocking artifacts for the chained application and theoretically demonstrated the usefulness of the algorithm.

PUBLICATIONS

W. Li, G. Dasarathy, K. Ramamurthy, V. Berisha, "*Finding the Homology of Decision Boundaries with Active Learning*", NeurIPS'20.

W. Li, G. Dasarathy, V. Berisha, "*Regularization via Structural Label Smoothing*", AISTATS'20.

C. Tsai, **W. Li**, X. Qian, Y. Lin, "*Image Co-saliency Detection and Co-segmentation via Progressive Joint Optimization*", IEEE Transactions on Image Processing (TIP), 28(1), 56-71.

W. Li, X. Qian, and J. Ji, "*Noise-tolerant Deep Learning for Histopathological Image Segmentation*", In Proceedings of IEEE International Conference on Image Processing (ICIP), 2017.

L. Wang, X. Zhou, C. Wang and **W. Li**, "*The Effects of Image Dehazing Methods Using Dehazing Contrast-Enhancement Filters on Image Compression*", KSII Transactions on Internet and Information Systems (TIIS), vol. 10, no. 7, pp. 3245-3271, 2016.

HONORS

Graduate Travel Award from Arizona State University	2020
Engineering Graduate Fellowship from Arizona State University	2018, 2019
Winner of the Research Poster Competition in SWE region C conference	Mar 2017
Graduate Merit Scholarship from Texas A&M University	Aug 2016
Shandong University 3rd-class Scholarship	Oct 2014

ACTIVITIES

Graduate Fulton Ambassadors	Jan 2020 - Present
Medical Imaging Summer School: Medical Imaging Meets Machine Learning [Activity link]	Aug 2016