KAIDONG LI

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EDUCATION

University of Kansas, Lawrence, KS Aug. 2018 – Now
Doctoral Degree, Electrical Engineering Cumulative GPA: 3.83
University of Southern California, Los Angeles, CA May 2015
Master of Science, Electrical Engineering Cumulative GPA: 3.72
Shanghai Jiao Tong University, Shanghai, China Aug. 2013
Bachelor Degree, Electrical and Computer Engineering
Three semesters' Dean's List (Mar 2011, Mar 2012 & Oct 2012)

RESEARCH EXPERIENCE

Current Work

- Researching on 3d point cloud and trying to integrate some classical computer vision technique to help deep convolutional neural network models like PointNet

SGNet: A Super-class Guided Network for Image Classification and Object Detection

Published on *Conference on Robots and Vision*

- Designed a super-class guided architecture with super-class (SCB) and finer-class (FCB) branches
- Came up with feasible strategy to modify existing dataset to train both SCB and FCB
- Carried out extensive experiments to show the superior performance over existing models

Colonoscopy Polyp Detection and Classification: Dataset Creation and Comparative Evaluation

Submitted to *PloS one*

- Built and labeled a colonoscopy dataset consisting of data from different colonoscopes, which we believed to be the largest colonoscopy dataset
- Implemented six state-of-the-art detectors (three two-stage and three one-stage models) and compared their performance on the dataset, which can be a benchmark for future studies

A Comparative Study on Polyp Classification using Convolutional Neural Networks

Published on *PloS one 15.7 (2020)*

- Implemented six state-of-the-art deep learning-based image classification models and compared their performance on the two datasets, which can serve as a baseline for future studies on polyps

Why Layer-Wise Learning is Hard to Scale-up and a Possible Solution via Accelerated Downsampling

Published on *2020 IEEE 32nd International Conference on Tools with Artificial Intelligence (ICTAI)*

- Analyzed the separability of feature space along with the training procedure from the perspectives of both time and spatial domains
- Proposed a downsampling acceleration scheme to boost the interpretation for feature space and match with the supervision constraints for earlier layers to enhance the classification performance

Location-Aware Box Reasoning for Anchor-Based Single-Shot Object Detection

Published on *IEEE Access 8 (2020)*

- Proposed a novel bounding box reasoning method aware of the spatial relationship between box proposals and the ground truth, which is the first framework of this kind for single-shot networks
- Designed to be integrated with any single-shot networks and demonstrated the effectiveness of the proposed model through extensive experiments on both PASCAL VOC and MS COCO dataset

Chapter: Object Detection with Convolutional Neural Networks Aug. 2018 – Jan. 2019

- Implemented and trained detectors (YOLOv3, faster RCNN and RetinaNet) on VisDrone datasets
- Wrote a chapter about the details and comparison on difference detector performance

TECHNICAL SKILLS

Programming Language: Python, Java, C/C++, css, JavaScript, PHP, Verilog, Assembly Language
Application: Android Studio, Eclipse, Node.js, Visual Studio, Apache, Matlab, Xilinx, Mathematica

WORK EXPERIENCE

GTA of EECS 168 and EECS 268 (Programming I & II) at **University of Kansas**
Senior Software Engineer at **Rufus Labs** Aug. 2014 – Aug. 2018

Android Framework Modification

- Brainstormed, designed and maintained custom User Interface collaboratively for system level apps to provide intuitive User Experience with material design
- Implementing and integrating OTA updates, software screen dim, etc. into Android source code
- Adding new interface in Hardware Abstraction Layer to expose custom sensor data to developers

Custom App Development

- Designing object-oriented and resource-efficient code structure for all projects
- Processing motion sensor data to recognize user activity and developing mechanism to synchronizing data generated at the rate of 50 sets/second to cloud database using Node.js
- Implementing task assignment mechanism using Socket.IO

PROJECT EXPERIENCE

Real Estate Search Webpage and Android App Aug. 2014 – Dec. 2014

- Developed Android App and responsive webpage with customized User Interface using bootstrap
- Implemented back-end code on AWS to return search result in JSON data from Zillow API

Forest Cover Type Classification Jan. 2014 – May 2014

- Analyzed original data from US Geological Survey to predict cover type using Machine Learning
- Compared and visualized distribution-free classification and statistical classification
- Improved accuracy from 15.6% to 81.4% using optimization techniques (SVM, PCA, etc.)

Compact Cell-Phone Based Microscope Sept. 2012 – Dec. 2012

- Led team to develop a collapsible prototype for thousands of different cell-phones with screen size under 4.3-inch in two weeks using 3D printer
- Used Arduino to control motor manipulating object distance on Android Bluetooth module input
- Developed software to double image quality using interpolation

Central Processing Unit (CPU) Sept. 2011 – Dec. 2011

- Modeled a 5-stage pipelined CPU implementing instruction set of *lw, sw, add, sub, and, or, slt, beq* and *j* using Xilinx in Verilog HDL

ACTIVITIES

Vice President of Institute's Tennis Club 2010 – 2011