RUNZE LI

PROFILE

Research Assistant, The Australia National University
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Research Interests: Computer Vision, Deep Learning

EDUCATION

University of Melbourne — **Melbourne, VIC, Australia**
Master of Information Technology, Distributed Computing — *Aug. 2014 - June. 2016*
Beijing University of Posts and Telecommunications — **Beijing, China**
Bachelor of Engineering, Information Engineering — *Sept. 2010 - June. 2014*

PAPERS

- Bachelor Thesis: Visual Object Classification(Chinese)
- Research Paper: Face Recognition on Face Retrieval System
- Research Paper: Remote Mind Reading-Control NAO to Perform Card Tricks

RESEARCH EXPERIENCES

• **Australia Robot Vision Center, Research School of Engineering, Australian National University, Canberra**
– Research Assistant, Supervisor: ARC DECRA Fellow YuChao Dai — *Sept. 2016 - present*
– Topic: Motion Segmentation & Ego-motion Estimation & Homography Estimation — *Torch, Caffe, Matlab, GPU*
  ○ Implemented deep convolutional neural network on homography estimation
  ○ Investigated and utilized neural network on geometric calculations
  ○ Conduct on motion segmentation and senmatic/object segmentation with deep neural network

• **Andrew's Group, Department of Computing & Information Systems, University of Melbourne, Melbourne**
– Research Project, Supervisor: Prof. Andrew Turpin — *Mar. 2016 - Jul. 2016*
– Topic: Remote Mind Reading-Controlling NAO to Perform Card Tricks — *Python, Naoqi*
  ○ Trained a poker-card-classifier using SIFT + Bag of Features Model + SVM
  ○ Embeded the pre-trained classifier in the robot NAO and controlled the NAO to perform the Card Tricks
  ○ Tested the NAO's performance under various environment with varying illumination

• **Digital Content & Media Sciences Research Division, National Institute Informatics, Tokyo**
– Research Assistant, Supervisor: Prof. Shin'ichi Satoh — *Dec. 2015 - Mar. 2016*
– Topic: Content-based Image and Video Analysis — *Torch, Lua, Python, Matlab, GPU*
  ○ Investigated the deep learning model FaceNet System and its implementation OpenFace
  ○ Evaluated two image recognition models (Openface based on FaceNet & VGG model based on Deep Face Recognition) on LFW dataset and NHKNEWS7 dataset
  ○ Deployed and incrementally trained a new convolutional neural network with NHKNEWS7 data

• **Spatial & Temporal Data Analytics Research Group, University of Melbourne, Melbourne**
– Research Assistant, Supervisor: Prof. Rui Zhang — *Mar. 2015 - Aug. 2015*
– Topic: Spatial-based Data Mining and Data Integration — *Python*
  ○ Crawled car-park data in Australia from Parkopedia, Open Street Map, Wilson & Secure Parking data sources and pre-processed the raw data
  ○ Analyzed car-park data, extract attributes of data and intergrated data for future mobile phone application development usage

• **Pattern Recognition & Intelligent System Lab, BUPT, Beijing**
– Bachelor Thesis, Supervisor: Prof. ChunGuang Li — *Feb. 2014 - Jun. 2014*
– Topic: Visual Object Classification — *Matlab*
  ○ Extracted SIFT(Scale-Invariant Feature Transform) features from object images
  ○ Used Bag-of-Features Model with K-means clustering algorithm
  ○ Used SVM(Support Vector Machine) to launch object recognition and classification

○ Experimented training and tesing of the model on Caltech 256 and Caltech 101 datasets

• **Pattern Recognition & Intelligent System Lab, BUPT, Beijing**

– Research Assistant, Advisor: Director XiaoTian Wang *Jun. 2012 - Aug. 2012*

– Topic: Text REtrieval Conference 2012 *Python*

○ Analyzed data provided by PageRank on Google Search results

○ Identified and extracted attributes and words in the obtained dataset

PROJECT EXPERIENCES

• **Australia City Analytics, University of Melbourne**

– Project Goal: Australia Tweet Analysis and Visualization *Mar. 2016 - Jun. 2016*

– My Tasks: *Python, CouchDB, Linux*

○ Built up database using Twitter API, extracted and stored tweets using Map-Reduce on CouchDB

○ Conducted on tweet analysis in different scenarios with knowledge analysis techniques

• **Instagram-cloned iOS Application, University of Melbourne**

– Project Goal: Develop an iOS application *Jul. 2015 - Oct. 2015*

– My Tasks: *Swift*

○ Developed to let users select photos from local library and capture photos by cameras with smart APP

○ Implemented to enable uses to process image by cropping, filtering and adjusting brightness and contrast of images for various styles

○ Developed to let users to post images to share in the social circle with smart iOS APP

• **Parallel Computing on N-Body Problem, University of Melbourne**

– Project Goal: Solve the N-Body problem *Jul. 2015 - Oct. 2015*

– My Tasks: *C,Shell,GPU*

○ Implemented parallel programming with OpenMP and OpenMPI on the N-body problem

○ Deployed and utilized multicores on GPU to boost parallel computing

• **File Management System, University of Melbourne**

– Project Goals: Develop a File Management System *Mar. 2015 - June. 2015*

– My Tasks: *Java, Shell*

○ Developed the file synchronization system to synchronize files between two destinations in local device

○ Worked on the file transmission mechanism from local to remote server in File Management System

• **Weather Predication Website, University of Melbourne**

– Project Goals: Develop a Melbourne weather information website *Mar. 2015 - June. 2015*

– My Tasks: *Ruby on Rails, CSS, HTML*

○ Crawled weather data from the The Beureu of Meteorology and Forcast.io two sources and parse data to store in database

○ Worked to make predictions of future weather data with current weather information using regressions

○ Worked to build the smart weather prediction website collaboratively

PROFESSIONAL SKILLS

○ Project Experiences in Python, Lua, Matlab, Java, Ruby on Rails, Swift, Shell, Git, C, HTML&CSS

○ Familiar with C++, LaTex

○ Open Source Tools: OpenCV, Torch, Caffe, VGG, etc.

MAIN COURSE

- Web Search and Text Analysis, Knowledge Technologies
- Pattern Recognition, Bioinformatics foundations
- Algorithms and Complexity, Programming and Software Development, Software Modelling and Design
- Cluster and Cloud Computing, Multicore and Parallel Computing, Distributed System
- Online Courses: CS231n Convolutional Neural Networks for Visual Recognition, CS229 Machine Learning, Linear Algebra(MIT)