Bingyuan Liu

Senior Software Engineer · Deep Learning and Computer Vision

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WORK Experience

Alibaba Group, Inc. *Hangzhou, China*

Senior Software Engineer on Applied Deep Learning Algorithm *Apr. 2016 - PRESENT*

- **Responsible for OCR (Optical Character Recognition) algorithms (from 04/2016 to present).** Designed the OCR algorithm framework for recognizing Chinese business license. Implemented the main modules including image pre-processing, text location, character recognizer and text line recognizer with deep learning models of CNN and LSTM. The algorithm has been applied in the products of Alipay, DingTalk and Alibaba Cloud for user validation. The precision in real environment outperforms 90%.
- **Responsible for computer vision algorithms on the product of PAI (Platform of Artificial Intelligence) of Alibaba Cloud (from 10/2016 to present).** The goal of the project is to design and develop deep learning based computer vision algorithms on Alibaba Cloud. The users of the platform can easily and efficiently apply the algorithms to solver real problmes. I have developed Faster-RCNN modules for object detection and Covolutional LSTM modules for text line recognition.

Huawei Technologies Co. Ltd. *Nanjing, China*

Senior Software Engineer at Big Data Lab *Jul. 2015 - Apr. 2016*

- **China Mobile customer data analysis project (from 08/2015 to 03/2016).** Responsible for the NLP and machine learning module in an intelligent text analysis system for the customer service center of China Mobile. The system has the features of key words mining, text annotation and sentiment analysis. The main techniques cover a wide range of NLP and machine learning algorithms, including Chinese words segmentation, Word2vec, pattern matching and associate learning.
- **Knowledge graph in movie domain (from 07/2015 to 12/2016).** Designed and implemented some machine learning and NLP modules, including word embedding, concept annotation and entity relationship mining. The main techniques we employed are Word2Vec, SVM, CNN and LDA model.

Research Experience

Institue of Automation, Chinese Academy of Sciences *Beijing, China*

Ph.D. in Computer Sciences - Computer Vision *Sep. 2010 - Jul. 2015*

- **Deep learning models for image representation and understanding (from 09/2012 to 06/2015).** Motivated by sparse feature learning and hierarchical architecture, we proposed several deep learning based models to learn more robust and distinctive image features and improve the performance of image classification. We also tried to integrate deep learning model and classical image recognition pipeline. Several papers were published in the related international journals and conferences.
- **Spatial structure information learning for image feature extraction (from 09/2010 to 09/2012).** The spatial structures within image is significant for the task of image understanding. However the traditional image recognition models lack enough spatial information. To address the issue, we proposed several machine learning based models for better extracting the spatial information and improve the performance of image recognition. Two papers were published in the related international journals and conferences.

Education

Institute of Automation, Chinese Academy of Sciences *Beijing, China*

Ph.D. in Computer Science *Sep. 2010 - Jun. 2015*

- Research Areas: Deep Learning, image classification and object detection
- Published seven papers on the related international conferences and journals
- Got National Scholarship which is given to top students in China.

Zhejiang University *Hangzhou, China*

B.S. in Information Science and Communication Engineering Rank: 25/210 GPA: 4.29/5.0 *Sep. 2006 - Jul. 2010*

- Several Outstanding Student awards and Outstanding Graduate of Zhejiang University.
- Second prize in National Undergraduate Electronic Design Contest.

Awards

2015	**2nd Place**, ImageCLEF Scalable Image Annotation Challenge	*Toulouse, France*
2014	**2nd Place**, National Smart-city Technology Challenge - object detection task	*Beijing, China*
2014	**1st Place**, Team Table Tennis Championships of Chinese Academy of Sciences	*Beijing, China*