Xiaoning DONG

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EDUCATION

Bachelor of Engineering in Computer Science and Techonology Aug. 2010 - Jul. 2014
College of Computer
Xidian University, Rank: 3/443

Master of Engineering in Computer Science and Technology Sept. 2014 - Jun. 2017
National Laboratory for Parallel and Distributed Processing, College of Computer
National University of Defense Technology, Exam-exempted Admission

SELECTED HONOUR AND PRIZES

Scholarship
- **National Scholarship(1%),Top Prize Scholarship of Xidian University (1%)**,National Encouragement Scholarship.
- Huawei Scholarship, China Telecom Scholarship.
- NUDT Graduate Scholarship(twice), First Prize Scholarship of Xidian University (twice).

Competition
- Second prize in American Mathematical Contest in Modeling(MCM).
- First prize in Mathematical Contest in Modeling of Shaanxi Region(CUMCM).
- First prize in Information Security Contest of Shaanxi Region.
- 55th place/7186 Alibaba Tichi Big Data Contest in Mobile Recommendation.

Leadership
- **China Computer Federation Outstanding Undergraduate Award(CCF OUA)**.
- Outstanding Graduate, Outstanding Graduate Cadre, Outstanding Student Leader(twice).
- Star of Microsoft Student Technical Club

PATENT AND PUBLICATION

· Translation Book: Practical Bot Development(ISBN978-7-111-62921-4). Jun. 2019
· National Defense Patent: A *** C4ISR System based on Mobile Device.(under review) Nov. 2018
· National Defense Patent: A *** Management System for Remote Sense Ground Station.(under review) Jan. 2019

PROJECTS

Tiny Object Detection in Heterogeneous Image Feb. 2018 - Mar. 2019
Full-time employee in China Aerospace Science & Industry Corp.

· I investigated deep neural networks for object detection,especially small object detection and conducted experiments with our SAR images and thermal infrared images. Besides, I also examined data augmentation and data pre-processing methods for SAR image and thermal infrared image.
· Based on the current deep neural networks, namely Yolo, SSD and Faster R-CNN, we trained six special convolutional neural networks with Tensorflow(Python interface) and then we blended the trained circuits to address tiny ship detection in SAR image and thermal infrared image. We found the aggregate model finally achieved high accuracy and low false-alarm rate after fine-tuning which qualified for our engineering metric.

Software Development for Spacecraft Ground Monitor Station Apr. 2018 - Dec. 2018
Full-time employee in China Aerospace Science & Industry Corp.

· I undertake the software design&development work, which is a full life-cycle management system for some certain spacecrafts. This software is designed with some software engineering philosophy, namely pattern design and object-oriented programming, and implemented with C#.
· Basically, this software deals with the general communication between spacecraft and its ground monitor station. With its development methodology, it is versatile and can be compatible with our current two spacecrafts. Thus, it can be used in more launch missions.

Alibaba Tianchi Big Data Contest in Mobile Recommendation Apr. 2015 - Jun. 2015
Graduate student

- In this competition, we got asked to use real user-product action data on Taobao to build product recommendation algorithm.
- I investigated feature engineering and machine learning algorithms in data analysis. I also processed the training data(imbalance data, time slice, data set reconstruction etc.) and visualized them using Pandas and Matplotlib respectively. We chose to implemented an aggregate model with logistic regression, random forest and GBDT in the contest platform after comparing many models by experiments and we finally got 55th place out of 7186 teams with F1 score 10.2%.

Research on SVM for large scale imbalanced data Jan. 2016 - Dec. 2016
Graduate student

- Classification algorithms usually suffers from biased classification accuracy on imbalanced data because of several challenges. I presented a stratified under-sampling method for imbalanced data classification. This method is reasonable in the following ways: firstly, undersampling can make the data balanced which can improve the positive class classification accuracy; secondly, stratified undersampling can better represent the distribution of original data than any other sampling methods. Our experiment results show that SVM shows a higher classification accuracy of positive class with stratified under-sampling while dealing with imbalanced data.
- While the scale of imbalanced data is very large, dealing with its classification using aforementioned algorithm can cost unbearable training time. To address this problem, I proposed a distributed algorithm based on group training model. The algorithm incorporates an optimized cascade support vector machine to splits training data into groups and filter non-SVs in parallel. Experimental results showed that our method can significantly reduce the training time at slight cost of classification accuracy.

INTERNSHIP/EXPERIENCE

Institute of Computing Technology Chinese Academy of Sciences Mar. 2016 - Jun. 2016
Research Intern

- I investigated machine learning algorithms' run time in Spark MLlib(machine learning library) and the mechanism of memory management in Spark by running the benchmark and profiling the memory consumption. Also, I dissected the source code of MLlib to learn the mechanism how Spark caches data(i.e. RDD) on DRAM to improve RDD reusage and accelerate computing while running a machine learning task.
- To accelerate machine learning task in heterogeneous hybrid memory(DRAM&NVM), we tried a naive heuristic algorithm which can automatically cache and transfer RDD between DRAM and NVM. We applied it to logistic regression in MLlib to validate our algorithm, and simulation experiments demonstrated the running time can be dropped.

Microsoft Research Asia Dec. 2016 - Jun. 2017
Research Program Management Intern

- I worked closely with university-relation managers to implement outreach programs in research collaboration, talent fostering. Specifically, I owned the MSTC program (Microsoft Student Club, 34 universities in China) and I was responsible to strengthen the impact of Microsoft platforms, tools and technologies through the program.
- We organized Beauty of Program Competition. I worked closely with research teams and engineering teams and independently undertook technology-related works e.g. chat bot development, writting Bot Framework tutorial, designing semi-final test and so forth. More than 2,000 teams joined the competition.
- I also organized academic events with my mentor. We designed and hosted BoP and Microsoft AI Lectures opening ceremony in Tsinghua University, attrcting more than 300 onsite spectators and 50,000 online audiences.
- Performance Appraisal: **Award of Excellence** (top 10%)

EXPERTISE

Languages
- English(IELTS scores: L 7, R 7.5, W 6, S 6, Overall 6.5); Japanese; French.

Hard skills
- Strong programming skills: Python, C++.
- Solid computer science and mathematics foundation(data structure, algorithm, optimization theory, matrix theory, probability statistics etc.); solid background in machine learning.
- Rich theory knowledge and hands-on experience in machine learning and familiar with related tools e.g. Scikit-learn, Xgboost.
- Familiar with deep learning, neural networks and its tools Tensorflow, Keras. Keep up with new influential publications and have hands-on experiences.
- Familiar with Linux, Git, Latex.

Character
- Intellectual curiosity, Quick learner, Growth Mindset, Self-motivated, Resilient, Leadership, Excellent communication and presentation skills.

LEADERSHIP

Administrator of 34 Microsoft Student Clubs in China.	Dec. 2016 - Jun. 2017
Chairman of Microsoft Student Technical Club, NUDT	Nov. 2015 - Dec. 2016
Monitor of Class 031011, College of Computer	Sept. 2010 - Jul. 2014