Weipu Zhao

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SUMMARY OF SKILLS

Program skills: Python, Java, C/C++, hadoop, Matlab, Labview, LaTeX, php, html
Experienced area: Machine learning, Big Data, Natural Lang. Processing, Linux, ARM, mysql

HIGHLIGHT PROJECT EXPERIENCE

Python Implementation of Chinese-English Translation System, **Sep 2014-Dec 2014**

Keywords: Python, Statistic Machine Translation, Algorithm Implementation, Data processing;

- Implemented python based Chinese-English machine translation system as Course Proj. of Natural Language Process which can read large dictionary data and decode the input Chinese sentences with designed statistic model
- Led a group of 4 completed 5 mini-projects as split parts of a full MT system which all involved design and implementation of models in Python and scored top 5% during in-class performances evaluation
- Facilitated group collaborations during the process by arranging group meetings and keeping individual tasks on track to meet the deadline, got A in final grade

Map-Reduce implementation of Find Frequent Itemsets, *Course Proj. of Data Mining* **Sep 2014-Dec 2014**

Keywords: Hadoop, Java, map-reduce, Linux script, association rule;

- Implemented java based map-reduce program to find frequent itemsets in transaction database by designing two phase map-reduce functions as implementation of SON algorithm
- Creatively designed customized NLinesRecordReader class for this application in order to read several lines as one record for map function
- Led a team of two successfully with smooth and efficient accomplishment of the goal and got full credit

Human Activity Recognition Using AdaBoostM1 , *Course Proj. of Machine Learning* **Sep 2014-Dec 2014**

- Experimented with C4.5 decision tree based AdaBoost.M1 algorithm in HAR using smartphone sensor data
- Employed Correlation-Based Feature Selection algorithm to reduce computation complexity with minimum loss in accuracy. Proved the powerfulness of AdaBoost with outperformed accuracy of 93%

WORK EXPERIENCE

Teaching Assistant of CMPT128, *Simon Fraser University, Burnaby, BC* **Sep 2014-Dec 2014**

- Collaborated with a group of 5 as TAs for a Course with 287 students named Introduction to Computing Science for Engineer Students from Dr. Janice Regan
- Assisted the instructor in weekly C++/C programming Lab for teaching and helping about 60 students during the lab
- Tested and improved the instructor's auto-grading software in C++ through total 56 hours of grading tasks for two quizzes and two assignments

Software Engineer Intern, *BaianTek Co. LTD., Shanghai,China* **Feb 2014-Jun 2014**

- Developed and optimized several engineering software modules in C++ under Visual Studio
- Implemented special Spectrum analyze module in C++ to be used in the existing Fiber Distributed Temperature sensing system(DTS) software monitoring software in DLL fashion
- Researched and developed the signal processing and classification algorithms of the Fiber Distributed vibration sensing system(DVS)
- Re-developed the PC control software of Mini-EDFA under Labview on a very short deadline

Assistant Software Engineer, *Pipeline R&D Center, Langfang, Hebei, China* **Feb 2013-Sep 2013**

- Worked on the research of pipeline leak detection software system at the Mechanical Automation Institute of PetroChina Pipeline R&D center
- Designed and implemented algorithms to detect pipeline weak leak signals as leading developer of one collaborated project worth around $65000
- Integrated the designed algorithms in Labview to C# systems by designing and implementing DLL interface for C#
- Completed 6 monthly reports and one midterm evaluation report, finished software development documents on time and successfully passed the final evaluation hold by the sponsor

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OTHER RESEARCH EXPERIENCE

Pipeline Leak Detection Algorithm Design, *Master's Thesis* **Nov 2012-Apr 2013**

Keywords: Digital signal processing, feature extraction, artificial neural network, MATLAB, LABVIEW;

- Researched novel schemes to detect and locate the small leak occurred in oil pipeline as well as implementation and experimental validation
- Developed a algorithm to detect the abrupt change of pressure signal by extracting designed features to feed BP neural network classifier which achieved 10% improvement in accuracy compared to traditional leak locate method
- Designed dynamic programming algorithm to speed up search process of the estimated change time of signal

Research on the Determination of Metal Corrosion Types, **Dec 2012-Mar 2013**

Keywords: Pattern Recognition, Neural network, Support vector machine, MATLAB;

- Collaborated with a group of 3 to detect the metal corrosion types using electrochemical noise
- Employed BP artificial neural network and support vector machine as two kinds of machine learning methods to classify three typical metal corrosion types with ten representative features of electrochemical noise as feature vector
- Implemented two classifier and performed tests to compare performance of BP and SVM using a 300-size dataset contained 100 samples of each type

Build of Leak Monitor System Based on RTU, **Feb 2012-Nov 2012**

Keywords: Data communication, TCP/IP, RTU, Data acquisition, C, LABVIEW;

- Established a Leak Monitor System use Remote Terminal Unit(RTU) and NI data acquisition (DAQ) board
- Designed RTU to acquire the pipe pressure data from upstream and downstream transport station and send to the center server via TCP/IP in real-time in order to detect leak events
- Met the space and power limitations in the field by replacing PC and DAQ in former solution with ADAM PC-based Programmable Controller as RTU
- Wrote C codes to program the RTU to pack and send field data to center server via TCP/IP by defining data transmit protocols and packing-unpacking agreement
- Drafted user manuals of the hardware and software for the user and passed final evaluation

EDUCATION

Master of Science, Simon Fraser University, Vancouver, BC **Sep 2014-Present**

Major: Computer Science in Big Data, Gpa: 4.0

Spring 2015 Course: CMPT732 *Programming for Big Data*, CMPT886 *Operating System in Big Data*

Master of Engineering, Tianjin University, Tianjin, China **Sep 2011-Jan 2014**

Major: Instrument Science and Technology, Chinese State Key Lab of *Precision Testing Technology and Instruments*

Thesis: *The study of oil pipeline weak leak detection and location based on pressure and flow signals*

Bachelor of Engineering, Tianjin University, Tianjin, China **Sep 2007-Jul 2011**

PAPERS

Co-author Determination of Corrosion Types from Electrochemical Noise by Artificial Neural Networks.
Int. J. Electrochem. Sci, 2013, 8: 2365-2377. Science Citation Index

First author Method for Pipe Leak Detection and Location based on Model Change Detection.
World Sci-tech R & D(in Chinese) 36.3 (2014): 247r252. doi: 10.3969/j.issn.1006-6055.2014.03.007

AWARDS

- National Graduate Scholarship Second Prize (Top 10%) Sep 2011- Jul 2013
- The 12th National Undergraduate academic contest*"Challenge Cup"* special prize (Top 5%) May 2011
- Annual merit Student of Tianjin University (Top 10%) Sep 2008-Sep 2011
- Tianjin University Robot Competition First Prize (Top 10%) Dec 2009