Weipu Zhao

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SUMMARY OF SKILLS

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

WORK EXPERIENCE

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

- Course name: Introduction to Computing Science for Engineer Students, from Dr. Janice Regan.
- Assistant the instructor in weekly C++/C programming Lab, responsible for answering questions of about 60 students during the lab.
- Testing the instructor's auto-grading software program in C++ for the course. Finished several grading tasks including two quizzes and two assignments on time.

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

- Developed and optimized several engineering software modules in C++ under Visual Studio.
- Add specialized Spectrum analyze module in C++ to the existing Fiber Distributed Temperature sensing system(DTS) software monitoring software; Visual Studio develop and debug.
- Researched and developed the signal processing and classification algorithms and codes of the Fiber Distributed vibration sensing system(DVS).
- Re-develop 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**

- Work at the Mechanical Automation Institute of PetroChina Pipeline R&D center. Mainly responsible for the research of the pipeline leak detection software system.
- In charge of one cooperated project worth 400K CNY between my lab and the company. Design and implement novel algorithms to detect weak pipeline leak signals.
- Responsible for the integrate and implementation of the algorithms I designed to their systems in both Labview and C# environments during the final stage of this project.
- Completed 6 monthly reports and one midterm evaluation report, finished software development documents on time and passed the final examination hold by the sponsor.

HIGHLIGHT PROJECT EXPERIENCE

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

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

- Course Proj. of Natural Lang. Process. Implemented python based chinese-english statistic machine translation system. Reading existing large corpus data and built model to decode the input Chinese sentences.
- Completed 5 mini-projects as split parts of a full MT system. Designed and implemented models for each task using Python. Every task scored top 5% during in-class performances evaluation.
- Work as group leader. Arrange 6 group meetings to facilitate collaborations during the process and make sure group members kept the deadlines. Get a grade of A in this course.

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 and sent the pipe pressure data from upstream and downstream transport station to the center server in real-time in order to detect leak events.
- Employed ADAM PC-based Programmable Controller as RTU to replace PC and DAQ solution due to the space and power restrains in the field.
- Wrote C codes to program the RTU to pack and send field data to center server via TCP/IP. Defined data transmit protocols to pack and unpack pressure signals. Implemented Labview programs in the center.
- Drafted user manuals of the hardware and software for the user. Passed final evaluation.

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OTHER RESEARCH EXPERIENCE

Map-Reduce implementation of Find Frequent Itemsets, *Course Proj. of DataMining* **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. Designed two map-reduce function as implementation of SON algorithm.
- Creatively override the default inputformat class and make it more suitable for this application. The program is running smoothly and get full credit in the project and get A in the final grade.

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

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

- Research on a novel scheme to detect and locate the small leak occurred in oil pipeline.
- Developed a novel algorithm to detect the abrupt change of pressure signal by extracting designed features and BP neural network classifier to distinguish leak signals from normal signals.
- Designed dynamic programming algorithm to speed up search process of the estimated change time of signal. Improved the accuracy of traditional leak locate method by 10%.

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

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

- Co-worked project aimed 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. Ten representative features of electrochemical noise were extracted as the feature vector.
- Mainly responsible for the design of classifier. Use a 300-size data set contains 100 samples of each type to design and test the BP-NN and SVM classifier. The classification performance of BP and SVM was compared.

Design of an Automatic underwater Smart Sensor Platform, *Bachelor's Thesis* **Dec 2010-Jul 2011**

Keywords:Embedded system design, C, PID control, circuits design;

- Built an "*Automatic Underwater Sensor Platform*" to detect the parameters of liquid environment with sensors.
- Wrote code of embedded systems in C, designed interface circuits for sensors and motors. Designed and tested for suitable solution of close-loop control system.

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