Weipu Zhao

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Summary of Skills

Intermediate: Python, c++, Matlab, Java, hadoop, Labview
Basic: Linux, arm, mysql, Drupal, LaTeX, php, html

R&D Experience

Sep.2014-Dec.2014

Map-Reduce implementation of Find Frequent Itemsets, *Course Proj. of DataMining*

Key words: Hadoop, Java, map-reduce, association rule;

Implemented java based map-reduce program to find frequent itemsets in transaction database. Designed two map-reduce function in order to implement two pass SON algorithm. Novelly override the default Map input format and make it more suitable for this application. The program is running smoothly and as a result get full credit in this project and get A in the final grade.

Sep.2014-Dec.2014

Python Implementation of Chinese-English Translation System, *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. As a leader of the group, keep arranging group collaboration during the process and maker sure the group members stick with the deadline. Get a grade of A in this course.

Nov.2012-Apr.2013

Pipeline Fault Detect Algorithm Design, *Master's Thesis*

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

To find a novel scheme to detect and locate the small leak occurred in oil pipeline. Improve the accuracy of leak detection and location. In charge of this project cooperated with *PetroChina Pipeline R&D Center*. Develop a novel algorithm to detect the abrupt change of pressure signal, extract specific features to distinguish leak signals from normal signals. Use BP neural network to classify the type of the pipeline pressure signals. Design modified dynamic programming algorithm to calculate the estimated change time of a pressure signal. The detecting accuracy of traditional leak locate method was improved by 10% through the algorithm I designed.

Dec.2012-Mar.2013

Research on the Determination of Metal Corrosion Types,

Key words: Pattern Recognition, Neural network, Support vector machine, MATLAB;

Co-worked project aimed to detect the metal corrosion types using electrochemical noise. BP artificial neural network and support vector machine as two kinds of machine learning methods was utilized 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.

Feb.2012-Nov.2012

Leak Monitor System Based on RTU,

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

Establish a Leak Monitor System use Remote Terminal Unit(RTU) and NI data acquisition (DAQ) board. Pipe pressure data need be measured in the upstream and downstream transport station and send to the center server in order to detect leak events. Normally industrial PC and PCI-DAQ board was used. Choose ADAM PC-based Programmable Controller as RTU to replace computer due to the space and power restrains under some harsh environment. Write C codes to program the RTU to measure and send field data to center server via TCP/IP ethernet communication. Define data transmit protocols to pack and unpack pressure signals. Design Labview programs in the center to receive and save the data.

Dec 2010-Jul 2011

Design of an Automatic underwater Smart Sensor, *Bachelor's Thesis*

Key words: Embedded system design, C coding, PID control, circuits design;

Design of an "*Automatic Underwater Ball*" which could detect the parameters (pressure, temperature, etc.) of liquid environment with corresponding sensors. Responsible for the design of embedded systems software and interface circuits, e.g.: close-loop control system design, test of suitable solutions of controlling system, motor control circuits design.

Jul 2009-Dec 2009

Design of an Automatic Trailing Robot

Design and manufacture a robot capable of trailing as well as identifying and carrying objects automatically. Prepared an overall plan, designed and manufacture the system, co-developped the control program written in C. Got the top 10% prize in the University Robot Competition .

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Work Experience

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

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; Help the instructor testing her auto-marking project for the course. Finish grading tasks including two quizzes and two assignments on time.

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

Responsible for the development and optimization of several engineering software used in the Distributed Fiber Optical Sensers. Such as: Re-develop the PC control software of Mini-EDFA under Labview environment; Adding specialized Spectrum analyze module in the existing Fiber Distributed Temperature sensing system(DTS) software monitoring software under VC environment;

Another main project was the research of the signal processing and classification techniques of the Fiber Distributed vibration sensing system(DVS).

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

Work at the Mechanical Automation Institute of PetroChina pipeline R&D center. Mainly responsible development and implement of the pipeline leak detection software system. In charge of one project which was cooperated by my lab and this company that design novel algorithms to detect weak pipeline leak signals. During the final stage of this project I went to this company as an intern to integrate and implement the algorithms I designed to their systems under both Labview and C# environments. Wrote weekly reports to update the work progress. Completed the software development documents including bug fix log and test report. Under my coordination, this project (worth 400K CNY) passed the final examination hold by the sponsor PetroChina and was completed on time.

Education

Sep 2014- now Master of Science, **Simon Fraser University**, Vancouver, Canada
Major: Computer Science in BigData
Course Taken: CMPT726 *Machine Learning* *Greg Mori, Grade: A,* *CMPT741 Data Mining,* Ke Wang, Grade: A
CMPT825 *Natural Lang. Process,* Anoop Sarker, Grade: A

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

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

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

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