Yinyan Liu

Contact Information

Department of Automation
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Education

Tsinghua University, Beijing, China — 2015 – 2018 (Expected)
M.E. in Control Engineering. — Advisor: Prof. Yi Li
Core Courses: Digital Image Processing and its Applications, Data Ming: Theory and Algorithms, Modern Signal Processing, Advanced Computing Technologies and Applications.
GPA: 3.20/4.0. (82.0/100). National Scholarship, Ministry of Education, China, Top 2%

North China Electric Power University, Beijing, China — 2007 – 2011
B.E. in Measuring & Controlling Technology and Instrument. — Advisor: Prof. Tian Qiu
Core Courses: Probability Theory & Mathematical Statistics, Linear Algebra, Theory of Circuitry, Basic Analog Electronics, Fundamental Digital Electronic Technique, Theory of Automatic Control, Control Devices and Instruments and Modern Control Theory.
GPA: 3.41/4.0. (84.1/100), TOP 8%. National Encouragement Scholarship 2008-2010

Publications

Yinyan Liu, Yuchi Deng, Maomao Zhang, Peining Yu and Yi Li. Experimental measurement of oil-water two-phase flow by data fusion of electrical tomography sensors and venturi tube.*Measurement Science and Technology* (**MST**), 2017, 25(9).

Jiaoxuan Chen, Maomao Zhang, **Yinyan Liu**, Jiaoliao Chen and Yi Li. Image reconstruction algorithms for electrical capacitance tomography based on ROF model using new numerical techniques. *Measurement Science and Technology* (**MST**), 2017, 28(3): 035404.

Yinyan Liu, Yuchi Deng and Yi Li. Experimental investigation of gas-oil two-phase flow using electrical capacitance tomography. *IEEE International Conference on Imaging Systems and Techniques* (**IST**), 2017 (**Oral Presentation**).

Project Experiences

Phase fraction measurement of multi-phase flow based on MLP Jun.2017–Oct.2017
- Design experiments to get raw data of electrical capacitance/resistance sensors.
- Conduct experiments under suitable excitation signal frequency and data sampling rate.
- Normalize raw data and use multi-layer perception classifier trained by backpropagation to calculate the phase fraction of multi-phase flow.

Measurement of multi-phase flow based on reconstructed image Feb.2017–May.2017
- Design and conduct experiments to obtain raw data of electrical capacitance sensor.
- Calculate phase fraction from the gray value of images reconstructed by LBP algorithm.

Measurement of multi-phase flow based on data fusion Jul.2016–Jan.2017
- Use electrical tomography to achieve the full range measurement of phase fraction. ECT is used to calculate parameters and view the spatial distribution of a dielectric mixture. ERT is used for measurement of conductive medium.
- Calculate the flow rate of multi-phase flow by multi-sensor data fusion of electrical tomography and verturi meter.

Sensor design and geometric parameter optimization Feb.2016–Jun.2016
- Be familiar with finite element analysis software - COMSOL Mutiphysics: model building, mesh generation, boundary condition setting and so on.
- Design an electrical capacitance sensor to measure phase fraction of annular flow.
- Optimize geometric parameter such as length electrode, number of electrodes and angle of electrode based on sensitivity matrix by connecting MATLAB with COMSOL Multiphasics.

License plate character recognition based on OpenCV Nov.2015–Dec.2015
- Include plate character segmentation and character recognition.
- Detect each character by using OCR algorithm and recognize all the characters by the trained artificial neural network.

A new bell control system based on wireless communication Feb.2009–May.2009
- Address the problem of inconsistency in the ringing of bells in different academic buildings by developing a new campus bell control system based on wireless communication.
- Choose suitable singlechip and solder circuit board.
- Report project schedule to advisor and cooperate with team members.

Work Experiences

Shanxi Zhangze Power Co., LTD, Shanxi, China 2011 – 2015
- Maintain the measurement instruments to make sure theplant work well.
- Familiar with the Distributed Control System(DCS) and Programmable Logic Controller (PLC) to make sure the complex control systems work well.
- Build and maintain the Management Information System (MIS).

Renesas Electronics Corporation, Beijing, China Oct. 2010 – May. 2011
Internship: Test Engineer
- Develop testing programs based on C++ and VB to test the quality of USB3.0

Awards

National Scholarship, Tsinghua University (Ministry of Education, China, Top 2%) 2017
National Encouragement Scholarship, North China Electric Power University 2008-2010
The third prize of eleventh ”Challenge Cup” National College Student Curricular Academic Science and Technology Works Competition 2009
Merit Student, North China Electric Power University 2009

Miscellaneous

Programming Languages Matlab, Python, C++, OpenCV, Latex