

Xuhao Du

RESEARCH OFFICER · THE MARSHALL CENTRE

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"Always enthusiastic in working with colleagues and data."

Education

The University of Western Australia

PH. D. IN ACOUSTICS AND MECHANICAL ENGINEERING

Centre of Acoustics, Dynamic & Vibration.

Mar. 2015 - PRESENT

Nanjing University

B.S. IN PHYSICS AND ACOUSTICS

Key Laboratory of Modern Acoustics

Sep. 2010 - Jun. 2014

Skills

Acoustics

Acoustics Signal Processing; Model Analysis; Architectural Acoustics

Machine Learning

Algorithm; Model Development; Features Engineering

Coding Relevant

Python; Matlab; R; C++; Cloud Computing

Other Skills

Research; Cooperation; Team Work; Communication; Presentation

Competitions

Use sounds to gain insights into performance, maintenance and failures.

Young Innovator Award

HACKATHON: THE FUTURE OF INDUSTRY SOUND

19 - 21 May. 2017

- Develop AMI - Acoustic Mapper and Isolator for multiple sound sources localization and real time monitoring.
- Used neural network and gradient boosting tree to achieve 99.5% instruments identification accuracy and 95% condition monitoring accuracy

Customer pattern recognition on internet finance

Champion 1st / 2000+

RONG 360: FINANCIAL PRODUCT SEARCH ENGINE IN CHINA

Sep. 2016 - Oct. 2016

- As the company makes most profit from customers' second loan, participants were required to predict customers' willingness to obtain a second loan. The model was developed from their personal information, salary, credit card and bank details, etc.
- To develop the best model in this competition, the key techniques I used include extracting features from original data, setup good cross validation set, model ensembles and final solution presentation.

Taxi demand pattern prediction

19th / 3000+

DIDI CHUXING: THE WORLD'S LARGEST RIDE-SHARING COMPANY

May. 2016 - June. 2016

- In order to better organize taxi distribution, the aim was to predict the gap of taxi demand and supply based on the history time sequence data of different regions.
- The key techniques for developing model in this competition included extracting features from original data and expand the sample by reducing the frame step.

Customer smart phone update pattern prediction

8th / 700+

CHINA UNICOM, LTD.: THE WORLD'S FOURTH LARGEST MOBILE SERVICE PROVIDER BY SUBSCRIBER BASE

Sep. 2012 - Feb. 2013

- This competition challenge participants to predict customers' smart phone update pattern based on their usage detail like the data consumption and bill information, etc
- The key techniques used in this competition included conducting web spider and applying the gradient boosting regression tree algorithm to data.

Work Experience

The Marshall Centre, found by Noble Laureate Barry Marshall

WA, Australia

RESEARCH OFFICER IN BIOMEDICAL SCIENCE

Mar. 2017 - Present

- Using machine learning in gut disease diagnosis.

Centre of Acoustics, Dynamic and Vibration

PH.D. CANDIDATURE

WA, Australia

Mar. 2015 - Present

- Studying the transformer vibration and sound emission using machine learning & finite element model and experiment.
- IBM cloud research grant on modeling the Green's function of complex mechanical structure using extremely random trees model, genetic algorithm and cloud computing.
- Measured sound field of ultra-high voltage transformer station in China.
- Organized workshop on the application of machine learning to acoustics.

DuoYi network Technology Co., Ltd

ACOUSTICS ARCHITECT & SOFTWARE ENGINEER

Canton, China

Jul. 2014 - Nov. 2014

- Designed and developed the internet audio instant communication software.
- Compiled and deployed the WebRTC library on the company software.

Key Laboratory of Modern Acoustic

UNDERGRADUATE STUDENT

Nanjing, China

Mar. 2012 - June, 2014

- Undertook a student innovation grant for studying influence of classroom acoustics condition to students' speech intelligibility. Presented the result on ICSV20.
- Undertook a student innovation grant for studying the low frequency noise criteria around the world and conducted an online psychoacoustics test for testing how human working performance change under different low frequency noise. Presented the result on ICEN2014

Forgreener Acoustics

ACOUSTICS ENGINEER (INTERN)

Nanjing, China

Sep. 2013 - Dec. 2013

- Designed acoustics barrier for reducing the noise from power distribution station in a suburb.
- Developed a software for visualizing the performance of acoustics barrier for customer.

Presentations

Machine learning on acoustics workshop, CADV

PRESENTER AND CHAIRMAN

WA, Australia

Dec. 2016

- Brief introduction of machine learning: concept, basic algorithms and the process of building model
- Introduced the application of manifold learning in condition monitoring based on the real-time vibration data

11th International Congress on Noise as a Public Health Problem

PRESENTER

Nara, Japan

Jul. 2014

- Introduced the low frequency noise criteria around the world and presented the self-design online psychoacoustics experiment on evaluating how the low frequency noise influence human working performance

Process of 20th International Congress of Sound & Vibration

PRESENTER

Bangkok, Thailand

Jul. 2013

- Introduced how the speech intelligibility varies with speech level, signal to noise ratio, background noise and reverberation time.

Grants & Selected Papers

GRANTS

- Young Professional Congress Attendance Grants 2017
- IBM Cloud Research Funding Grant 2016
- Student Innovation Grant 2014

SELECTED PAPERS

- Xuhao Du, Jie Pan. "Determination of the Green's function of transformer structure using experimental data combined with the FEM and GBRT algorithm." Proc of 24th Int Cong Sound Vib, London, UK (2017) 2017
- Qin, Ming, Xuhao Du, Jiancheng Tao, and Xiaojun Qiu. "A study on the optimal English speech level for Chinese listeners in classrooms." Applied Acoustics 104 (2016): 50-56. 2016
- Jie, Pan, Yuxing, Wang, Xuhao, Du, Qisen, Tang, Hai, Huang, Chunming, Pei, "Measurement and analysis of noise and vibration of 8000-kV converter transformers", International Conference on Engineering Vibration Ljubljana, Slovenia, 7-10 September 2015. 2015
- Xuhao, Du, Jia Ma, and Zhibin Lin. "Investigation of Noise Limitation Standardization and Evaluating the Low Frequency Noise's Influence on Human Performance using Online Psychoacoustic Test." 11th International Congress on Noise as a Public Health Problem (ICBEN) 2014. 2014
- Qin, Ming, Xuhao Du, Xiaojun Qiu, and Jiancheng Tao. "Speech intelligibility with speech level at constant signal to noise ratio." Proc of 20th Int Cong Sound Vib, Bangkok, Thailand (2013). 2013