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 — *Centre of Acoustics, Dynamic & Vibration.*

Ph. D. in Acoustics and Mechanical Engineering — *Mar. 2015 - PRESENT*

Nanjing University — *Key Laboratory of Modern Acoustics*

B.S. in Physics and Acoustics — *Sep. 2010 - Jun. 2014*

Skills

Acoustics	Acoustics Signal Processing; Model Analysis; Achitectural 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

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 developed 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.

Custumer 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 leanring in gut disease diagnosis.

Centre of Acoustics, Dynamic and Vibration — *WA, Australia*

Ph.D. candidature — *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 extremly 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 *Canton, China*

Acoustics Architect & Software Engineer *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 *Nanjing, China*

Undergraduate Student *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 ICBEN2014

Forgreener Acoustics *Nanjing, China*

Acoustics Engineer (Intern) *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 *WA, Australia*

Presenter and chairman *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 *Nara, Japan*

Presenter *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 *Bangkok, Thailand*

Presenter *Jul. 2013*

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

Grants & Selected Papers

Grants

- 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*