Xuhao **Du**

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"Always enthusiastic in working on real-world problem with colleagues and data."

Education

The University of Western Australia — *Centre of Acoustics, Dynamic & Vibration.*
Ph. D. in Acoustics and Mechanical Engineering (supported by commenwealth and Australia) — *Mar. 2015 - Present*

Nanjing University — *Key Laboratory of Modern Acoustics*
B.S. in Physics and Acoustics — *Sep. 2010 - Jun. 2014*

Skills

Machine Learning	Algorithm/Deep learning/Features Engineering
Acoustics	Acoustics Signal Processing/Model Analysis/Achitectural Acoustics
Coding Relevant	Python/Tensorflow/Matlab/R/C++/Cloud Computing/Java
Other Skills	Research/Cooperation/Team Work/Communication/Presentation

Work and Competition Experience

The Marshall Centre, The University of Western Australia — *WA, Australia*
Research Officer in Biomedical Science — *Mar. 2017 - Present*

- Develop a non-invasive tool for gut disorder diagosis using the unstracture acoustics signal. This project is leaded by Nobel Laureate Prof. Barry J. Marshall.
- http://crowdresearch.uwa.edu.au/project/noisy-guts-project/

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.
- Help to apply machine learning in civil engineering.
- Help to identify snapping shrimp under the water using signal processing and manifold learning

DuoYi network Technology Co., Ltd — *Canton, China*
Acoustics Architect & Software Engineer — *Jul. 2014 - Nov. 2014*

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

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 moniroting.
- 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 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.

Predict the conversion rate of advertisement

12nd / 5000+

IJCAI-2018: International Joint Conference on Artificial Intelligence 2018 *March. 2018 - April. 2018*

- This competition provides massive transaction data of sponsored search in Taobao.com. Participants utilize artificial intelligence technologies to predict users' purchase intention.
- To developed the 12nd best model in this competition, features engineering and selection is the key part.
- https://github.com/duxuhao/Feature-Selection

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.

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

46th International Congress and Exposition on Noise Control Engineering

HongKong, China

Presenter *Aug. 2017*

- Introduced the Modified FEA and ExtraTree algorithm for transformer Greenś function

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

- Young Innovation Award (Unearth Hackthon) *2017*
- I-INCE Young Professional *2017*
- IBM Cloud Research Funding Grant *2016*
- International Postgraduate Research Scholarship (Commenwealth) *2015 - 2018*
- Student Innovation Grant *2014*
- Young Scientist Grant (ICBEN) *2014*

Papers

- Xuhao Du, Jie Pan. ”Modeling the low-frequency GF of a power transformer using FEA, experiment, and ML algorithm” computational mechanics (2017) *submitted*
- Xuhao Du, Jie Pan. ”Modified FEA and ExtraTree algorithm for transformer Green’s function modelling.” 46th International Congress and Exposition on Noise Control Engineering, HongKong, China (2017) *2017*
- Chongchong Qi, Andy Fourie, Guowei Ma, Xiaolin Tang, Xuhao Du. ”Comparative study of hybrid artificial intelligence approaches for predicting hangingwall stability” Journal of Computing in Civil Engineering (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*
- Chunming, Pei, Yuxing, Wang, Xuhao, Du, Qisen, Tang, Hai, Huang, Jie, Pan, “The behaviour of vibration and near- and far-field noise of ultrahigh voltage (1000 KV) power transformers – a field test investigation”, 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*
- Jie Pan, Brian Stone, Andrew Guzzomi, Hongmei Sun, Jing Zheng, Yuhui Tong, Xuhao Du, Yingzhu Xia. “Study and practice of joint teaching between ZJU and UWA.” INTER-NOISE and NOISE-CON Congress and Conference Proceedings 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*