

Professor Xiaojun Qiu



Professor and Centre Director

E: xiaojun.qiu@uts.edu.au

T: 02 9514 2425

Centre for Audio, Acoustics and Vibration

University of Technology Sydney
PO Box 123
Broadway NSW 2007
Australia

Research Expertise

Active Noise Control

Application of active noise control (ANC) in the reduction of noise using controllable secondary sources to affect generation, radiation, transmission, and reception of the original primary noise source. Use of ANC to reduce low frequency noise problems where current passive noise control methods do not work because of weight and volume constraints. Development of alternative noise control solutions where current passive noise control methods cannot be applied.

Projects include ANC barriers, windows, and headsets, as well as the active control of range hood noise and transformer noise, ANC in rooms and the design of an active noise controller. Collaborations include KCGM, Transurban, Huawei, and several electric power companies.

[Integrated Passive and Active Control of Humming Noise from KCGM's Haul Trucks](#)

Acoustic design innovations for managing motorway traffic noise by cancellation and transformation

Communication Acoustics

Analysis of the transmission, reception, and processing of speech and music. Project include the development of microphone arrays, adaptive echo cancellation, adaptive noise suppression, adaptive howling control, audio coding, 3D playback with headphones and loudspeaker arrays, and video conference systems. Collaborations include telecommunication companies, such as Huawei, ZTE, Samsung, Polycom.

Ultrasound technology cooperation project

Development of audio characterisation algorithms and prototype acoustic software tools

Noise Control

Reduction of noise pollution and the impact noise. Projects include development of factory noise plans and control systems, low noise vacuum cleaner and washing machine design, and car noise reduction. Collaborations with companies in the manufacturing, building, car, ship and aircraft sectors, including Johnson & Johnson, Bissell, LG, Midea, Philips, Guangxu, Zisen, and Changrong.

A compact microphone array system for outdoor low frequency noise measurements

Integrated Passive and Active Control of Humming Noise from KCGM's Haul Trucks

Electro Acoustics

Transformation of acoustic energy into electric energy, and vice versa. Projects include microphone design, loudspeaker design, and receiver design, as well as the development of software for micro-dynamic loudspeakers and receivers, and measurement systems for MEMS microphones. Collaborations include AAC, Harman and Plantronics.

A compact microphone array system for outdoor low frequency noise measurements

Room Acoustics

Measurement and analysis of sound fields in long narrow spaces, such as tunnels and corridors, as well as flat rooms such as canteens and factory workshops. Acoustical design of auditoria and gymnasiums, and the measurement and design of sound absorption materials and structures. Development of new sound insulation materials and structures for us in the control of sound fields in rooms.

Professional

Director, International Institute of Acoustics and Vibration, 2014–present

Vice President, Acoustical Society of China, 2014–present

Associate Editor, Journal of Audio Engineering Society, 2013–present

Member, Editorial Board, Chinese Journal of Acoustics, 2011–Present

Member, Editorial Board, Acta Acustica (in Chinese), 2011–Present

Member, Editorial Board, Applied Acoustics (in Chinese), 2011–Present

Guest Editor, Asian Journal of Control, 2011–2012

Member, Audio Engineering Society, 2004–present

Biography

Xiaojun Qiu received his Bachelor and Master degrees from Peking University in 1989 and 1992, and his PhD from Nanjing University in 1995, all majoring in Acoustics. He worked in the University of Adelaide, Australia, as a Research Fellow in the field of active noise control with Professor Colin Hansen from 1997 to 2002, and has been with the Institute of Acoustics of Nanjing University as a professor on Acoustics and Signal processing since 2002. He visited the Institute of Technical Acoustics (RWTH Aachen), Germany, as a Humboldt Research Fellow in 2008, working in the field of sound field reproduction with Professor Michael Vorländer. He worked at RMIT University as a Professor of Design on Audio Engineering from 2013 to 2016, and now he is a Professor in Audio, Acoustics and Vibration in University of Technology Sydney.

His main research areas include noise and vibration control, room acoustics, electro-acoustics and audio signal processing, particularly applications of active control technologies. He is a member of Audio Engineering Society and an elected director of the international Institute of Acoustics and Vibration, and serves as an Associate Technical Editor for the Journal of Audio Engineering Society. He has published 2 books, 5 book chapters and more than 350 technique papers, and has been the principal investigator for numerous projects. He has also applied more than 90 patents on audio acoustics and audio signal processing.

About UTS

Xiaojun Qiu Google Scholar Citations

[University of Technology Sydney](#)

Verified email at uts.edu.au

[Audio AcousticsSignal Processing](#)

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| <u>An algorithm for active control of transformer noise with on-line cancellation path modelling based on the perturbation method</u> X Qiu, CH HANSEN Journal of Sound and Vibration 240 (4), 647-665 | <u>44</u> | 2001 |
| <u>A comparison of near-field acoustic error sensing strategies for the active control of harmonic free field sound radiation</u> X Qiu, CH Hansen, X Li Journal of Sound and Vibration 215 (1), 81-103 | <u>40</u> | 1998 |
| <u>Near-field sensing strategies for the active control of the sound radiated from a plate</u> A Berry, X Qiu, CH Hansen The Journal of the Acoustical Society of America 106 (6), 3394-3406 | <u>38</u> | 1999 |
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