



CHAoyang UNIVERSITY OF TECHNOLOGY · TAICHUNG · TAIWAN
COLLEGE OF DESIGN · DEPARTMENT OF ARCHITECTURE

CYUT

CHIUNG-YAO CHEN

Staff Information

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Professor
Department of Architecture

Director
Acoustic Laboratory

Professional Resume

BArch Technology, MSc Kobe, PhD Kobe.

Joined Chaoyang University of Technology in 1998.

Position Details

Assistant Professor, Department of Architecture (1998~2003)
Director of Acoustic Laboratory (2000~)
Associate Professor, Department of Architecture (2003~ 2016)
Professor, Department of Architecture (2016~)

Teaching

Architectural Design, Architectural Physics, Environmental Psychology, Calculus.

Research

Acoustical Psychology in Architecture, Field Positioning, Indoor Speech sound intelligibility, Psychological Analysis of Moving Noise, Sound Field Analysis in Traditional Architecture.

Service

- Acoustics design consultations with the architect and owner
- Ongoing acoustic project support
- Computer modeling of acoustics
- Scale down modeling (1/10) of acoustics
- Architectural acoustics design
- Identification of noise sources
- Noise isolation calculations and measurements
- Written report of architectural acoustics recommendations
- Review of architectural drawings for conformance to architectural acoustics recommendations
- Design audio-visual systems
- Provide written performance specifications for the audio system
- Technical review of audio contractor bids
- Technical review of submittals for architectural acoustics products
- Inspect construction for conformance to acoustics requirements
- Inspect audio system installation
- Oversee testing of audio system
- On-site testing of architectural acoustics
- Laboratory testing of barrier sound transmission loss

Publications (since 1996)

Articles in Refereed Journals and Conference Proceedings

Articles in Refereed Journals

- Chen, C. Y. and Lin, W. Y., “Word intelligibility in relation to the magnitudes of the interaural cross- correlation function of Mandarin monosyllables,” *Architecture Science*, Architectural Institute of the Republic of China, ISSN: 2219-1577, NO 1, 2015, 45-57. **(TSSCI)**
- Chen, C. Y., “Characterizing Subjective Noisiness in Hospital Lobbies,” *ARCHIVES OF ACOUSTICS*, ISSN: 0137-5075, Online ISSN: 2300-262X, 40 (2), 2015, 235-246. **SCI**
- Chen, C. Y., “The influence for cortical brainwaves in relation to word intelligibility and ASW in room,” *Technical Acoustics*, ULRICH (USA), ISSN 1000-3630, 32 (2), 2013, 119-123.
- Chen, C. Y., “Syllables Intelligibility in Relation to the Autocorrelation and Cepstrum Model: The Case of Chinese in Taiwan,” *POMA* Volume 15, pp. 015002 (2012/6); Acoustical Society of America, ISSN 1939-800X (online).
- Chen, C. Y., “Noise characteristics and simulation of several full scale turbojet engines at hush-house, - *J. Temporal Design in Architecture and the Environment*,” Vol. 11, No. 1 (2011/12) 13-19. (ISBN: 1346-7824)
- Chen, C. Y. and You, C. R., “A Comparative Study of Subjectively Apparent Source Width between Traditional Chinese and Western Classic Musical Instruments Recital,” *Chaoyang Journal of Design*, Vol.12, Taichung, Chaoyang University of Technology, 2011/12, 96-116. (In Chinese)
- Chen, C. Y., “Outline of indication of floor impact sound for housing and self-examination,” *Journal of Architecture and Environment*, Taichung Real Estate Association, Vol. 87, 2011, 23-27.

- Chen, C. Y. and Wong S. H., “Application of Cepstrum Function for the Absorptive Coefficient Measurement of Porous Material in an Anechoic Chamber”, *Journal of Acoustics*, Acoustic Institute of the Republic of China, Vol. 15, 2011/8, 21-40. (In Chinese)
- Chen, C. Y., “Effects of reverberation time and sound source characteristic to auditory localization in an indoor sound field, – *J. South China Univ. of Tech., Nature Science Edition*, Vol. 35, Supplement, 100-103, 2007 **(EI)**.
- Chen, C. Y. and Chan M. H., “A Study of the Chinese Speech Intelligibility in Halls in Relation to the Autocorrelation Function Model: The Case of Chinese in Taiwan, ” *Journal of Architecture*, Architectural Institute of the Republic of China, NO.57, 55-68, 2006. (In Chinese) **(TSSCI)**
- Chen, C. Y. and Chang Y. R., “A Study of Test Method for Absorption Coefficient of Material through Cross-Correlation in an Anechoic Chamber – The porous plane materials as example, ” *Journal of Technology*, Vol. 20, NO.3, 241-248, 2005. (In Chinese) **(EI)**
- Chen, C. Y., “Study of the properties of sound field in the place of ancient Chinese courtyards using autocorrelation technology. *Journal of Acoustics Society of the Republic of China*, Vol. 11, 2005/11, 83-95.
- Chen, C. Y., “The Distributive Application of Judgments in Subjective Preference of a Sound Field”, *Journal of Acoustics*, Vol.16, No.2, Taipei, Acoustic Institute of the Republic of China, 2005/7, 9-16. (In Chinese)
- Chen, C. Y., Chen, L. S., and Lin, W., “A Study on Evaluation Method of Chinese Articulation Standard of Speech Intelligibility for Sound Field in Taiwan”, *Journal of Architecture*, No.43, Architectural Institute of the Republic of China, 2002/6, 27-36. (In Chinese) **(TSSCI)**
- Chen, C. Y., “Relationship between Psychological and Physiological Design in Sound Field”, *Journal of Acoustics*, Vol. 8, No.1, Taipei, Acoustic Institute of the Republic of China, 2001/8, 5-11.
- Chen, C. Y., Wang, C. P. and Shih, C. Y. ,“Relationship between Definition and Time Delay of First Reflection in a Sound Field - Example of the Auditorium and Lecture Hall at Chaoyang University of Technology”, *Journal of Architecture*, No.39, Taipei, Architectural Institute of the Republic of China, 2002/2, 63-69. (In Chinese) **(TSSCI)**
- Chen, C. Y., and Chang, C. H., “Sound Localization in Respect of Magnitude of Inter-aural Cross-Correlation Function : Two Reflections in Simulated Sound Field as Example”, *Chaoyang Journal of Design*, No.1, Taichung, Chaoyang University of Technology, 2000/10, 101-114. (In Chinese)
- Chen, C. Y., “ Relationship between Subjective Preference and the Autocorrelation Function of Left and Right Cortical α -waves Responding to the Noise-burst Tempo”, *Journal of Architecture*, No.497, Tokyo, Architecture Institute of Japan,1997/4, 67-74.

- Chen, C. Y., and Ando, Y., “On the Relationship between the Autocorrelation Function of the α -waves on the Left and Right Hemispheres and Subjective Preference for the Reverberation Time of Music Sound Field”, Journal of Architecture, No.489, Tokyo, Architecture Institute of Japan,1996/8, 73-80.
- Ando, Y. and Chen, C. Y., “On the Analysis of Autocorrelation Function of α -waves on the Left and Right Cerebral Hemispheres in Relation to the Delay Time of Single Sound Reflection”, Journal of Architecture, No.488, Tokyo, Architecture Institute of Japan, 1996/7, 67-73.

Books

- Ando, Y. and et al., “Architectural Acoustics”, Joint Author, AIP Press, pp.78-85, 1998.
- Glotin H., Chen, C. Y. and et al., “Soundscape Semiotics - Localisation and Categorisation”, ISBN 980-953-307-687-9, Chapter 8: Contribution of precisely apparent source width to auditory spaciousness. In printed, InTech, Open Access Company. France.

International Conference Proceedings

- Chen, C. Y., “Noisiness of Time- Varying in Community Noise - A Case Study in Hospital Lobbies,” 6th International Symposium on Temporal Design (6ISTD), ID: 51, 2013, Taipei.
- Chen, C. Y., “Syllables Intelligibility in Relation to the Autocorrelation and Cepstrum Model in Case of Mandarin in Taiwan,” 6th International Symposium on Temporal Design (6ISTD), ID: 44, 2013, Taipei.
- Chen, C. Y., “Psychological Noisiness of Time- Varying in Community Noise - A Case Study at Hospital Lobbies,” ISS & MLB Conference, B6357, Nagoya, Japan, 2013.
- Chen, C. Y., “Syllables Intelligibility in Relation to the Autocorrelation and Cepstrum Model: The Case of Chinese in Taiwan,” *Psychoacoustics in Rooms, Acoustics, ICA* 2012 Hong Kong, China, 13-18 May, 2012, 4pAA1.
- Chen, C. Y., “Noise Characteristics of Several Full Scale Turbojet Engines at Hush-House,” *5th International Symposium on Temporal Design (ISTD5)*, 2011, Sheffield, UK.
- Chen, C. Y., “Study of Evaluating Indoor Noisiness in Hospitals under Temporal Varieties using Autocorrelation Analysis,” *International Symposium on Room Acoustics, ISRA 2010/8*, Melbourne, Australia, 35.
- Chen, C. Y. and Huang, G. H., “The Dynamic Analysis on Hospital Noise in Central Taiwan. *10th Western Pacific regional acoustic conference*, Beijing, China, 2009.
- Chen, C. Y., “Effects of reverberation time and sound source characteristic to auditory localization in an indoor sound field,” *14th International Congress on Sound & Vibration*, Cairns, Australia, 2007.
- Chen, C. Y., “A study of speech intelligibility under the mobile noise source simulated by speakers array.” *9th Western Pacific regional acoustic conference, Seoul, Korean*, 2006.
- Chen, C. Y., “A Study of the Chinese Speech Intelligibility in Relation to the Autocorrelation Function Model: The Case of Chinese in Taiwan”, *Report of 2nd International Symposium on Temporal Design (ISTD)*, 2005.
- Chen, C. Y., “A Study of Test Method for Absorption Coefficient of Material Through Cross-Correlation in an Anechoic Chamber- The Porous Plane Materials as Example”, *2004 Symposium of university development and academia cooperation, National Yunlin University of Technology*, 2004, B-39.
- Chen, C. Y., “Study of the Properties of Sound Field in the place of Ancient Chinese Courtyards Using the Subjective Preferred Theory”, *Reports of 8th Western Pacific regional acoustic conference, Melbourne, Australia*, 2003.
- Chen, C. Y., “ Study of the Properties of Sound Conditions in the place of Historic Interest - A case at Chinese Courtyards with Covered Walkway”, *Reports of 9th International Congress Sound & Vibration conference*, Orlando, USA, 2002, pp.545-1.
- Chen, C. Y., “Evaluated of Subjective Noise Degrees in Taipei Sung- Shan Airport Using

the Autocorrelation Function”, *Reports of 17th International Congress Acoustics conference, Roma, Italy, 2001, VIII, 6_09.*

- Chen, C. Y., “Sound Localization in Respect of Magnitude of Inter- Aural Cross-Correlation Function: Two Reflections in Simulated Sound Field as Example”, *Reports of 7th Western Pacific regional acoustic conference, Komamoto, Japan, 2000, 2B1-1.*
- Chen, C. Y. and Ando, Y., “Analyses of Continuous Brain Waves in Relation to Subjective Preference of Sound Field”, *Proceeding of 137th Meetings of the Acoustical Society of America in Berlin, Germany, 1999.*
- Chen, C. Y. and Ando, Y., “Calculation of Subjective Preference for Concert Hall Design: Validation of an Existing Hall”, *Proceeding of Third Asia Design Conference in Taichung Taiwan, 1998, 723-726.*
- Chen, C. Y. and Ando, Y., “Relationship between Subjective Preference and the Autocorrelation Function of Left and Right Cortical α -waves Responding to the Visual Tempo”, *Proceeding of the Meetings of Architectural Society of Japan in Osaka, 1997.*

Important Acoustic Consultant Qualifications

- Noise propagation evaluation for the barrier wall of Taipei air-port, 2000/8, Chi-Da Architects.
- Inspection using computer simulation for audio system installation for Miaoli County Doom, 2000/9, Pacific Construction CO., LTD..
- Aircraft noise survey for the protective construction project at Hetho Elementary School, Taichung, 2002/4, **Hetho Elementary School.**
- Final acoustic measurements for interior construction at concert hall of National Taichung University Education, 2003/9, **National Taichung University Education.**
- Acoustic Design consultations for main family hall of worshipping Buddha at Shin-Tsu Fu Yan Buddhist Institute, 2004/3, **Fu Yan Buddhist Institute.**
- Acoustic Design consultations for main lecture room at Taichung National Museum of Fine Arts, 2005/6, **Taichung National Museum of Fine Arts.**
- Speech intelligibility final measurements for the Fire-Alarm PA system at Concourse and Home of Kaohsiung High Speed Rail Station, 2006/2, **Bureau of HSR, Taiwan.**
- Report of noise detection for new addition office in Pump room, ground level at Taichung Coring LTD., 2006/12, AHA Architects and Planners.
- Computer Simulation on Speech intelligibility for the PA system of Taoyuan National Airport MRT construction in 21 concourse of stations, 2008/10, Singapore Technology LTD..
- Computer Simulation on acoustic qualities and final acoustic measurements for the construction of the fulfillment amphitheater in Taichung Wun-Shin Metropolitan Park,

- 2009/1, Tsu-Fu construction company CO. LTD..
- Acoustic Design consultations for the construction of Northern Miaoli Art Center, 2009/3, Gao-Li construction CO., LTD..
 - Noise propagation simulation on aircraft test hush-house, 2009/8, **Chung Shan Institute of Science and Technology Bureau.**
 - Acoustic Design consultations for the construction of the concert hall in National Taiwan University of Arts, 2010/1, Gao Giu-Chong Architects.
 - Material survey for aircraft test hush-house, 2010/8, **Chung Shan Institute of Science and Technology Bureau.**
 - Acoustic Design consultations for the construction of council hall of Chiayi City Council, 2011/1, Gei-Tsu Interior construction CO., LTD..
 - Acoustic Design consultations for the construction of arena hall in National Museum of Taiwan History at Tainan, 2011/2, Da-Di Visual-audio construction CO., LTD..
 - Acoustic Design consultations for the construction of Deep sea vision studio of National Ocean Science Museum at Keelung, 2012/2, Tsu-In Interior Construction CO., LTD..
 - Acoustic Design consultations for the construction of professional performance hall in National Dong-Wei University, 2013/3, Gei-Tsu Interior construction CO., LTD..