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教育经历

- 信息与信号处理专业博士, 澳大利亚国立大学，堪培拉，澳大利亚，2006.3-2010.1.
  博士论文: *"Measurement and modelling of Head-Related Transfer Function for spatial audio synthesis"*.
- 电子电气工程专业硕士, 一等荣誉奖, 澳大利亚国立大学, 堪培拉, 澳大利亚, 2004.2-2005.12.
  硕士论文: *"Space-frequency channel characterization of ultra-wideband wireless communications"*.
- 通信工程专业本科, 西安电子科技大学，西安，中国，1999.9-2003.7.

工作经历

- **ARC DECRA Fellow (2015.4-目前)**
  澳大利亚研究理事协会 (Australian Research Council, ARC) 资助的 DECRA 研究职位 (全澳范围内申请成功率约为 15%), 工程和计算机信息学院，澳大利亚国立大学，堪培拉，澳大利亚.
- **Research Fellow (2012.4-目前)**
  研究员, 工程和计算机信息学院，澳大利亚国立大学，堪培拉，澳大利亚.
- **OCE Postdoctoral Fellowship (2010.2-2012.3)**
  博士后，澳大利亚联邦科学与工业研究组织，悉尼，澳大利亚.

科研与教学亮点

- 从 2006 年开始，近十年的在声音信号处理领域的研究经历, 广泛的国际合作，与澳大利亚，德国、美国，英国，新西兰的专家合作研究三位声场重建，双耳听觉，及主动噪音消除等课题。
- 发表 36 篇学术论文，包括 13 篇一级杂志论文（IEEE Signal Processing Magazine, IEEE Transactions on Audio, Speech and Language Processing, Journal of the Acoustical Society of America）和 23 篇国际会议文章，以及 3 项澳大利亚专利申请。
- 成功申请到 2 项澳大利亚研究理事会 (Australian Research Council, ARC) 的项目基金（此基金等同于中国的国家自然科学基金，全澳范围内申请成功率约为 15-20%）和 1 项澳大利亚国立大学的大型设备基金, 总计约为 75 万澳元（约合 350 万人名币）。
- 从 2012 年开始，在澳大利亚国立大学工程和计算机信息学院担任讲师（授课：数字信号处理，声音信号处理）以及硕士博士生导师。

获得奖项

◇ **ANU Major Equipment Grant**, 澳大利亚国立大学的大型设备搭建基金，
"Dodecahedron speaker array for 3D sound field control and reproduction", A$50,000, 2015.

◇ **ARC DECRA Fellowship DE150100363**, 澳大利亚研究理事协会资助的 DECRA 研究职位，*"The cocktail party problem: Advancing binaural localisation techniques"*, A$330,000, 2015-2017. 注：此基金在全澳范围内成功率约为 15%, 本人是 2014 年度唯一一位信号处理领域获得者，也是澳大利亚国立大学工程和计算机学院第一位获得此基金的女性。

◇ **ARC Discovery Project Grant DP140103412**, 澳大利亚研究理事协会项目基金, *"Active Sound Control and Noise Reduction over Space"*, A$370,000, 2014-2016 (项目合作者, Prof. Thushara Abhayapala and Prof. Walter Kellermann). 注：此基金在全澳范围内成功率约为 20%, 本人的申请在 2013 年度被选拔为澳大利亚首都地区的三个代表项目之一。

◇ **Travel Grant**, ANU Early Career Researcher Travel Grant o attend 2013 IEEE WASPAA，澳大利亚国立大学初期研究员旅费补助参加国际会议, IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, A$2,000, 2013.

◇ **2008 IEEE ICASSP Student Travel Grant**, 2008 年 IEEE 信号处理领域顶级会议 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 的学生旅费补助, $1,000, 2008.

◇ **Australian National University PhD Scholarship**, 澳大利亚国立大学博士奖学金, A$60,000, 2006-2009.

◇ **Travel Grant**, 博士期间旅费补助，ANU Vice-Chancellor's Higher Degree Research Travel Grant (A$5500) + ACoRN International Attendance and Visit Grant (A$4000), to attend 2008 IEEE ICASSP (Las Vegas, USA) and visit A/Prof. Ramani Duraiswami at the Perceptual Interfaces and Reality Laboratory, UMIACS, University of Maryland (College Park, USA), Apr. 2008.

◇ **Travel Grant**, 博士期间旅费补助，ANU Vice-Chancellor's Higher Degree Research Travel Grant (A$1000) + ACoRN International Attendance and Visit Grant (A$6000), to attend the 31 Audio Engineering Society conference (London, UK) and visit Dr. Mark Poletti at Gracefield Research Centre, Industrial Research Limited (Lower Hutt, New Zealand), June-July 2007.

◇ **Travel Grant**, 博士期间旅费补助, ACoRN Domestic Attendance Grant (A$1500), to attend 2006 Australian Communication Theory Workshop (AusCTW), Adelaide, Jan. 2006.

专业领域活动

◇ **Editorial board member**, Advances in Signal Processing, Horizon Research Publishing (HRPUB), 2013-2016.

◇ **Editorial board member**, Science Journal of Circuits, Systems and Signal Processing, 2013-present.

◇ **Affiliate member**, IEEE Signal Processing Society Technical Committee on Audio and Acoustics Signal Processing , 2013-present.

◇ **Member**, Institute of Electrical & Electronics Engineers (IEEE), 2010-Present.

◇ **Member**, Journal of the Acoustical Society of America (JASA), 2010-Present.

◇ **TPC Member**, IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA), 2015.

◇ **TPC Member**, IEEE 4th Joint Workshop on Hands-free Speech Communication and Microphone Arrays (HSCMA), 2014.

◇ Reviewer of Journals: IEEE Journal of Selected Topics in Signal Processing, IEEE/ACM Transactions on Speech, Audio and Language Processing, EURASIP Journal on Advances in Signal Processing, IEEE Antennas and Wireless Propagation Letters, and IEEE Transaction on Vehicular Technology.

◇ Reviewer of Conferences: IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), European Signal Processing Conference (EUSIPCO), IEEE Workshop on Hands-free Speech Communication and Microphone Arrays (HSCMA), and IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA).

教学经验

◇ **讲师**, CECS, ANU, Advanced Topics in Telecommunications (ENGN 8637)—Audio and Speech Signal Processing, 音频和语音信号处理, July-Oct. 2013.

◇ **讲师**, CECS, ANU, Discrete-time Signal Processing (ENGN 4537/6537), 离散时间信号处理, Feb-Jun. 2013-present.

◇ **博士生导师**, Mr. Dumidu Talagala, PhD (co-supervisor), Array Signal Processing Algorithms for Localization and Equalization in Complex Acoustic Channels, ANU, 2012-2013.

◇ **博士生导师**, Mr. Hanchi Chen, PhD (co-supervisor), Active Noise Cancellation: Performance and Experimental Results, ANU, 2013-present.

◇ **博士生导师**, Mr. Xiang Wu, PhD (co-supervisor), Binaural Source Separation and Localization, ANU, 2013-present.

◇ **博士生导师**, Mr. Fei Ma, PhD (main supervisor), Active Spatial Noise Field Cancellation, ANU, 2015-present.

发表文章及专利

◇ 杂志文章

[**J1**] W. Zhang, R.A. Kennedy, and T.D. Abhayapala, "Efficient continuous HRTF model using data independent basis functions: Experimentally guided approach", in *IEEE Trans. Audio, Speech, and Language Processing*, vol. 17, no. 4, pp. 819-829, May 2009.

[**J2**] W. Zhang, T.D. Abhayapala, R.A. Kennedy, and R. Duraiswami, "Insights into head-related transfer function: Spatial dimensionality and continuous representations", in *Journal of the Acoustical Society of America*, vol. 127, no. 4, pp. 2347-57, Apr. 2010.

[**J3**] W. Zhang, M. Zhang, R.A. Kennedy and T.D. Abhayapala, "On high resolution head-related transfer function measurements: An efficient sampling scheme", in *IEEE Trans. Audio, Speech, and Language Processing*, vol. 20, no. 2, pp. 575-584, Feb. 2012.

[**J4**] W. Zhang, S.J. Spencer, and P. Coghill, "An acoustic technique for measurement of bubble solids mass loading (a) Fundamental study of single bubble", in *Minerals Engineering*, vol. 36-38, pp. 45-52, Oct. 2012.

[**J5**] S.J. Spencer, R. Bruniges, G. Roberts1, V. Sharp, A. Catanzano, W.J. Bruckard, K.J. Davey and W. Zhang, "An acoustic technique for measurement of bubble solids mass loading (b) Monitoring of Jameson Cell flotation performance by passive acoustic emissions", in *Minerals Engineering*, vol. 36-38, pp. 21-30, Oct. 2012.

[**J6**] W. Zhang, S.J. Spencer, and P. Coghill, "Characterisation of acoustic emissions resulting from particle collision with a stationary bubble", in *Journal of the Acoustical Society of America*, vol. 133, no. 5, pp. 2523-2527, May 2013.

[**J7**] D. Talagala, W. Zhang, and T.D. Abhayapala, "Broadband DOA estimation using sensor arrays on complex-shaped rigid bodies", in *IEEE Trans. Audio, Speech, and Language Processing*, vol. 21, no. 8, pp. 1573-1585, Aug. 2013.

[**J8**] D. Talagala, W. Zhang, T.D. Abhayapala, and A. Kamineni, "Binaural sound source localization using the frequency diversity of the head-related transfer function", in *Journal of the Acoustical Society of America*, vol. 135, no. 3, pp. 1207-1217, March 2014.

[**J9**] W. Zhang, and T.D. Abhayapala, "Three dimensional sound field reproduction using multiple circular loudspeaker arrays: Functional analysis guided approach", in *IEEE/ACM Trans. Audio, Speech, and Language Processing*, vol. 22. no. 7, pp. 1184-1194, July 2014.

[**J10**] D. Talagala, W. Zhang, and T.D. Abhayapala, "Efficient multi-channel adaptive room compensation for spatial soundfield reproduction using a modal decomposition", in *IEEE/ACM Trans. Audio, Speech, and Language Processing*, vol, 22, no. 10, pp. 1522-1532, Oct. 2014.

[**J11**] T. Betlehem, W. Zhang, M. Poletti and T.D. Abhayapala, "Personal sound zones: Delivering interface free audio to multiple listeners", in *IEEE Signal Processing Magazine*, vol, 32, no. 2, pp. 81-91, March 2015.

[**J12**] B. Bu, T. Abhayapala, C. Bao, and W. Zhang, "Parameterization of the three-dimensional room transfer function in horizontal plane", in *Journal of the Acoustical Society of America Express Letters* , vol. 138, no. 3, EL286, Sep. 2015.

[**J13**] H. Chen, T.D. Abhayapala, and W. Zhang, "Theory and design of compact hybrid microphone arrays on two-dimensional planes for three-dimensional soundfild analysis", vol. 138, no. 5, pp. 3081-3092, Nov. 2015.

◇ 会议文章

[**C1**] W. Zhang, T.D. Abhayapala, and J. Zhang, "Frequency dependency in UWB channel modelling", in *Proc. 8th International Symposium on DSP and Communication Systems (DSPCS'2005) & 4th Workshop on the Internet, Telecommunications and Signal Processing (WITSP'2005)*, Sunshine Coast, Australia, Dec. 2005, pp. 248-252.

[**C2**] W. Zhang, T.D. Abhayapala, and J. Zhang, "UWB Spatial-frequency channel characterization", in *Proc. 63rd IEEE Vehicular Technology Conference (VTC)*, Melbourne, Australia, May 2006, vol. 6, pp. 2732-2736.

[**C3**] W. Zhang, T.D. Abhayapala, and R.A. Kennedy, "Horizontal plane HRTF reproduction using continuous Fourier-Bessel functions", in *Proc. the 31st Audio Engineering Society (AES) international conference on "New directions in high resolution audio"*, London, UK, Jun. 2007, pp. 9 pages.

[**C4**] W. Zhang, R.A. Kennedy, and T.D. Abhayapala, "Signal estimation from incomplete data on the sphere", in *Proc. IEEE 9th Australian Communication Theory Workshop (AusCTW'07)*, Christchurch, New Zealand, Feb. 2008, pp. 39-44.

[**C5**] W. Zhang, R.A. Kennedy, and T.D. Abhayapala, "Iterative extrapolation algorithm for data reconstruction over sphere", in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Las Vegas, USA, Apr. 2008, pp. 3733-3736.

[**C6**] R.A. Kennedy, W. Zhang, and T.D. Abhayapala, "Spherical harmonic analysis and model-limited extrapolation on the sphere: Integral equation formulation", in *Proc. the 2nd International Conference on Signal Processing and Communication Systems(ICSPCS'2008)*, Gold Coast, Australia, Dec. 2008, pp. 6 pages.

[**C7**] W. Zhang, T.D. Abhayapala, R.A. Kennedy, and R. Duraiswami, "Modal expansion of HRTFs: Continuous representation in frequency-range-angle", in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Taipei, Taiwan, Apr. 2009, pp. 285-288.

[**C8**] M. Zhang, W. Zhang, R.A. Kennedy, and T.D. Abhayapala, "HRTF measurement on KEMAR manikin", in *Proc. ACOUSTICS 2009 (Australian Acoustical Society)*, Adelaide, Australia, Nov. 2009, pp. 8 pages.

[**C9**] M. Zhang, R.A. Kennedy, T.D. Abhayapala, and W. Zhang, "Internal structure identification of random process using principal component analysis", in *Proc. the 4th Inter-*

national Conference on Signal Processing and Communication Systems (ICSPCS'2010), Gold Coast, Australia, Dec. 2010, pp. 6 pages.

[C10] M. Zhang, R.A. Kennedy, T.D. Abhayapala, and W. Zhang, "Statistical method to identify key anthropometric parameters in HRTF individualization", in *Proc. the 3rd Joint Workshop on Hands-free Speech Communication and Microphone Arrays (HSCMA'11)*, Edinburgh, UK, May 2011, pp. 213-218.

[C11] D. Talagala, W. Zhang, and T.D. Abhayapala, "Active acoustic echo cancellation in spatial sound field reproduction", in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Vacouver, Canada, May 2013, pp. 620-624.

[C12] D. Talagala, W. Zhang, and T.D. Abhayapala, "Robustness analysis of room equalization for soundfield reproduction within a region", *International Congress on Acoustics (ICA)*, Montreal, Canada, June 2013. (invited paper)

[C13] W. Zhang, T.D. Abhayapala, R.A. Kennedy, and M. Zhang, "Towards optimal functional representation of head-related transfer functions in the horizontal plane", *International Congress on Acoustics (ICA)*, Montreal, Canada, June 2013. (invited paper)

[C14] W. Zhang, T.D. Abhayapala, and F.M. Fazi, "Functional analysis guided approach for sound field reproduction with flexible loudspeaker layouts", in *Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, New Paltz, NY, USA, Oct. 2013, pp. 1-4.

[C15] R.A. Kennedy, W. Zhang, and T.D. Abhayapala, "Comparison of spherical harmonics based 3D-HRTF functional models", in *Proc. International Conference on Signal Processing and Communication Systems (ICSPCS)*, Gold Coast, Australia, Dec. 2013, pp. 7 pages.

[C16] D. Talagala, X. Wu, W. Zhang, and T.D. Abhayapala, "Binaural localization of speech sources in the median plane using Cepstral HRTF extraction", in *Proc. European Signal Processing Conference (EUSIPCO)*, Lisbon, Portugal, Sep. 2014, pp. 2055-2059.

[C17] W. Zhang, and T.D. Abhayapala, "2.5D sound field reproduction in higher order Ambisonics", in *Proc. International Workshop on Acoustic Signal Processing (IWAENC)*, French Riviera, France, Sep. 2014, pp. 342-346.

[C18] H. Chen, T.D. Abhayapala, and W. Zhang, "Enhanced sound field reproduction within prioritized control region", in *Proc. INTER-NOISE and NOISE-CON Congress and Conference*, Melbourne, Australia, Oct. 2014, vol. 249, no. 3, pp. 4055-4064.

[C19] X. Wu, D. Talagala, W. Zhang, and T.D. Abhayapala, "Binaural localization of speech sources in 3D using a composite feature vector of the HRTF", in *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Brisbane, Australia, April 2015, pp. 2654-2658.

[C20] H. Chen, T.D. Abhayapala, and W. Zhang, "3D sound field analysis using circular

higher-order microphone array", in *Proc. European Signal Processing Conference (EUSIPCO)*, Nice, France, Sep. 2015, pp. 1158-1162.

[**C21**] J. Zhang, W. Zhang and T.D. Abhayapala, "Noise Cancellation over Spatial Regions using Adaptive Wave Domain Processing", accepted for publication in *Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, New Paltz, NY, USA, Oct. 2015.

[**C22**] H.Chen, P. Samarasinghe, T.D. Abhayapala and W. Zhang, "Spatial Noise Cancellation Inside Cars: Performance Analysis and Experimental Results", accepted for publication in *Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, New Paltz, NY, USA, Oct. 2015.

[**C23**] H.Chen, P. Samarasinghe, T.D. Abhayapala and W. Zhang, "Estimation of the direct-to-reverberant energy ratio using a spherical microphone array", accepted for presentation at *The Acoustic Characterisation of Environments (ACE) Challenge workshop* during WASPAA, New Paltz, NY, USA, Oct. 2015.

◇ 专利申请

[**P1**] H. Chen, T.D. Abhayapala, and W. Zhang, "Planar sensor array", Australian Provisional Patent Application No. 2014902837, 23 July 2014.

[**P2**] S. Spencer, P.J. Coghilll, and W. Zhang, "A method and a device for acoustic estimation of bubble properties", Australian Provisional Patent Application No. 2014903402, 27 August 2014.

[**P3**] S. Spencer, P.J. Coghilll, and W. Zhang, "Acoustic estimation of bubble properties and liquid like mediums", Australian Provisional Patent Application No. 2014905193, 22 December 2014.