

ASSTA



The Australasian Speech Science & Technology Association  
Newsletter



Volume 37, Number 1

November 2021

# From the Editor's (computer) desk

2021 was yet another year where we spent an unexpected amount of time at home. This year also made us (and the rest of the world) increasingly reliant on speech technology. Contactless interaction, online meetings, and the many video calls we do these days to keep in touch with our loved ones have made us all realise the importance of the underlying speech technology in these applications. Being speech researchers, at least some of us may have started noticing that speech technology is not perfect at all - especially when the technology needs to deal with low-resourced languages, accents, age groups or people with speech impairments and language difficulties.

Speech technology development has seen exciting advancements in recent years, but so have the technology's flaws been exposed. This makes our role as speech researchers more pertinent than before. We are the ones who can "hear" the flaws in the system and do what is needed to correct them.

With that lingering thought, it is with great joy that I present the 37<sup>th</sup> edition of the ASSTA Newsletter. We have collated some exciting speech research stuff happening across Australasia. As you flip through these pages, you will see a plethora of activities happening in many of our research labs. You will also see many events, books, and conferences contributed to by our ASSTA members.

The aim of ASSTA has always been to facilitate speech research, and this newsletter showcases research activities, thereby enabling the ASSTA family to see, learn and grow together. The diversity of research and the myriad of research expertise ASSTA collectively enjoys can be seen in this newsletter. And our diversity is our strength. I end with a te reo Māori whakatauki (proverb) –

“E koekoe te tūi, e ketekete te kākā, e kūkū te kereru”

“The tūi chatters, the parrot gabbles, the wood pigeon coos.”

Meaning: It takes all kinds of people.

Jesin James

ASSTA Newsletter Team

November 2021

## *President's report*

1

Where ASSTA President Felicity Cox, introduces us to this newsletter

## *What's on @ ASSTA*

2

Our news segment to share everything that has been going on the ASSTA community.

## *50 years of JIPA*

3

Did you know it's been 50 years since the first Journal of the International Phonetics Association was published?

## *Some exciting lab reports*

4-7

The labs featured in this Newsletter are the Macquarie Phonetics Lab, UniMelb Phonetics Lab, Speech Research @ UoA and the Communication Acoustics Lab

## *Events, Books and Conferences*

8-12

Read the stories of some exciting events organised, books written and conferences attended by our ASSTA members.

# The ASSTA Team



**President**  
Felicity Cox  
Macquarie University



**Secretary**  
Debbie Loakes  
University of Melbourne



**Treasurer**  
Michael Tyler  
Western Sydney University

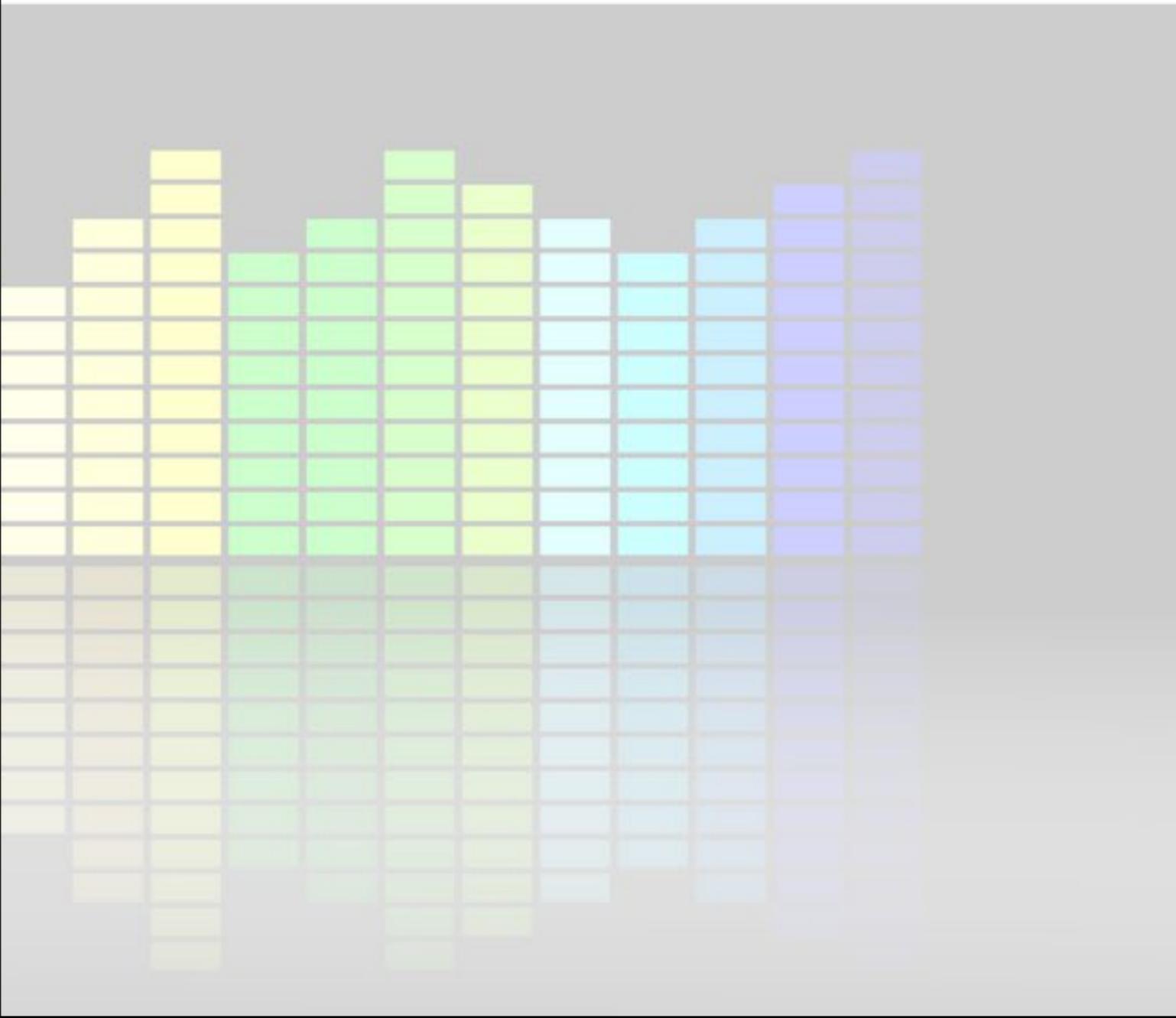


**Executive Member**  
Janet Fletcher  
University of Melbourne



**Executive Member**  
Sasha Calhoun  
Victoria University of Wellington

# Supported by our corporate members



# 1 President's report

by Felicity Cox

It is eighteen months since my last newsletter report in April 2020. What a roller coaster we have endured since that time. The world is now a very different place, yet we continue to thrive as an organisation due to the dedication of the Executive team and the resilience and support of our members. Many of you have faced long periods of lockdown and the challenges of home schooling, teaching online, supervising higher degree students by distance, and keeping on top of your own research agendas, personal goals and relationships. You are doing such a great job at this incredibly difficult time.

Despite the challenges, there have been many successes. The lab reports contained in this newsletter highlight the achievements and progress being made by ASSTA members.

Members have attended online conferences, often delivering poster presentations or talks in the wee small hours. Special initiative grants have been awarded to support conference attendance (see reports attached). Our New Zealand colleagues have been fortunate to hold rare in-person meetings. The Speech Research group at the University of Auckland organised a Māori Speech Hui in July this year sponsored by ASSTA.

ASSTA congratulates members Helen Fraser and Debbie Loakes on the launch of the [Research Hub for Language in Forensic Evidence](#) at the University of Melbourne. The Hub was established following a Call to Action to the Australian judiciary to which ASSTA was a signatory.

We also congratulate JIPA on 50 years of publication and acknowledge the 134-year history of the journal under its previous titles. See the short piece on JIPA's history from editor Marija Tabain below.

This year the ASSTA community was saddened to learn that Dr Robert Mannell had passed away on 5th July 2021 after a long illness. Robert was a staunch supporter of ASSTA and a founding member. ASSTA contributed a donation to Dementia Australia on Robert's behalf. A tribute to Robert can be found in the following pages.

Looking forward, we are excited to announce our intention to hold an in-person SST meeting in December 2022. We'll be able to provide more details of that event over the coming months, so it's time to start thinking about 4-page paper submissions. If you would like to be involved in the organisation of the conference, please let us know. It will be wonderful to be back together again at the end of next year.

We have already announced that ASSTA is planning a bid for INTERSPEECH 2026 to be held in Sydney. I'd like to thank Michael Proctor, who has been instrumental in bringing this together. We are seeking to connect with our colleagues in speech engineering and with industry to create a

bid that showcases the ground-breaking work being conducted in our region. The bid is due for submission towards the end of 2022. If you would like to be involved or if you have industry connections, please get in touch.

ASSTA offers a range of grants and awards to support researchers. Please encourage your students, colleagues, and other members of the speech science and technology community in Australia and New Zealand to join our organisation so they can take advantage of the support funding available to ASSTA members.

May you and your families stay safe and well.

# 2 What's on @ ASSTA

## NEWS

### Retirement of Dr Bernard Guillemain



Dr Bernard Guillemain

Dr Bernard Guillemain, previous Deputy HoD (academic) of the Department of Electrical, Computer, and Software Engineering, the University of Auckland, retired at the end of 2020, after 37 years of lecturing in the department. Bernard was one of New Zealand's pioneering researchers in Speech technology, obtaining a PhD entitled "Determining vocal-tract shape at

high pitch using linear prediction" in 1986.

He is a member of ASSTA's Forensic Speech Science Committee, is often an expert witness in the New Zealand Judicial system, as well as publishing a number of important papers on speech technology and forensics. He was a regular contributor to ASSTA's SST conference series and was the secretary on the conference committee for SST 2006. Bernard is a fine scholar and educator; he dedicated his career to be a staunch advocate for students. His teaching philosophy is "Students are candles to be lit, not vessels to be filled". Bernard will be missed both in the department, and at the SST conferences. We wish Bernard all the best with his retirement.

### THE CONVERSATION

#### *Do you speak more than one language at home?*

ASSTA members Chloé Diskin-Holdaway (University of Melbourne) and Paola Escudero (Western Sydney University) [published an article in The Conversation](#) entitled 'Don't be afraid to pass your first language, and accent, to your kids. It could be their superpower' on 8<sup>th</sup> February 2021. The article reports on two of their latest projects on home language maintenance in multilingual families and attitudes about accent in Australia. Both surveys are still open and ASSTA members are encouraged to distribute these amongst their networks, and these are the links: [Home languages survey link](#), [Accent survey link](#).

*Help us find out more about multilingualism in Australia by responding to this survey. You can also help us find out Australian's attitudes towards accents by taking part.*



ASSTA are now running an online seminar series, which is a great way to share research in our community. The first speaker was Marija Tabain (La Trobe University), and we recorded her presentation "An acoustic study of Tima, a language of Sudan". You can get in touch with [ASSTA Secretary](#) for a link to the recording, and to register your interest in giving a presentation.



Be a  
[@the\\_real\\_ASSTA](#)  
tweeter

ASSTA has been on Twitter since ICPHS 2019 - you can follow us at [@realASSTA](#). If you want to share anything with our community, or ask for a retweet on relevant research or news, contact [ASSTA Secretary](#).

### Jobs at



Macquarie University  
Department of Linguistics  
is seeking applicants for:

[Lecturer/Senior Lecturer in Phonetics/Speech Science](#)

[Lecturer/Senior Lecturer in Sociolinguistics/Applied Linguistics](#)

Applications close on 19<sup>th</sup> December 2021.

### Vale Robert Mannell

Dr Robert Mannell passed away peacefully in hospital on Monday afternoon 5<sup>th</sup> July. Many of you will remember Robert for his friendliness and generosity towards his colleagues and students, for his sharp intellect, his incredible knowledge of a large and eclectic range of topics, his engaging stories, and his love of a good conversation.

Robert began working at Macquarie University as a database programmer in the Macquarie Dictionary Cottage in 1982, having been employed in various occupations since gaining a BSc in Chemistry and Biochemistry at the University of NSW, and a BA in Linguistics and Media Studies at the University of Technology Sydney. Robert went on to complete an honours year at Macquarie and a PhD in Speech Science under the supervision of Professor John Clark.

In 1987 Robert became an academic member of staff in the Department

of Linguistics where he taught the Phonetics and Phonology units of the Linguistics Major in the Bachelor of Arts while working on a number of internally and externally funded projects.

In 1995, Robert collaborated with colleagues from the Department of Computing to develop the Master of Speech and Language Processing, designed to prepare students for careers in speech technology and increase research and teaching links between the Departments of Linguistics and Computing.

Robert was instrumental in the development of the Bachelor of Speech and Hearing Sciences which enrolled its first intake of students in 1998, becoming the fastest-growing degree in the Faculty of Human Sciences. In 2021, it remains a highly successful degree in the undergra-



**Robert Mannell at his farewell in 2015.** Back row: David Butt, Robert Mannell, Felicity Cox, John Clark, Linda Buckley, Front Row Hailey Mannell, John Bernard

duate program. Robert supervised 12 PhD students to completion and numerous Masters students. He created significant web-based materials for the teaching of

phonetics that endure to this day and continue to be used around the world. Robert was Project Leader of the Hearing CRC Project 'Improved Pitch Processing

in Humans' from 2007 to 2014 and made important contributions to research in the fields of auditory processing, psychoacoustics, speech perception and speech synthesis and phonetics teaching pedagogy.

Robert retired from the University in 2015.

Aside from his scholarly pursuits, Robert had a great many interests. He was a dedicated scout leader, an intrepid caver, a bird watcher, a lover of nature, an amazing vocalist, and an avid reader. He will be greatly missed by his Macquarie family.

Our thoughts are with Robert's wife Hailey, his son Reuben, grandson Leon Robert and their family and friends.

# 3 Fifty years of JIPA

by Marija Tabain



This year *JIPA* celebrates 50 years under its present title, and 20 years of publication with CUP. But that's only part of a 134-year story. Under earlier titles (*The Phonetic Teacher* and *Le Maître Phonétique*) the journal dates back to 1886, and was printed entirely in IPA phonetic symbols for over 80 years. It switched to ordinary orthography in 1971 and at the same time adopted the title *Journal of the International Phonetic Association*, with the catchy acronym *JIPA*.

After a hundred years of conventional typesetting and printing, the journal went through an innovative era of desktop publishing in the 1980s and 90s. The partnership with CUP began with Volume 31 in 2001, and the journal acquired its striking black and orange cover. *JIPA* has gone from strength to strength, and is now published in three issues per year.

*JIPA* is not only the longest-established phonetics journal, but special too in that alongside general research papers on phonetics, it also publishes the “Illustrations of the IPA”, which are concise but detailed first-hand accounts of the phonetics of numerous languages and varieties (many of them under-described or endangered) based on fieldwork and original recordings. The growing corpus of Illustrations is now widely recognised as an important resource in phonetic documentation and typology. Three years after publication, Illustrations and the

accompanying recordings become open to all – an important service to the language communities who provided them, as well as to students and teachers of phonetics everywhere.

The current Editor of *JIPA* is Marija Tabain, with co-editor Jody Kreiman. They and their editorial team are very proud and honoured to build on the legacy created by the long line of distinguished previous editors of the journal. We look forward to the next 50 years!



50 years of *JIPA* as viewed through the cover pages of the journal.

# 4 Macquarie Phonetics Lab

by Felicity Cox



**MACQUARIE**  
**University**  
SYDNEY · AUSTRALIA

- Vale Robert Mannel
- Grant and Award recipients
- Research events
- New staff
- HDR student completions

Despite the considerable challenges of COVID-19, the Macquarie Phonetics Lab has remained very productive over the past year with the publication of 16 journal papers/book chapters and 8 full conference proceedings. Members have given conference presentations at prestigious meetings such as INTERSPEECH, Speech Prosody, LabPhon, Australian Linguistic Society Conference, NAWAV and the International Seminar on Speech Production. We continue to work in diverse areas, including articulatory phonology, Australian English phonology, language acquisition, production and perception of liquid

consonants, sociophonetics, and sound change.

**Vale Robert Mannel** - We were saddened to hear of the passing after a long illness of our dear friend, previous lab member and Department of Linguistics colleague Dr Robert Mannel. Robert was supported through his illness by his wife Hailey and his son Reuben. Members of the lab were fortunate to see Robert when he visited the Department early in 2020. He was delighted to welcome a grandson Leon Robert during the later stages of his illness. We offer our sincere condolences to Robert's family and friends.

**We congratulate the following grant and award recipients (including Child Language Lab members):**

Mridula Sharma and Katherine Demuth, along with Gillian Wigglesworth (University of Melbourne) and Denyse Bainbridge (NT Department of Education) were awarded an ARC Linkage Grant for the project The ABC's of listening and learning: a study in the Northern Territory (\$100,000).

Nan Xu Rattanasone, Jae-Hyun Kim and Scott Barnes, with colleagues from the School of Education were awarded \$172,430 by the NSW Department of Education Strategic Research Funding Building the Evidence Base for the project Enhancing the learning outcomes of children from diverse language backgrounds: Building evidence on bilingual education.

Nan Xu Rattanasone with colleagues from the University of Wollongong were awarded an NHMRC Ideas grant of \$554,388 for the project Development and evaluation of a

novel early language assessment tool to identify vulnerable children who would benefit from referral to Allied Health pathways.

Joshua Penney was awarded a 2021 Chitra Fernando Fellowship \$5000 for the project 'Ladz in the hood: The intersection and expression of local, Australian, and Pasifika identities in Western Sydney drill rap'

Joshua Penney was awarded an ASSTA Covid-19 Conference Support grant for Interspeech 2021. Details in [Report 11](#).

Joshua Penney, Andy Gibson, Felicity Cox were awarded Centre for Language Sciences seed funding 2020 \$5000 for the project 'Developing a protocol for automatic time-aligned orthographic and phonemic transcription of conversational speech'

Barb Kelly, Chloe Diskin-Holdaway, Beena Ahmed, Joanne Arciuli, Kirrie Ballard, Titia Benders, Denis Burnham, Felicity Cox were awarded \$16,000 Arts Collaborative Research Seed Funding (2020), Melbourne University for the project 'Life in lockdown: Australian children's stories of the Covid-19 pandemic'.

Teja Rebernik, Jidde Jacobi were awarded Aletta Jacobs School of Public Health, Aletta Health Grant (2020) €2500: for providing individuals with Parkinson's disease with information on their speech difficulties.

**Lab organised research events:**

Power Analysis for Language Science. Centre for Language Sciences Stats Workshop. 8-9 December 2020

Gorilla Workshop on creating online studies. Centre for Language Sciences Workshop. 19 February 2021. Led by Andy Gibson, Rosanne Abrahamse and Nan Xu Rattanasone.

The Beyond Speech Workshop (organised by the Child Language Lab), focusing on improving communication for children with hearing loss, was held online on 14th-15th October, 2021. This highly successful workshop had over 500 attendees, including many clinicians and itinerant teachers of the deaf, as well as local and international researchers. Highlights included keynote presentations by Prof. Susan Nittrouer (University of Florida), Prof. Catherine McMahon (Macquarie University), Prof. Suzanne Purdy (University of Auckland) and Prof. Christine Yoshinaga-Itano (University of Colorado), and panel discussions involving young adults with hearing loss and parents of children with hearing loss. This workshop was sponsored by Macquarie University's Child Language Lab and Centre for Language Sciences, as well as grants awarded to Prof. Katherine Demuth and Prof. Mridula Sharma.

### **We have welcomed a new staff member:**

Margaret Ryan has been appointed as Senior Research Officer for the ARC LIEF project *AusKidTalk*. We farewelled Benjamin Purser previously in this role, who has gone on to further study.

### **We are pleased to announce the following HDR student completions:**

#### **PhD completions:**

Khedir Almoayidi, 2021: *Phonetics and*

*Phonology Between Theory and Practice: A Study of English Major Students in Saudi Arabia* (Supervisors: Peter Roger & Anita Szakay)

Louise Ratko, 2021: *Articulatory characterisation of vowel length contrasts in Australian English* (Supervisors: Michael Proctor & Felicity Cox)

Di (Judy) Zhu, 2021: *Neural mechanisms of language control in bilingual speech production* (Supervisors: Paul Sowman & Anita Szakay)

Jidde Jacobi's thesis *Coordination and Timing of Speech Gestures in Parkinson's Disease* has been approved by all members of his assessment committee. In order to obtain his title, he will defend his thesis in public during a PhD ceremony, which will take place in July/August 2022, Groningen, the Netherlands. (Supervisors: Martijn Wieling, Roel Jonkers, Ben Maassen (University of Groningen), Michael Proctor (Macquarie))

#### **Master of Research completions:**

Timothy Shea, 2021 Master of Research *Attitudes of Australian English Speakers to Fricated /t/: A Sociophonetic Perception Study* (Supervisors: Felicity Cox and Anita Szakay)

Faisal Alfadhil, 2021 Master of Research *Sensitivity to anticipatory phonetic cues in English-Arabic code-switches* (Supervisors: Anita Szakay & Jae-Hyun Kim)

## Project Reports

### Multicultural Australian English project update



In this project we are examining how adolescents express their identity and sense of belonging in their communities through their speech patterns. Traditionally, much of the research on Australian accents has focussed on 'mainstream' Australian English speakers; typically, those of Anglo-Celtic heritage. However, especially in big cities like Sydney, with its high level of diversity, this is unlikely to be representative, and there may be fine-grained differences in people's speech that signal their links to their local communities. We are recording the speech of teenagers in a number of areas of Sydney to document these differences and give non-mainstream speakers a voice. This will allow us to provide a more complete and inclusive picture of what the contemporary Australian accent sounds like in our diverse city and inform our understanding of how sound changes spread through the community.

The aim is to collect speech from high school students from five areas of Sydney with very different demographics. In each of the areas, we have recruited and trained local community members to work as research assistants and conduct the recording sessions. We have had a few hiccups along the way with lockdowns and varying levels of restrictions on face to face contact and entering schools. So far, we have collected data from teenagers from the Northern Beaches, Inner West, and Fairfield areas. We have also begun recording speakers in Bankstown, and plan to recruit participants in the Parramatta area soon. We have also begun processing the data we've already collected – transcribing, forced alignment and correction – so that we can begin our initial analyses. Preliminary results have been presented at the Forum for Englishes in Australia, NWAV and will be presented at ALS in December. Contact [joshua.penney@mq.edu.au](mailto:joshua.penney@mq.edu.au) for details.

## Child Speech, Community Diversity and the Emergence of Sound Change project update



This is a longitudinal project examining phonetic changes in the speech of Australian children from a range of communities. Using an online picture naming task (Alien Adventure) delivered via Gorilla, the speech of 150 children was recorded in late 2020 and early 2021, largely from Sydney and regional New South Wales. In mid-2021, over half of these children returned for a second recording. Of the original 150 participants, 85 speak only English at home while 65 speak two or more languages (that is, they speak at least one language other than English, LOTE, at home). A wide range of languages are spoken by the children, with the most frequently occurring being Arabic, Mandarin and Urdu. We are about to begin our final set of recordings (timepoint 3). Data are currently being processed to ensure accurate time aligned phonemic labels in preparation for large scale acoustic analysis. Preliminary results have been presented at Forum for Englishes in Australia, ALS and NWAV. Contact [andy.gibson@mq.edu.au](mailto:andy.gibson@mq.edu.au) for details.



## Project update

[AusKidTalk](#) is an audio-visual (AV) corpus of Australian children's speech. Macquarie is one of five nodes responsible for collecting a total of 750 hours of speech from Australian children 3-12 years. The speech tasks include single word and sentence productions as well as narrative and emotional speech. This multi-site initiative was established to remedy the dire shortage of children's speech corpora in Australia and around the world that are sufficiently sized to train accurate automated speech processing tools for children. The Macquarie node has almost completed recording 200 children and will soon begin annotation of the data. Details of the corpus collection have been presented at INTERSPEECH 2021. Contact [margaret.ryan@mq.edu.au](mailto:margaret.ryan@mq.edu.au) for details.

## Selected Macquarie Phonetics Lab journal articles from 2021

Gnevsheva, K., Szakay, A., & Jansen, S. (2021). Lexical Preference in second dialect acquisition in a second language. *International Journal of Bilingualism: cross disciplinary, cross linguistic studies of language behaviour*, <https://doi.org/simsrad.net.ocs.mq.edu.au/10.1177/13670069211036932>

Penney, J., Cox, F., & Szakay, A. (2021). Effects of glottalisation, preceding vowel duration, and coda closure duration on the perception of coda stop voicing. *Phonetica*, 78, 29–63. <https://doi.org/10.1159/000508752>

Proctor, M., Coltheart, M., Ratko, L., Szalay, T., Forster, K., & Cox, F. (2021). Characterizing spoken responses in masked onset priming of reading aloud using articulatory. *Memory & Cognition*. <https://doi.org/10.3758/s13421-020-01114-5>

Rebernik, T., Jacobi, J., Jonkers, R., Noiray, A., & Wieling, M. (2021). A review of data collection practices using electromagnetic articulography. *Laboratory Phonology: Journal of the Association for Laboratory Phonology*, 12(1). <http://doi.org/10.5334/labphon.237>

Rebernik, T., Jacobi, J., Tiede, M., & Wieling, M. (2021). Accuracy Assessment of Two Electromagnetic Articulographs: NDI Wave and NDI VOX. *Journal of Speech, Language, and Hearing Research*, 64, 2637-2667. [https://doi.org/simsrad.net.ocs.mq.edu.au/10.1044/2021\\_JSLHR-20-00394](https://doi.org/simsrad.net.ocs.mq.edu.au/10.1044/2021_JSLHR-20-00394)

Szalay, T., Benders, T., Cox, F., & Proctor, M. (2021). Perceptual vowel contrast reduction in Australian English /l/-final rimes. *Laboratory Phonology*, 12. <https://doi.org/10.5334/labphon.185>

Szalay, T., Benders, T., Cox, F., & Proctor, M. (2021). Spectral contrast reduction in Australian English /l/-final rimes. *Journal of the Acoustical Society of America*, 149(2), 1183–1197, <https://doi.org/10.1121/10.0003499>

Ying, J., Shaw, J. A., Carignan, C., Proctor, M., Derrick, D., & Best, C. T. (2021). Evidence for active control of tongue lateralization in Australian English /l/. *Journal of Phonetics*, 86. <https://doi.org/10.1016/j.wocn.2021.101039>

# Let's take a break

Me: Alexa lets play simon says  
Alexa: Touch your nose  
Me: touches nose  
Alexa: I didn't say simon says  
Me:



[Source Link](#)



[Source Link](#)



[Source Link](#)



[Source Link](#)

# 5 UniMelb Phonetics Lab

by Janet Fletcher and Debbie Loakes



THE UNIVERSITY OF  
MELBOURNE

- Research Activities
- Conferences/Workshops
- PhD Students
- Selected Publications

Despite almost two years of lockdown, the Phonetics Lab at The University of Melbourne have been busy, with many of us writing papers and running experiments, (albeit in a different manner than pre-pandemic).

In fact, Chloe Diskin-Holdaway, Debbie Loakes and Olga Maxwell recently spoke at the regular Melbourne-based Linguistics in the Pub series about the benefits and pitfalls of running experiments online, covering various surveys, listening experiments, and the collection of speech data. This information is now summarised on the: [Research Hub for Language in Forensic Evidence site](#).

## Research Activities

Before the lockdowns in July, Hywel Stoakes was able to meet with Joycelyn and John Pipike, who are Golin (Papuan, Central Highlands) speakers who live and work in Melbourne. With the help of Gavin Neubauer he was able to record some stories and wordlists in the Studio with the aim of describing more fully the Golin tone system and adding some audio recordings to a Golin dictionary app.



Large image: Joycelyn Pipike, John Pipike and Hywel Stoakes in the Horwood recording studio at The University of Melbourne. Top right – John Pipike making Golin recordings, Bottom right - Joycelyn Pipike making Golin recordings

## Conferences / Workshops

Janet Fletcher gave an invited presentation at the 4th PaPE conference on June 23, in a special colloquium called *Forms and Representations in Phonology: In Honour of Bob Ladd*. Her talk was called [“Intonational phonetics and register variation in Oceanic languages”](#).

Together with Mary Baltazani and Elinor Payne (University of Oxford), Olga Maxwell co-organised the workshop [“Prosodic Variation: The Role of Past and Present Contact in Multilingual Societies”](#).

This event was also part of [PaPE](#). This aims of the workshop were to provide a platform for the growing community of researchers studying prosody in

contact to share findings, discuss methodological issues, and debate the theoretical implications of their work. The papers covered a range of languages and prosodic features, including talks on the typology of word prosody in contact, unstressed vowel reduction, and several talks on the intonational phenomena. Professor Carlos Gussenhoven gave a plenary talk on the prosodic structures in New Englishes with a focus on Nigerian English.

Rikke Bundgaard-Nielsen & Brett Baker presented a poster at the *Annual Meeting on Phonology* (Toronto) in October: "The application of morpho-phonological rules comes with a processing cost".

Debbie Loakes gave a talk at the 2021 IAFPA conference called *Assessing the*

role of automatic methods for the transcription of indistinct covert recordings. You can watch it [here](#).

Members of our lab also gave presentations at the recent *Forum on Englishes in Australia*, and until the end of Dec 2021 presentations can be viewed [here](#).

Unimelb Phonetics Lab researchers are also looking forward to presenting our research in talks and poster presentations on various phonetics/speech science topics at LVCA-5 / ALS 2021.

### PhD students

Congratulations to Eleanor Lewis who submitted her thesis called *An acoustic*

*study of New Caledonian French vowels!*

Isadora Reynolds has recently given a completion seminar for her thesis *Mind the gap: A cross-linguistic analysis of first and foreign language fluency in Spanish speakers of English*, which she will be submitting in December.

PhD student Shuting Liu is also soon to give a poster presentation at TAI (1st International Conference on Tone and Intonation) held by the University of Southern Denmark from 6 – 9 Dec 2021. Her poster will be 'Exploring the Intonational Features of Read Style and Quasi-Spontaneous Mandarin L2 English Speech in the AM Framework', co-authored with Janet and Olga, and based on the pilot data of her PhD project.

### Selected 2021 University of Melbourne publications

Ahmed, Beena, Ballard, Kirrie J., Burnham, Denis, Tharmakulasingam, Sirojan, Mehmood, Hadi, Estival, Dominique, Baker, Elise, Cox, Felicity, Arciuli, Joanne, Benders, Titia, Demuth, Katherine, Kelly, Barbara, Diskin-Holdaway, Chloé, Shahin, Mostafa, Vidhyasaharan, Sethu, Epps, Julien, Lee, Chwee Beng, Ambikairajah, Eliathamby. 2021. AusKidTalk: An Auditory-Visual Corpus of 3- to 12-Year-Old Australian Children's Speech. *Proceedings Interspeech 2021*, 3680-3684.

Arvaniti, A. & Fletcher, J. (2021). The Autosegmental Metrical Theory of Intonational Phonology. In Gussenhoven, C. & Chen, A. (Eds.) *The Oxford Handbook of Language Prosody* (First ed., pp. 78-95) Oxford University Press, USA.

Baker, B., J. Fletcher, and M. Donohue. (2021) 'Australia and New Guinea,' in Gussenhoven, C. and Chen, A (ed.), *Oxford Handbook of Language Prosody*, First edn, Oxford University Press. pp. 384-395. doi: [10.1093/oxfordhb/9780198832232.001.0001](https://doi.org/10.1093/oxfordhb/9780198832232.001.0001)

Billington, R., Stoakes, H., Thieberger, N. (2021) The Pacific Expansion: Optimizing Phonetic Transcription of Archival Corpora. *Proc. Interspeech 2021*, 4029-4033, doi: [10.21437/Interspeech.2021-2167](https://doi.org/10.21437/Interspeech.2021-2167)

Billington, R., N. Thieberger, J. Fletcher, (2021). Nafsan. *Journal of the International Phonetic Association*. 1-21. <https://doi.org/10.1017/S0025100321000177>

Kilpatrick, A., Kawahara, S., Bundgaard-Nielsen, R., Baker, B. & Fletcher, J. (2021). Japanese Perceptual Epenthesis is Modulated by Transitional Probability. *Language and Speech*, 61(1), pp. 203-223. doi: [10.1177/0023830920930042](https://doi.org/10.1177/0023830920930042)

Maxwell, O., C. Diskin-Holdaway and D. Loakes (2021) "Attitudes towards Indian English among young urban professionals in Hyderabad, India" *World Englishes*. 1-20. DOI: <http://dx.doi.org/10.1111/weng.12550>

Schmidt, P., C. Diskin & D. Loakes (2021) New insights into /eI/-/æI/ merging in Australian English. *Australian Journal of Linguistics*. To appear Vol 41, Issue 2 DOI: [10.1080/07268602.2021.1905607](https://doi.org/10.1080/07268602.2021.1905607)

Wilmoth, S., R. Defina, and D. Loakes. (2021). They Talk Muṯumuṯu: Variable Elision of Tense Suffixes in Contemporary Pitjantjatjara. *Languages* 6(2), 69; <https://doi.org/10.3390/languages6020069>. Available: <https://cloudstor.aarnet.edu.au/plus/s/btLa5E9aK6AaWlg>

# 6 Speech Research @ UoA

By Jesin James

Speech Research @ UoA is an inter-disciplinary group of researchers, all working on different aspects of speech research at the University of Auckland, Aotearoa New Zealand. We are a group of engineers, phoneticians, linguists and educational researchers, all involved in collaborations on different aspects of speech research. This is not a new group, but has been around for a while, with an official name being given recently. The link to our website is [here](#).

The history of this group is strongly intertwined with the MAONZE research project and the [MAONZE research group](#). The MAONZE research group studies sound change over time in te reo Māori and New Zealand English.



Some members of Speech Research @ UoA enjoying a lunch at the University of Auckland Staff Club in March 2021: From left end: Binu Abeyasinghe, Mohammad Hassaan Mirza, Peter Keegan, Catherine Watson, Jesin James, Isabella Shields, Nicholas Eng, Justine Hui and Itay Ben-Dom.



Our research spans many areas such as speech and language technology, low-resourced languages (particular focus on New Zealand English and te reo Māori), and language change. We also work closely with the Communication Acoustics Research Group at the University of Auckland (read the [next article](#) for details about this research).

Some of the highlights of this year for us were:

**Māori Speech Hui:** ([See Report 8](#)) An ASSTA-funded in-person hui (meeting) for groups and individuals working in all aspects of Māori speech technologies.

**Māori Speech Technology Workshop:** ([See Report 9](#)) A hands-on workshop for undergraduate and postgraduate students to learn about te reo Māori speech and language technology.

**@ Interspeech:** ([See Report 12](#)) Nicholas Eng presented at Interspeech 2021.

**@ the R-ATICS:** Isabella Shields presented at the very niche /r/ conference [R-ATICS7](#), which is the 7<sup>th</sup> edition of ‘r-atics’ about the work she is doing on the acoustics of the Māori /r/.

**Asia-Pacific Language Variation Book Chapter:** ([See Report 10](#)) Brooke Ross’s research on the sound change in Aotearoa New Zealand was published as a book chapter in the Asia-Pacific Language Variation.

**SfTI Seed Fund on emotions:** We received a Science for Technological Innovation National Science Challenge Fund to develop a culturally-congruent emotional speech recognition framework for te reo Māori.

**Papa Reo and Te Hiku Media:** During the last year, there has been increased engagement with the Māori Media Company – [Te Hiku Media](#) and their multilingual language platform team - Papa Reo. Papa Reo is involved in developing language platform for multilingual Aotearoa.

**In the media:** The hui and workshop we organised made us quite popular in the media. Details are provided in the [report](#).

Overall, 2021 was quite an eventful year for all of us. We have learned and grown together as a group. We hope to continue this journey together – sharing our little “speech” stories.

# 7 | Communication Acoustics Lab

By Justine Hui



Communication Acoustics Lab Anechoic Chamber Facility

At the [Communication Acoustics Lab](#) (PI: Yusuke Hioka), University of Auckland, we have been busy with different speech communication and or acoustic related projects (check out Nick's project in his [article!](#)).

Very lucky for me, I got to go home after finishing my PhD in Tokyo right before the pandemic hit. One of my postdoctoral projects (with Yusuke Hioka, Catherine Watson, and Hinako Masuda) involves looking at how listeners understand speech in different room acoustics, simulated using an Ambisonic-based sound reproduction system (luckily, we collected all the data we needed before we went into lockdown!). What this means is that we can examine how speech is perceived and understood in the actual rooms without needing the participants to go into the physical rooms.

There are several aspects that we are particularly interested in that are made possible with such a technique. One is how well do listeners benefit from spatial information in a cocktail party environment, that is, where there is background noise, and listeners have to pick out the speech of interest (like how we would do in a cocktail party! which seems to be a thing of the past...) We are also interested in how this ability to listen out for speech in different acoustic environments is affected by our familiarity with the language. This is where our collaborators in Japan at the Speech Communication Lab, Sophia University, come in, allowing us to test different groups of listeners. Too bad our initial plan of collecting the data in person has turned to ashes due to certain events in the world! But we will just have to make do for now in this post-COVID world.

Do check out a couple of our recently published works if you are interested!

[1] C. T. J. Hui, E. Au, S. Xiao, Y. Hioka, C. Watson, and H. Masuda, "Differences in speech intelligibility in noise between native and non-native listeners under Ambisonics-based sound reproduction system," *Appl. Acoustics*, vol. 184, 2021.

[2] E. Au, S. Xiao, C. T. J. Hui, Y. Hioka, H. Masuda, and C. I. Watson, "Speech intelligibility in noise with varying spatial acoustics under Ambisonics-based sound reproduction system," *Appl. Acoustics*, vol. 174, p. 107707, 2021.



## Research Events, Conferences and Books

# 8 | Māori Speech Hui 2021

By Jesin James, Isabella Shields

Supported by ASSTA Research Events Award



*“Hey Siri, can you take me to Kaitaia?”, Siri: “Which Car tyre?”*

Similar conversations with Siri, where Siri could not recognise the te reo Māori place name Kaitaia was a motivation behind organising the first [Māori Speech Hui](#) in 2018. Te reo Māori (the Māori language), the indigenous language of Aotearoa New Zealand (one of the official languages), is extensively involved with English. Māori in low-resourced in terms of speech and language technology. The absence of Māori in Human-Computer Interaction will limit its use in these environments, thereby reducing the overall use of the language. The continued use of Māori by our taiohi (youth) is essential. Extensive language-revitalisation efforts in New Zealand has increased awareness among the general public, researchers and technology developers regarding the need to use Māori in conversations and technology.

The Māori Speech Hui 2020 was envisioned as a platform for groups and individuals working in all aspects of Māori speech technologies to meet ‘kanohi ki te kanohi’ (face to face) to discuss work in progress, technologies being used, insights gained, lessons learnt, current challenges and future directions.

The 1<sup>st</sup> Māori Speech Hui was held on 13 September 2018 (during Māori language week) at Epsom Campus, Faculty of Education and Social Work, The University of

Auckland. The 1<sup>st</sup> hui worked really well – and we were keen to both present our recent efforts, learn about other research projects and their progress, along with the opportunity for networking. This motivated us to organise a second edition of the hui. The 2<sup>nd</sup> Māori Speech Hui was held on 1 July 2021 at Epsom Campus, Faculty of Education and Social Work, The University of Auckland. The Māori Speech Hui was supported by the ASSTA Research Events Award.

The hui (meeting) was organised by the [Speech Research @ UoA](#) research group. The organising team consisted of Jesin James, Catherine Watson, Peter Keegan (Waikato-Maniapoto, Ngāti Porou), Isabella Shields (Ngāti Porou) and Justine Hui. [Te Hiku Media](#) is a Māori broadcasting company in Northland, New Zealand who are extensively involved in developing speech and language technology in te reo Māori. The team from Te Hiku media were involved in the planning of the hui and supported the organisation as well. The hui was postponed several times (due to Covid restraints) to allow the events to proceed

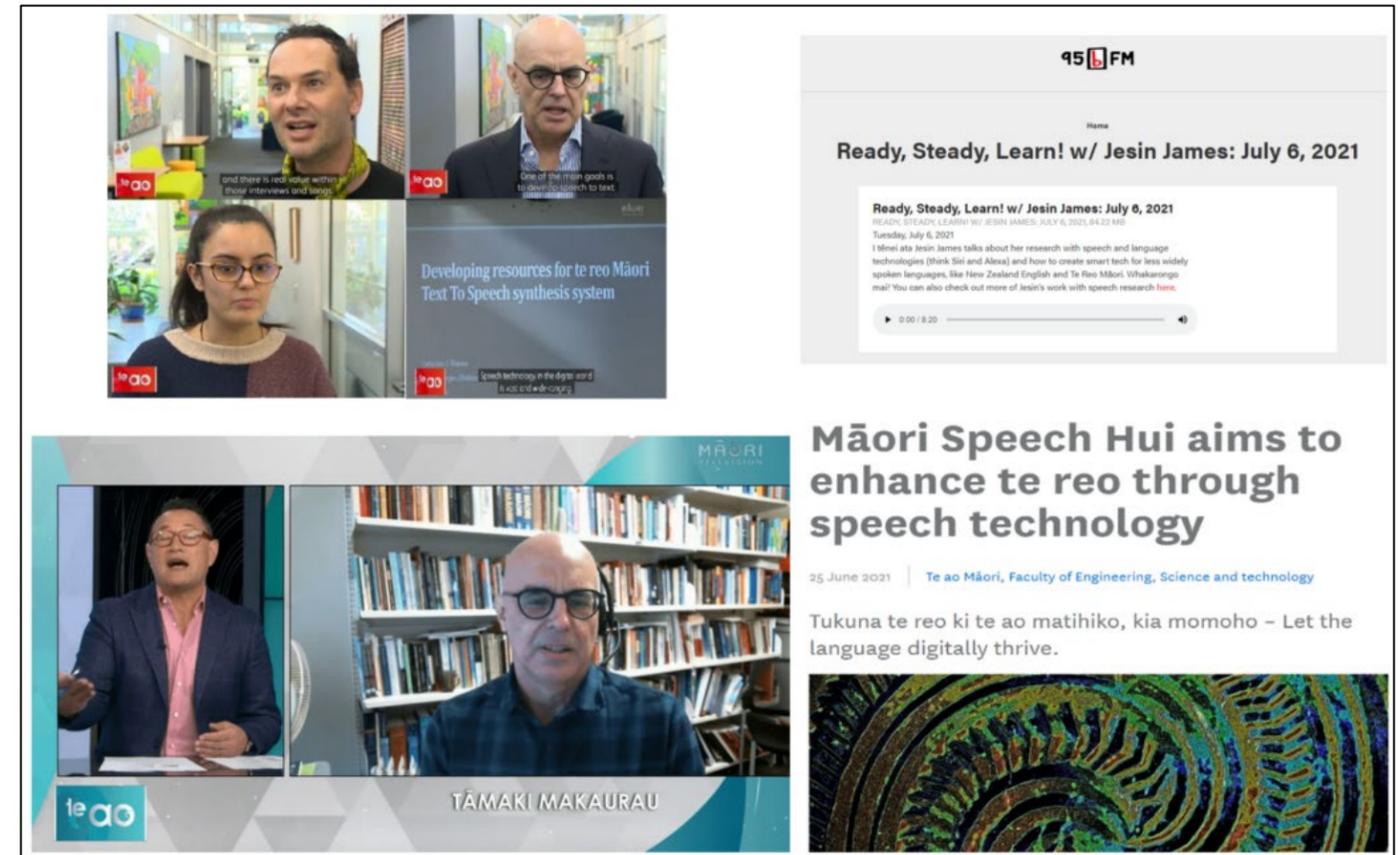
face to face.

Industry and academic leaders were invited to present their research in various sessions throughout the day, including developers of the [Papa Reo](#) project, a multilingual language platform which is a culmination of work undertaken by Te Hiku Media. Other speakers in the sessions are academics working on speech and language technology resource development and analysis of Māori (University of Auckland), natural language processing tools for Cook Island Māori (Massey University), Māori technology initiatives (University of Waikato), and Phonemic awareness tools for Māori (University of Canterbury). The hui was run according to Māori protocols, and participants were welcome to present/ask questions in Māori or English.

56 participants attended the hui, with 6 people attending the hui virtually due to location constraints. The central theme that was reiterated throughout the hui was that the Māori technology development should be co-developed



Participants at the Māori Speech Hui 2021



Māori Speech Hui 2021 in media.

along with Māori speakers, as only the speakers of the language will understand the importance of the language they speak and represent. Also, the aspect of data sovereignty was discussed in-depth. Māori regard data as taonga (unique resource), and hence, researchers are kaitiaki (guardians) of the data. The benefits of the data collected from Māori should reach back to the Māori community.

Feedback was collected from the participants regarding the hui. All the participants who provided feedback reported that they enjoyed the experience of being able to discuss their research in te reo Māori with their peers. A feedback received was:

*“Very insightful discussion into an area that I am passionate about - it allowed me to get an idea of what is happening in the Māori speech technology space and shed light on the work of many researchers. I was particularly impressed by the diversity of projects presented, and also really enjoyed the more interactive elements of the workshop. Kia ora!!”*

An increased amount of te reo Māori was spoken during the hui, and that was very much welcomed by the participants. Everyone agreed that they were looking forward to another edition of the hui. The Māori Speech Hui was also extensively covered by the media, with the various participants and organisers having opportunities to talk at television and radio interviews.

# Māori Speech Technology Workshop 2021

By Jesin James, Peter Keegan, Catherine Watson



“Everyone should have the possibility to get access to Language Technologies in his/her native languages, including indigenous languages.” - Language Technologies for All Conference, 2019. When it comes to the actual technology development, we find that it is done by people who do not know the language. We experienced a related issue in New Zealand, where we host projects and internships on te reo Māori speech and language technology, but often it is taken up by individuals who do not necessarily know the language. . So, we realised that there is a need to train Māori speakers to have sufficient skills to support technology development in their language. With this motivation, the [Speech Research Group @ UoA](#) and [Te Hiku Media](#), a Māori broadcasting company in Northland, New Zealand jointly organised the (1<sup>st</sup>) [Māori Speech Technology Workshop](#) on 2 July 2021 at the City Campus, Faculty of Engineering, The University of Auckland. The workshop was postponed several times (due to Covid restraints) to allow the events to proceed face to face.

The Māori Speech Technology workshop was envisioned as an opportunity for undergraduate and postgraduate students to learn about Māori speech and language technology development from industry experts and academics.

Te Hiku Media also sponsored student travel grants. All the morning sessions were facilitated by the members of the [Speech Research @ UoA Group](#) (namely, Peter Keegan, Catherine Watson, Justine Hui, Jesin James, Isabella Shields). The afternoon sessions were facilitated by the members from Te Hiku Media (namely,

“Everyone should have the possibility to get access to Language Technologies in his/her native languages, including indigenous languages.”

Keoni Mahelona, Caleb Mosses, Henry MacDonald, Kiarie Ndegwa). The workshop had practical sessions as where the participants conducted acoustic analysis and machine learning.

38 participants attended the workshop, consisting of high school Pasifika students, kura kaupapa Māori students, university students, Māori language teachers, academics and local Māori iwi/community members. The workshop was run according to Māori protocols, and participants were welcome to present/ask questions in te reo Māori or English. It turned out that the presenters hailed from every continent (except Antarctica) because we are a very diverse group.

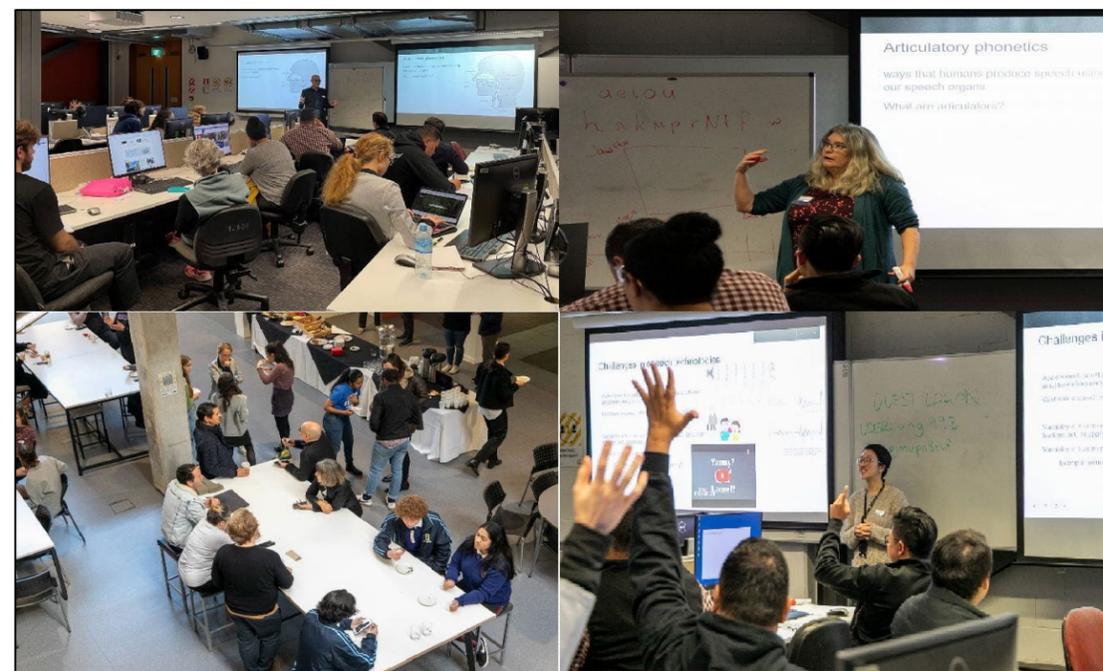
Feedback was collected from the participants. All the participants commented that the workshop helped them appreciate the challenge of technology in different languages. Some

developing speech and language feedback received are:

*“All of the talks were interesting. There was a variety of different topics and the day went quickly because of this and didn't drag. I also enjoyed being able to participate in different activities.”*

*“How different this was to anything I have done before. I speak the language and have taught the language but was fascinated by the learnings.”*

Although the workshop focused on Māori technologies, the concepts discussed were certainly useful for those interested in other low-resourced languages, along with being useful for speech technologies in general. Due to the interest in this workshop, we plan to organise similar in-person hands-on workshops in future, maybe in different parts of New Zealand.



Māori Speech Technology Workshop 2021 in progress

# 10 | Asia-Pacific Language Variation

Brooke Ross

My name is Brooke Ross, I am a PhD student in Speech Science at the School of Psychology at the University of Auckland. My supervisors are Dr Elaine Ballard and Assoc. Prof. Catherine Watson. I am currently undertaking research on sound change in Auckland, specifically whether it is progressing differently to sound change in other parts of New Zealand. My primary area of interest is acoustic phonetics, in particular sound change involving vowels.

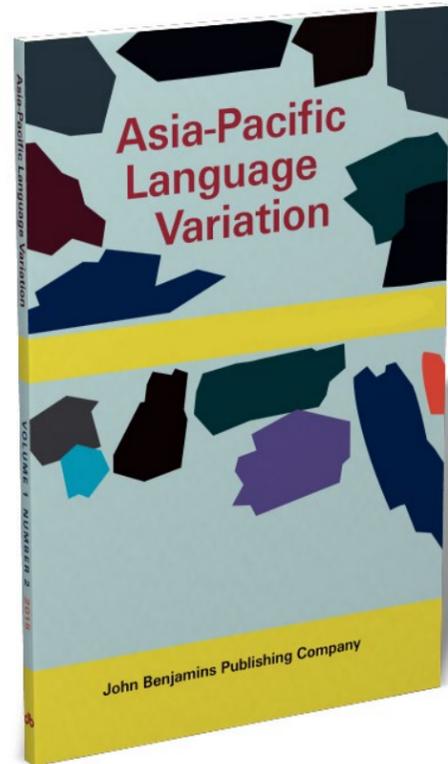
My 2018 master's thesis was an acoustic analysis of the vowels of young Aucklanders. I examined the speech from 40 recordings collected as part of the Auckland Voices project. I looked at New Zealand English speakers from three Auckland suburbs and focussed on the vowel spaces of these speakers concluding that the vowel spaces of Aucklanders may be differ from the "typical" New Zealand English speaker. In particular, the well documented NZE front vowel shift where the vowels DRESS and TRAP have raised seemed to be reversing. This parallels similar research in Australian English, suggesting that the TRAP and DRESS vowels are lowering for Sydney speakers.

This study had some pretty big limitations, however. The vowel analysis was restricted to a read passage of speech, rather than making use of the lengthy interview speech available; and I only really had time to focus on analysing the speech of younger speakers in the database and had to exclude most of the older group from the analysis. A part of this study was published as a book chapter in: [Brooke Ross, Elaine Ballard, Catherine Watson, "New Zealand English in Auckland A Papatoetoe snapshot", in \*Asia-Pacific Language Variation\*, Volume 7, Issue 1, Jun 2021, p. 62 - 81](#)

As a result, I decided to undertake a PhD to expand on my previous work. My present research looks at speech from sociolinguistic style interviews with 67 speakers in two age groups (under 25 and over 40) stratified by age, gender, and suburb. All speech is from interviews collected as part of the Auckland Voices Project. This data provides greater vowel token numbers, and more relaxed natural speech than my previous analysis. I have also collected 20 interviews with New Zealand English speakers from the Nelson region of New Zealand. The lack of comparable phonetic studies on New Zealand English speakers – particularly for younger speakers – previously made it challenging to determine how the Auckland Voices speakers compared to modern New Zealand English. The new dataset can be compared to both the Auckland dataset and the existing literature on New Zealand English. I hope this will provide more insight into the differences between New Zealand English speakers in Auckland and "regional" New Zealand English speakers.

At present, I have finished coding the Auckland Voices interview data and have completed an initial analysis of the vowel space of all groups. This initial analysis supports my previous findings. The older speakers have a vowel space that compares to previous research on New Zealand English. Most notably, they have raised DRESS and TRAP vowels. The younger speakers, however, have noticeably lowered DRESS and TRAP. Also, somewhat unexpectedly, there is a large difference in diphthong trajectories between the older and younger groups. The FACE, GOAT, MOUTH and PRICE vowels produced by the young speakers have visibly different trajectories to those produced by the older speakers. I suspect this may have to do with a reduction in the number of broad NZE diphthongs produced by the younger speakers, but further analysis is needed.

My next step is to label data from the 20 Nelson interviews. This will hopefully help put the Auckland data in context and provide more depth to my current analyses.



The Asia-Pacific Language Variation Journal

“I hope this will provide more insight into the differences between New Zealand English speakers in Auckland and regional New Zealand English speakers.”

# 11 | At Interspeech 2021

by Joshua Penney

Supported by ASSTA COVID-19 Special Conference Support Award

This year I received an ASSTA COVID-19 Special Conference Support Award to attend INTERSPEECH 2021. This award provides financial assistance to students/ECRs for conference costs in times of COVID.

As most ASSTA members would be aware, INTERSPEECH is the annual conference of the International Speech Communication Association. It is one of the largest and most important international conferences in the field of speech science, bringing together researchers from various fields, including phonetics, signal processing, and speech synthesis and recognition. One of the things I really enjoy about INTERSPEECH is attending sessions that are outside of my direct field of research (sometimes very much so!), which provides the opportunity to expand my horizons and learn about something new (and sometimes be thoroughly confused!).

The conference took place in Brno, Czechia. As the COVID 19 pandemic is still running rampant in many countries, the conference was held in hybrid mode, with both in-person and remote participation. As much as I would have liked to visit Brno, I attended the conference remotely, from lockdown in Sydney.

Online/hybrid conferences have become quite common in the last two years, as COVID related lockdowns and travel restrictions have made travel and face to face meetings almost impossible. While remote participation brings with it a range of benefits – for example enabling greater access for those who can't travel, reducing carbon footprints through reduced flights, etc. – there

are also a number of disadvantages: issues with connectivity, technical difficulties, and drop outs, the lack of in-person discussions, and, particularly for international conferences, coordinating sessions across multiple time zones.

I was very impressed by the user friendly conference platform and how well switches between in-person and remote presentations worked.

With 963 accepted papers, there was a lot of research to take in. There were oral sessions as well as posters sessions, in which you could interact with a poster and its author(s) in a virtual room. I found the sessions on perception, phonation, voicing, and

## ASSTA at

30 August – 3 September 2021

# INTERSPEECH 2021 | BRNO | CZECHIA

*Speech  
everywhere!*

speech perception very interesting. Unfortunately, quite a few sessions of interest ran overnight Sydney time, which made attendance difficult; but the availability of highlight videos, posters, and papers in the proceedings meant that even in such cases I could still review any papers from these sessions.

I presented a paper in a special session on Voice Quality Characterization for Clinical Assessment, on differences in acoustic measures of voice quality between smartphones/laptops and a high-end recorder. This research came about as a result of COVID-19 restrictions, which necessitated a shift to remote data collection using participants' personal devices. We were interested in whether voice quality could be reliably analysed in such recordings. The study demonstrated significant differences for many acoustic measures of voice quality across devices, and, additionally, showed that these differences are not simple offsets, but that the magnitude of such effects depends on the value of the measurement of interest. This research has important implications for studies of voice quality utilising remote recordings, particularly in the case of small effect sizes. The paper can be found [here](#).

I was also an author on another paper included in the special session, presented by Hannah White. This paper showed how an algorithm for automatic detection of creaky voice can be optimised by identifying an ideal probability threshold for categorisation based on a subset of the data, and by excluding non-sonorant segments. This paper can be found [here](#).

The special session was held from 3-5 am Sydney time, and there were also some issues with the playback of my presentation and connectivity, so I certainly experienced some of the downsides of a hybrid conference. Nevertheless, both papers received a good response and generated lively discussion among the panel and participants; so, despite sitting in lockdown, I was able to take part in an exchange with international colleagues in multiple locations, definitely a plus!

Unfortunately for me, I will have to wait a little longer to discover Brno. Nonetheless, INTERSPEECH 2021 was overall a great experience, and I am very grateful to ASSTA for supporting my involvement.

## 12 | At Interspeech 2021

by Nicholas Eng

As a student who had never attended a conference before, I was elated to get accepted into Interspeech 2021 but was slightly disappointed as I knew I would be missing out on the physical conference experience. The Interspeech 2021 conference was held in Brno, Czech Republic, from 30<sup>th</sup> August to 3<sup>rd</sup> September. As this was at a time where several parts of the world were faced with travel restrictions, while others were opening up to travel, the conference was presented in a 'hybrid' format. There were several presenters who would present their talks in person to a live audience, but most attendees would present online, either in a virtual poster room (known as unified virtual sessions) or give a talk to the live audience remotely.

As such, I experienced the conference entirely at home through the online conference platform, and in some ways the online environment was good and bad. I presented my paper "[Comparing Speech Enhancement Techniques for Voice Adaptation-Based Speech Synthesis](#)" in a unified virtual session and was surprised by the number of attendees who popped into my virtual room to ask questions – in fact I was discussing my work for most of my two-hour slot! I'm sure the increased ease of access to the different talks or virtual poster sessions resulted in an easier means of participation. As a participant, I could quickly jump between the streams of the live presentation halls with the click of a button, as well as access any of the virtual poster sessions with ease. The online platform also gave more freedom for presenters to present their work in various ways, from simple posters, to elaborate videos and live demonstrations.

Whilst I appreciated the ease of access that the online environment provided, it also came with several shortcomings. Firstly, having a conference in Europe is never great for us in the Oceanic region, but having to sleep throughout the day and attend the conference at night while the rest of my household was living to a normal schedule was extremely difficult, and most of the time I just had to catch-up on the live presentations through the recordings or forgo the virtual poster sessions entirely. Another issue with the online platform was difficulty in networking. Throughout the conference I saw several researchers in my area of study that I was eager to talk to in a poster room of another presenter – but of course it would be rude to the presenter to suddenly start talking to another participant!

Overall, I was grateful to have the opportunity to experience Interspeech 2021 and was glad to receive so much feedback for my work, but I am truly looking forward to attending a conference in-person in the future!

