

Matthias Heyne

Curriculum Vitae

Boston University - Sargent College of Health & Rehabilitation Sciences
Department of Speech, Language & Hearing Sciences
677 Beacon St., Boston, MA 02215
Speech Neuroscience Laboratory
mheyne@bu.edu; +1 617 800 7669
<http://languageandmusic.info>

Research Interests

neuroscience of speech production, real-time MRI of the vocal tract,
language and music, articulatory phonetics, ultrasound imaging of the
tongue, sociophonetics, New Zealand English

Education & Research Positions

- 2017- Postdoctoral Research Associate, Boston University
Department of Speech, Language, and Hearing Sciences
Speech Neuroscience Laboratory
Advisors: Prof. Frank Guenther & Dr. Jason Tourville
- 2017 Helsinki Summer School, course *Auditory Cognitive Neuroscience*
6 ECTS, August 9 to 18, 2017
- 2016 Ph.D. in Linguistics, University of Canterbury, New Zealand
Dissertation: The influence of First Language on playing brass instruments:
An ultrasound study of Tongan and New Zealand trombonists,
Advisors: Dr. Donald Derrick & Prof. Jennifer Hay
- 2012 State Exam "Teaching for secondary schools" (1. Staatsexamen) with the
subjects Music and English, University of the Saarland and University of
Music Saar, Saarbrücken, Germany
Thesis in English Linguistics: The interaction of musicians in rehearsals
Advisor: Prof. Dr. Neal R. Norrick
- 2012 "Jazz – complementary studies" Trombone (Diplom-
Ergänzungsstudiengang Jazz), University of Music Saar
- 2010 Study abroad semester, University of Melbourne, Australia
Linguistics classes taken: Language and Identity
Language in Aboriginal Australia
- 2010 "Orchestral Music" (performance) Bass Trombone (Diplom
Orchestermusik), University of Music Saar
- 2004-2007 Studies at the Mannheim University of Music and Performing Arts,
Germany, in the courses "Diploma in music teaching" (for music schools)
and "Instrumental Performance" (Bass Trombone)

Peer-reviewed Publications

Heyne, M., Wang, X., Derrick, D., Dorreen, K., & Watson, K. (in press). The
articulation of /j/ in New Zealand English. *Journal of the International Phonetic
Association*.

- Heyne, M. & Derrick, D. (2016). Visualization techniques for empirical brass instrument research. *Journal of the International Trumpet Guild* 40(4): 6-14, 24.
- Heyne, M. & Derrick, D. (2015). Using a radial ultrasound probe's virtual origin to compute midsagittal smoothing splines in polar coordinates. *Journal of the Acoustical Society of America* 138(6): EL509-514.
<http://dx.doi.org/10.1121/1.4937168>

Manuscripts Reviewed/Submitted/In Preparation

- Derrick, D., Heyne, M., O'Beirne, G. A., De Rybel, T., Hay, J., & Fiasson, R. (submitted). *Effects of speech air flow on two-way forced-choice word identification in Mandarin and English.*
- Heyne, M. & Derrick, D. (in preparation). *Sub-phonemic influences on New Zealand English schwa production.*
- Heyne, M. & Derrick, D. (in preparation). *Native language influence on brass instrument performance.*

Published Conference Proceedings/Abstracts

- Heyne, M. & Derrick, D. (2017). An empirical study of native language influence on trombone performance. in: *Abstracts of the International Symposium on Performance Science (ISPS)*, ed. by Williamon, A., and Jónasson, P. Reykjavík, Iceland, Iceland Academy of the Arts. 80-81.
- Heyne, M., Gick, B., & Derrick, D. (2017) Transfer of skilled behavior across different vocal tract activities: The influence of speech production on brass instrument performance. *Stem-, Spraak- en Taalpathologie* 22(Supplement): 8.
- Heyne, M. & Derrick, D. (2015). The influence of tongue position on trombone sound: A likely area of language influence, in: *Proceedings of the 18th International Congress of Phonetic Sciences (ICPhS)*, ed. by the Scottish Consortium for ICPhS 2015. Glasgow, Scotland.
- Heyne, M. & Derrick, D. (2015). Trombone players seem to use different tongue positions while playing sustained notes, depending on their native languages," in: *Proceedings of the Ninth Triennial Conference of the European Society for the Cognitive Sciences of Music (ESCOM)*, ed. by Ginsborg, J., Lamont, A., Phillips, M., and Bramley, S. Manchester, England.
- Heyne, M. & Derrick, D. (2014). Some initial findings regarding first language influence on playing brass instruments, in: *Proceedings of the 15th Australasian International Conference on Speech Science and Technology*, ed. by Hay, J. & Parnell, E. Christchurch, New Zealand, Australasian Speech Science and Technology Association (ASSTA). 180-183.

Conference Presentations

- Heyne, M. & Derrick, D. (2017). An empirical study of native language influence on trombone performance. Talk presented at the *International Symposium on Performance Science*, Reykjavík, Iceland, August 30 – September 2, 2017.
- Heyne, M., Gick, B., & Derrick, D. (2017). Transfer of skilled behavior across different vocal tract activities: The influence of speech production on brass instrument performance. Talk presented at the *7th International Conference on Speech Motor Control*, Groningen, the Netherlands, July 5 - 8, 2017.

- Heyne, M., Wang, X., Dorreen, K., Derrick, D., & Watson, K. (2016). The articulation of /ɹ/ in New Zealand English. Poster presented at the *5th Joint meeting of the Acoustical Society of America and the Acoustical Society of Japan*, Honolulu, Hawai'i, November-December 2016.
- Heyne, M., Dorreen, K., Wang, X., Derrick, D., & Watson, K. (2016). An ultrasound study of /ɹ/ in New Zealand English. Talk presented at the *Linguistic Society of New Zealand Annual Conference*, Massey University, Wellington, New Zealand, November 2016.
- Heyne, M., Derrick, D. (2016). Stylistic variation of sub-phonemic syllabic influences on New Zealand English schwa production. Talk presented at *New Ways of Analyzing Variation (NwAV) 45*, Simon Fraser University, Vancouver, Canada, November 2016.
- Heyne, M., Derrick, D. (2016). An articulatory and acoustic study of monophthongs in New Zealand English. Talk presented at the *New Zealand English and English in New Zealand Conference (NZEENZ)*, University of Canterbury, New Zealand, June 2016.
- Heyne, M., Derrick, D., & Hay, J. (2015). An ultrasound study of monophthongs in New Zealand English. Talk presented at the *46th Annual Conference of the Australian Linguistic Society*, Western Sydney University, Australia, December 2015.
- Heyne, M. (2015). The 'singing approach' to brass playing revisited: We sing the language we speak. Talk presented at the *2nd Conference of the Australian Music & Psychology Society*, Western Sydney University, Australia, December 2015.
- Heyne, M. (2015). An ultrasound study of monophthongs in New Zealand English. Talk presented as part of the *Canterbury Postgraduate Showcase '15*, University of Canterbury, New Zealand, November 2015. (Prize for overall best presentation)
- Heyne, M., & Derrick, D. (2015). Why expert listeners might be able to distinguish differences in sound produced by brass players from different language backgrounds. Poster presented at the *10th UK Language Variation and Change Conference (UKLVC)*. York, England, September 2015.
- Heyne, M., & Derrick, D. (2015). Trombone players seem to use different tongue positions while playing sustained notes, depending on their native languages. Poster presented at the *9th Triennial Conference of the European Society for the Cognitive Sciences of Music (ESCOM)*. Manchester, England, August 2015.
- Heyne, M., & Derrick, D. (2015). The influence of tongue position on trombone sound: A likely area of language influence. Poster presented at the *18th International Congress of Phonetic Sciences*. Glasgow, Scotland, August 2015.
- Heyne, M., & Derrick, D. (2015). Brass players with different native languages seem to use different tongue positions during playing. Talk presented at *40th Annual Conference of the International Trumpet Guild*, Columbus, OH, May 2015.
- Heyne, M. & Derrick, D. (2015). Benefits of using polar coordinates for working with ultrasound midsagittal tongue contours. Poster presented at the *169th meeting of the Acoustical Society of America*, Pittsburgh, PA, May 2015.
- Heyne, M. & Derrick, D. (2014). Some initial findings regarding first language influence on playing brass instruments. Talk presented at the *15th Australasian International Conference on Speech Science and Technology (SST)*, Christchurch, New Zealand, December 2014.

Invited presentations

- Heyne, M. (2018). *The influence of native language on brass playing: Motor memory from speech production affects midsagittal tongue shape during trombone performance*. Talk presented at the Boston Speech Motor Control Working Group meeting, Boston, MA, January 2018.
- Heyne, M. (2017). *Transfer of skilled behavior across different vocal tract activities: The influence of speech production on brass instrument performance*. Talk presented at the Speech Neuroscience Laboratory, Boston University, November 2017.
- Heyne, M. (2017). *The influence of native language on brass playing: Articulatory evidence for the transfer of skilled behavior across different vocal tract activities*. Talk presented at the University of Melbourne Languages and Linguistics Seminar Series, Melbourne, Australia, September 2017.
- Heyne, M. (2017). *The influence of native language on brass playing: An ultrasound study of Tongan and Kiwi trombone players*. Talk presented at the NZILBB Seminar Series, University of Canterbury, New Zealand, April 2017.
- Heyne, M. (2016). *The influence of native language on brass playing: An ultrasound study of Tongan and Kiwi trombone players*. Talk presented at the University of British Columbia Department of Linguistics Colloquium Series, Vancouver, Canada, November 2016.
- Heyne, M. (2016). *Articulatory phonetics & the influence of native language on trombone playing*. Talk presented at the *New Zealand Linguistics Olympiad Finals*, Auckland, New Zealand, April 2016.
- Heyne, M., & Derrick, D. (2015). *First Language influence on playing brass instruments*. Talk presented at the MARCS Institute for Brain, Behaviour and Development, Western Sydney University, Australia, September 2015.
- Heyne, M., & Derrick, D. (2015). *Visualization techniques for empirical brass instrument research*. Talk presented at the *ESCOM 2015 pre-conference workshop on Music & Wellbeing*, Royal Northern College of Music, Manchester, England, August 2015.
- Heyne, M., & Derrick, D. (2015). *The influence of native language on brass playing AND Visualization techniques for empirical brass research*. Talk presented at the Melbourne Conservatorium of Music, University of Melbourne, Australia, August 2015.

Awards and Honours

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| 2016 | Travel award, New Ways of Analyzing Variation (NWAV) conference, Vancouver, CAD\$500 |
| 2015 | Winner of “best overall presentation” for the talk “An ultrasound study of monophthongs in New Zealand English” at the Canterbury Postgraduate Showcase conference, University of Canterbury |
| 2015 | Judge, College of Arts 2015 University of Canterbury Thesis in Three competition |
| 2014 | Winner, College of Arts 2014 University of Canterbury Thesis in Three competition, award NZD1,000 |
| 2012 | University of Canterbury Doctoral Scholarship, NZD20,000 stipend per year + fees |

Research funding awarded

- 2018 Boston University College of Health & Rehabilitation Sciences: Sargent College, travel & accommodation to perform real-time MRI recordings of brass players at the Max-Planck-Institute for Biophysical Chemistry in Göttingen, Germany, US\$1,025
- 2016 School of Language, Social & Political Sciences, University of Canterbury, towards attending *New Ways of Analyzing Variation (N WAV) 45* in Canada, NZD1,500
- 2016 New Zealand Institute of Language Brain & Behaviour (NZILBB), Language Variation and Change theme, collaborative paper challenge 2016
Principal Investigator: The articulation of /r/ in New Zealand English, NZD3,000
- 2015 School of Language, Social & Political Sciences, University of Canterbury, towards attending the *169th meeting of the Acoustical Society of America* and the *40th Annual Conference of the International Trumpet Guild* in the USA, NZD1,500
- 2014 School of Language, Social & Political Sciences, University of Canterbury, for a research trip to Tonga and attendance at the *15th Australasian International Conference on Speech Science and Technology* in Christchurch, NZD1,500

Teaching

- 2017 Substitute Teacher: Linguistics 215 The Sounds of Speech 215 taught by Dr. Kevin Watson, University of Canterbury
- 2017 Tutor/TA: Linguistics/English Language 101 taught by Dr Kevin Watson & Dr Heidi Quinn, University of Canterbury
- 2016 Tutor/TA: Linguistics/English Language 101 taught by Dr Kevin Watson & Dr Heidi Quinn, University of Canterbury
- 2015 Tutor/TA: Linguistics 103: How to learn another language taught by Professor Beth Hume, University of Canterbury
- 2014- Exam supervisor, University of Canterbury
- 2012-2013 Substitute teacher, Johannes-Kepler-Gymnasium (High School in Lebach, Germany)
- 2012 Student research assistant and tutor for Professor Christian Rolle, Professor for the Pedagogy of Music at the University of Music Saar
- 2009-2010 Teaching assignment for Bass Trombone as a Minor instrument at the University of Music Saar
- 2008-2013 Student research assistant and tutor for Professor Neal R. Norrick, Professor for English Linguistics at the University of the Saarland
- 2007-2013 Trombone teacher at a music school in Sankt Wendel, Germany

Fieldwork

- 2014 12-day trip to Tonga (Pacific) to record 10 local trombone players

Technical Skills

MATLAB, R, Python, FSL, MRTrix, LATEX, Praat, video recording & editing using ffmpeg & the Windows command line, Adobe Premiere Pro

Languages

First Language: German
Speak fluently: English
Basic competence: Spanish, Latin, French
Carried out research on: New Zealand English, Tongan, Japanese

Professional activities

member of the Linguistic Society of New Zealand, Australian Linguistic Society

Service to the field

- 2018 Co-organizer (as part of the Boston Postdoctoral Association) of the 2018 Boston Symposium on Careers and Collaboration in Science (B-SoCCS)
- 2018 External examiner for a Master of Science thesis in Communication Disorders, University of Canterbury
- 2016 Reviewer for the Linguistic Society of New Zealand Annual Conference
- 2016- Convener of the NZILBB seminar series
- 2016 Co-editor for a special issue of the New Zealand English Journal on the New Zealand English and English in New Zealand (NZEENZ) Conference, published December 2016
- 2016 Co-organizer for the NZEENZ Conference, University of Canterbury
- 2016 Assistant and presenter at the New Zealand Linguistics Olympiad Finals
- 2016 Pronunciation consultant for the University of Canterbury Chamber Choir
- 2016 Reviewer for the International Trumpet Guild Conference 2016
- 2015 Session chair 'Music Training' at the Ninth Triennial Conference of the European Society for the Cognitive Sciences of Music (ESCOM) in Manchester, England
- 2015 Interview with Radio New Zealand National
<http://www.radionz.co.nz/national/programmes/ourchangingworld/audio/201769396/does-your-first-language-influence-your-trombone-playing>
- 2013 Assistant for the New Zealand Linguistics Society Conference 2013, University of Canterbury

Musical activities

- 2015 Audition for and subsequent trial performances with the Christchurch Symphony Orchestra for their Principal Bass Trombone position
- 2014-2015 Concerts and CD recordings with the Christchurch Symposium Big Band