

Alexander J. Billig, PhD

UCL Ear Institute
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EDUCATION AND TRAINING

- 2017 – present Postdoctoral Research Associate
UCL Ear Institute, London, UK
Supervisors: Tim Griffiths, Maria Chait
- 2016 – 2017 Postdoctoral Research Fellow/Associate
Brain and Mind Institute, University of Western Ontario, London, ON, Canada
Supervisor: Ingrid Johnsrude
- 2012 – 2015 PhD in Biological Sciences
MRC Cognition and Brain Sciences Unit, Cambridge, UK
Thesis: *High-Level Influences on Auditory Streaming*
Supervisors: Bob Carlyon, Matt Davis
- 2010 – 2011 MSc in Music, Mind & Brain (Distinction)
Goldsmiths College, University of London, UK
- 1998 – 2001 BA (Hons) in Mathematics
St Hugh's College, University of Oxford, UK

SELECTED ADDITIONAL EMPLOYMENT

- 2001 – 2011 Analyst/Associate/Director;
Morgan Stanley, London, UK
Managed operations teams, technology/business development projects

PUBLICATIONS

Billig, A.J., Davis, M.H., & Carlyon, R.P. (under review). Neural decoding of bistable sounds reveals an effect of intention on perceptual organization. <https://doi.org/10.1101/206417>

Canales-Johnson, A., **Billig, A.J.**, Olivares, F., Gonzalez, A., Garcia, M.D.C, Silva, W., Vouchert, E., Ciruolo, C., Mikulan, E., Ibanez, A., Noreika, V., Chennu, S., & Bekinschtein, T. (under review). Neural information dissociates general properties of conscious perception. <https://doi.org/10.13140/RG.2.2.34646.24647>

- Billig, A.J.**, & Carlyon, R.P. (2016). Automaticity and primacy of auditory streaming: concurrent subjective and objective measures. *Journal of Experimental Psychology: Human Perception and Performance*, 42(3), 339-353. <http://doi.org/10.1037/xhp0000146>
- Bierer, J.A., Deeks, J.M., **Billig, A.J.**, & Carlyon, R.P. (2015). Comparison of signal and gap detection thresholds for focused and broad cochlear implant electrode configurations. *Journal of the Association for Research in Otolaryngology*, 16(2), 273-284. <http://doi.org/10.1007/s10162-015-0507-y>
- Billig, A.J.**, Davis, M.H., Deeks, J.M., Monstrey, J., & Carlyon, R.P. (2013). Lexical influences on auditory streaming. *Current Biology*, 23(16), 1585-1589. <http://doi.org/10.106/j.cub.2013.06.042>
- Billig, A.J.** & Müllensiefen, D. (2012). Comparing models of contour in music and speech. In E. Cambouropoulos, C. Tsougras, P. Mavromatis, & K. Pastiadis (Eds.), *Proceedings of the 12th International Conference on Music Perception and Cognition and the 8th Triennial Conference of the European Society for the Cognitive Sciences of Music, July 23-28, 2012* (pp. 95-96) Thessaloniki, Greece: School of Music Studies, Aristotle University of Thessaloniki. http://icmpc-escom2012.web.auth.gr/files/papers/95_Proc.pdf

KEY SKILLS

Range of research methods: EEG, MEG, ECoG, fMRI, psychophysics, cochlear implant direct stimulation

Quantitative background: Broad mathematical training, strong analysis skills, programming in MATLAB/R/ePrime/Presentation, advanced analysis methods (multivariate patterns, time-frequency)

Business experience: Planning and implementing technological and procedural change in fast-moving environment; managing people and budgets; developing and delivering training plans

Other skills and interests: Worked as professional musician; strong interest in languages

AWARDS AND GRANTS

2017 - 2018	BrainsCAN Accelerator Stimulus Grant (University of Western Ontario / Canada First Research Excellence Fund) " <i>Characterizing auditory cortical receptive fields</i> " (co-applicant) - USD 43,300
2016	Society for Neurobiology of Language Travel Award – USD 600
2015 - 2016	Guarantors of Brain Travel Grants – USD 2,200
2014 – 2015	Cambridge Philosophical Society Travel Grants – USD 200
2013 – 2015	Robinson College Cambridge Academic Expenses Fund - USD 750

- 2013 Association of Research in Otolaryngology Travel Award - **USD 500**
- 2012 – 2015 Medical Research Council Doctoral Training Award Studentship – **USD 63,000**
total stipend

HOSTED SYMPOSIA

- 2018 Co-organizer/host of Young Investigator Symposium with Dr. Emma Holmes at *41st Annual Midwinter Meeting of the Association for Research in Otolaryngology*, San Diego, CA, USA. Non-acoustic influences on speech perception in normal and impaired hearing.

CONFERENCE TALKS

- Billig, A.J.**, Nourski, K.V., Rhone, A.E., Gander, P.E., Howard, M.A., Johnsrude, I.S. (2018) Talk at *41st MidWinter Meeting of the Association for Research in Otolaryngology*, San Diego, CA, USA. Linguistic knowledge affects auditory streaming of speech: Insights from intracranial recordings and functional magnetic resonance imaging.
- Billig, A.J.**, Davis, M.H., & Carlyon, R.P. (2015). Talk at *38th MidWinter Meeting of the Association for Research in Otolaryngology*, Baltimore, MD, USA. Can we choose to integrate or segregate? Effects of task instruction on subjective and electromagnetic measures of auditory streaming.
- Carlyon, R.P., **Billig, A.J.**, Deeks, J.M., Monstrey, J., & Davis, M.H. (2013). Talk at *36th MidWinter Meeting of the Association for Research in Otolaryngology*, Baltimore, MD, USA. Auditory streaming of syllables: Words fuse more readily than non-words.
- Carlyon, R.P., **Billig, A.J.**, Deeks, J.M., Monstrey, J., & Davis, M.H. (2012). Talk at *3rd Annual Conference and Experimental and Clinical Short Papers Meeting of the British Society of Audiology*, Nottingham, UK. Auditory streaming of syllables: Words fuse more readily than non-words.
- Billig, A.J.** & Müllensiefen, D. (2012). Talk at *Music and Shape Conference*, London, UK. Crossmodal representations of contour in music and speech.

INVITED TALKS

- 2017 UCL Ear Institute, London, UK
- 2017 Department of Psychology, University of Oxford, Oxford, UK
- 2017 Human Brain Research Laboratory, University of Iowa, Iowa City, IA, USA
- 2015 Institute for Systems Research, University of Maryland, Baltimore, MD, USA
- 2015 Institute for Neural Computation, University of California, San Diego, CA, USA
- 2015 Robinson College, University of Cambridge, Cambridge, UK
- 2014 CamBRAIN NeuroTalks, Cambridge, UK

POSTER PRESENTATIONS

Billig, A.J.*, Herrmann, B.*, Rhone, A.E., Gander, P.E., Nourski, K.V., Howard, M.A., Johnsrude, I.S. (2018). Poster at *41st Annual Midwinter Meeting of the Association for Research in Otolaryngology*, San Diego, CA, USA. Alpha oscillations within human auditory cortex: An intracranial electrophysiology study.

Carlyon, R.P., Deeks, J.M., Guérit, F., Lamping, W., **Billig, A.J.**, Large, C. (2017). Poster at *41st Annual Midwinter Meeting of the Association for Research in Otolaryngology*, San Diego, CA, USA. Effects of a potassium channel modulator on temporal processing by cochlear implant users: The Quick+fire study.

Billig, A.J., Rhone, A.E., Gander, P.E., Nourski, K.V., Wild, C.J., Howard, M.A., Johnsrude, I.S. (2017). Poster at *SNAP Workshop*, Lübeck, Germany. Reconstruction of noise-vocoded speech from primary auditory cortex during perceptual pop-out.

Carlyon, R.P., Guérit, F., Lamping, W., **Billig, A.J.**, Harris, P., & Deeks, J.M. (2017). Poster at *Conference on Implantable Auditory Prostheses*, Lake Tahoe, CA, USA. The effect of an oral modulator of fast-acting potassium channels on temporal processing by cochlear implant users.

Deeks, J.M., Guérit, F.M., **Billig, A.J.**, Tam, Y.C., Harris, F., & Carlyon, R.P. (2017). Poster at *Conference on Implantable Auditory Prostheses*, Lake Tahoe, CA, USA. Effect of chronic stimulation and level on temporal pitch perception by cochlear-implant listeners.

Billig, A.J., Rhone, A.E., Gander, P.E., Nourski, K.V., Wild, C.J., Howard, M.A., Johnsrude, I.S. (2017). Poster at *40th Annual Midwinter Meeting of the Association for Research in Otolaryngology*, Baltimore, MD, USA. Intracranial recordings of primary auditory cortical activity during pop-out of degraded speech based on matching visual information.

Carlyon, R.P., Guérit, F., **Billig, A.J.**, Tam, Y.C., Harris, F., & Deeks, J.M. (2017). Poster at *40th Annual Midwinter Meeting of the Association for Research in Otolaryngology*, Baltimore, MD, USA. Temporal pitch perception by cochlear-implant listeners measured at switch-on and after 2 months.

Billig, A.J., Davis, M.H., & Carlyon, R.P. (2016). Poster at *46th Annual Meeting of the Society for Neuroscience*, San Diego, CA, USA. A neural signature of segregation of tone sequences, independent of the attended stream.

Billig, A.J., & Johnsrude, I.S. (2016). Poster at *Advances and Perspectives in Auditory Neuroscience Symposium*, San Diego, CA, USA. Auditory streaming of speech: acoustics, lexicality and neural signatures.

Billig, A.J., Rhone, A.E., Gander, P.E., Nourski, K.V., Wild, C.J., Howard, M.A., Johnsrude, I.S. (2016). Poster at *8th Annual Meeting of the Society for the Neurobiology of Language*, London, UK. Intracranial recordings reveal modulation of high gamma activity in auditory cortex during speech pop-out.

Carlyon, R.P., Cosentino, S., Deeks, J.M., Guérit, F., **Billig, A.J.**, Parkinson, W., & Bierer, J.A. (2016). Poster at 171st Meeting of the Acoustical Society of America, Salt Lake City, UT, USA. Limitations on temporal processing by cochlear implant users.

Billig, A.J., Davis, M.H., & Carlyon, R.P. (2014). Poster at 5th Annual Conference of the British Society of Audiology joint with the Experimental and Clinical Short Papers Meetings, Keele, UK. Effects of attention and intention on auditory streaming.

Billig, A.J., Davis, M.H., & Carlyon, R.P. (2014). Poster at Workshop and Summer School on Auditory Attention and Scene Analysis, Delmenhorst, Germany. Effects of lexical knowledge and attention on auditory streaming.

Billig, A.J., Davis, M.H., & Carlyon, R.P. (2014). Poster at 37th Annual Midwinter Meeting of the Association for Research in Otolaryngology, San Diego, CA, USA. Effects of lexicality and attention on the auditory streaming of speech.

Bierer, J.A., Deeks, J.M., **Billig, A.J.**, & Carlyon, R.P. (2013). Poster at 36th Annual Midwinter Meeting of the Association for Research in Otolaryngology, Baltimore, MD, USA. Comparison of signal-detection and gap-detection thresholds with focused cochlear implant stimulation.

Billig, A.J. & Müllensiefen, D. (2012). Poster at 12th International Conference on Music Perception and Cognition, Thessaloniki, Greece. Comparing models of contour in music and speech.

SERVICE, TEACHING, AND PUBLIC ENGAGEMENT

Ad-hoc reviewing for:	Journal of the Acoustical Society of America, Journal of Experimental Psychology: Human Perception and Performance, Journal of Neurophysiology, Hearing Research, Music Perception, Cognitive Neurodynamics, Brain and Language
2016 - 2017	Trained and supervised undergraduate research volunteers, University of Western Ontario, London, ON, Canada
2016	Reviewed Postdoctoral Collaborative Research Grant applications, University of Western Ontario, London, ON, Canada
2016	Gave talk/musical demonstration at Science Showoff public event, London, UK
2014	Demonstrated at Cambridge Science Centre public event, Cambridge, UK
2014	Delivered science careers talk to high school students, Cambridge, UK
2013 – 2015	Served as member of Open Science and IT committees, MRC Cognition and Brain Sciences Unit, Cambridge, UK

2013 Delivered seminars on Bayesian Inference, MRC Cognition and Brain Sciences Unit, Cambridge, UK

PROFESSIONAL AFFILIATIONS

2016 Society for the Neurobiology of Language, postdoctoral member
2016 Society for Neuroscience, postdoctoral member
2015 Acoustical Society of America, student member
2013 – 2017 Association for Research in Otolaryngology, associate member
2012 – 2015 British Society of Audiology, student member

REFEREES

Postdoctoral supervisor: Dr. Ingrid Johnsrude, Brain and Mind Institute, University of Western Ontario, Canada. Telephone: +1 519 661 2111 x84447. Email: ijohnsru@uwo.ca

PhD supervisor: Dr. Bob Carlyon, MRC Cognition and Brain Sciences Unit, Cambridge, UK. Telephone: +44 1223 273717. Email: bob.carlyon@mrc-cbu.cam.ac.uk

MSc supervisor: Dr. Daniel Müllensiefen, Goldsmiths College, University of London, UK. Telephone: +44 207 919 7895. Email: d.mullensiefen@gold.ac.uk