



# SALONI KRISHNAN

CURRICULUM VITAE

## WEB

 @salonikrishnan  
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## CONTACT

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**Corpus Christi College, University of Oxford**, Merton Street, Oxford OX1 4JF  
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## RESEARCH INTERESTS

My research aims to identify brain changes that underlie childhood speech and language disorders such as developmental language disorder or stuttering, and use this knowledge to improve existing clinical tools. I am also interested in research questions that relate to this goal, such as how brain circuits for speech/language change over childhood, what factors explain individual differences in speech/language performance, how speech/language learning can be improved, and what neural changes occur as a function of learning and training in the auditory-motor domain. To address my research questions, I use classical behavioural paradigms, as well as structural and functional magnetic resonance imaging.

## EXPERIENCE

### Royal Holloway, University of London

April 2019 - present

● Lecturer

### University of Oxford

Dept. of Experimental Psychology  
2015- 2019

● Postdoctoral Research Associate

Neural basis of developmental disorders (stuttering, developmental language disorder)  
Funding: Wellcome Trust Principal Research Fellowship to Professor Dorothy Bishop, then Medical Research Council research grant to Professor Kate Watkins

Corpus Christi College  
2017 - 2020

● Junior Research Fellow

Non-stipendiary appointment

Lady Margaret Hall  
2016 - 2019

● Stipendiary Lecturer in Psychology

Tutorials for Prelim and Part I students (Language & Cognition, Developmental Psychology)  
Personal and organising tutor for EP & PPL students, role in admissions & interviewing

### University College London (UCL)

Institute of Cognitive Neuroscience  
2014 - 2015

● Research Associate

Neural changes related to auditory-motor training in musicians  
Funding: Wellcome Trust Senior Research Fellowship to Professor Sophie Scott

### Birkbeck, University of London

Dept. of Psychological Sciences  
2011 - 2014

● Graduate Teaching Assistant [0.33FTE]

Tutorials and lectures for undergraduate psychology students  
Courses: basic and advanced statistics, language, and developmental psychology

### Lexicon Reading Centre, Dubai, UAE

2008 - 2009

● Speech and Language Therapist

Caseload: Developmental language disorders, dyslexia, ADHD, and autism

## EDUCATION

### Birkbeck, University of London

2010 - 2014

● PhD

*"The developmental contribution of oromotor proficiency to language production"*  
Supervisors: Professor Frederic Dick & Professor Annette Karmiloff-Smith

### UCL & Birkbeck, University of London

2008-2009

● MSc in Cognitive Neuropsychology and Cognitive Neuroscience (distinction)

Thesis: *"Individual differences in auditory-motor skills and their relationship to language"*

### Manipal University, India

2004 - 2008

● Bachelor in Audiology & Speech and Language Pathology (1st)

>2000 hours of clinical experience with speech, language, and hearing disorders

## RESEARCH FUNDING

### Corpus Christi College

2017 - 2020

£9000+

● *Junior Research Fellowship*  
Competitive selection

### Medical Research Council

2017 - 2020

£708,456

● *"Identifying the neural network abnormalities underlying developmental language disorders"*  
Co-author & named postdoctoral researcher  
PI: Professor Kate Watkins; co-I: Professor Dorothy Bishop

### Goodger/Schorstein Fellowship

2016 - 2017

£2000

● *"Optimising Learning in Children with Language Impairments"*  
Principal Investigator  
Competitive selection, Division of Medical Sciences, University of Oxford

### Autour des Williams Foundation

2016 - 2017

€10205

● *"Exploring auditory and motor strategies for language learning in children with Williams syndrome"*  
Principal Investigator

### British Academy

2016 - 2017

£7896

● *"A Sound Strategy - use of statistical mechanisms over varying acoustic signals"*  
Co-author and named investigator  
PI: Professor Frederic Dick

### The Waterloo Foundation

2016 - 2017

£32000

● *"Infant Precursors of Language"*  
Co-author and named investigator  
PI: Professor Annette Karmiloff-Smith

### Birkbeck, University of London

2016 - 2017

~£31000

● *Birkbeck College Research Scholarship*  
Principal Investigator

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## VISITING FELLOWSHIPS/ TRAINING

- 2017** *Advanced Methods for Reproducible Science, Cumberland Lodge, Windsor, UK*  
sponsored by the BBSRC and ECNP | competitive selection
- 2014** *Cold Spring Harbor Laboratory Meeting: Genetics & Language, Lloyd Harbor, New York, USA*  
sponsored by Cold Spring Harbor Laboratory partial bursary, competitive selection
- 2013** *Rapporteur, Royal Society Satellite meeting "Language in Developmental and Acquired disorders", Milton Keynes, UK*  
full bursary, competitive selection
- 2012** *Mortimer D. Sackler M.D. Summer Institute Fellow, Sackler Institute of Developmental Psychobiology at the Weill Cornell Medical School, New York, USA* sponsored by the Sackler Foundation full bursary, competitive selection
- 2012** *Visceral Mind Fellowship, Bangor, UK*  
sponsored by the James McDonnell Foundation, full bursary, competitive selection
- 2011** *Central European University Brains and Mind Summer Fellow, Budapest, Hungary*  
sponsored by the Central European University, full bursary, competitive selection

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## AWARDS

- 2017** *Preregistration challenge prize*, Centre for Open Science, \$1000
- 2017** *Recognition of Excellence Award*, Department of Experimental Psychology, University of Oxford £200
- 2014** *Student Bursary*, Neurodevelopmental Seminar Series, Durham, UK £75
- 2013** *Brain Travel Grant*, Guarantors of Brain £800
- 2013** *Best Poster Prize*, Child Language Symposium, Manchester, UK £50
- 2012** *Travel Bursary*, Psychology Postgraduate Affairs Group, £40
- 2012** *Postgraduate Bursary winner*, British Psychological Society Developmental Section (declined)
- 2012** *Travel Award*, Society for the Neurobiology of Language \$550
- 2011** *Brain Travel Grant*, Guarantors of Brain £800
- 2009** *Grindley Grant*, Experimental Psychology Society, £500
- 2008** *Best Clinical Conference*, School of Allied Health Sciences, Manipal University
- 2007** *Best outgoing student*, Dept. of Speech and Hearing, Manipal University
- 2004-7** *Highest Mark for Year* (3 consecutive awards), Dept. of Speech and Hearing, Manipal University

## LIST OF PUBLICATIONS

*h-index = 10; number of citations = 536*

1. **Krishnan, S.**, Smith, H., Willis, H., Bishop, D.V.M., & Watkins, K. E. (accepted in principle). Stage 1 Registered Report. Functional organisation for verb generation in developmental language disorders. *NeuroImage*.
2. **Krishnan, S.** & Watkins, K. E. (2019). A challenge for the procedural deficit hypothesis: how should we measure sequential learning in childhood? *Developmental Science*. [1 citation]
3. **Krishnan, S.**, Evans, S., Lima, C., Chen, S., Guldner, S., Manly, T., & Scott, S.K. (2018). Beatboxers and guitarists engage sensorimotor fields when listening to the instruments they can play. *Cerebral Cortex*. [1 citation]
4. **Krishnan, S.**, Sellars, E., Wood, H., Bishop, D. V. M., & Watkins, K. E. (2018). The influence of evaluative right/wrong feedback on phonological and semantic components in word learning. *Royal Society Open Science*.
5. Dick, F. & **Krishnan, S.** What underlies the emergence of stimulus- and domain-specific neural responses? Commentary on Hernandez et al. (2018). *Journal of Neurolinguistics*. [3 citations]
6. **Krishnan, S.**, Watkins, K.E., & Bishop, D.V.M. (2017). The role of recall, reproduction, and restudy in word learning: a pre-registered study. *BMC Psychology*, 5(1), 28. [2 citations]
7. Alderson-Day, B., Lima, C., Evans, S., **Krishnan, S.**, Shamulingham, P., Fernyhough, C., & Scott, S.K. (2017). Distinct Processing of Ambiguous Speech in People with Non-Clinical Auditory Verbal Hallucinations. *Brain*. [18 citations]
8. Carey, D., **Krishnan, S.**, Callaghan, M., Sereno, M., & Dick, F. (2017). Functional and quantitative MRI mapping of somatomotor representations of human supralaryngeal vocal tract. *Cerebral Cortex*. [14 citations]
9. **Krishnan, S.**, Alcock, K.J., Carey, D., Bergstrom, L., Karmiloff-Smith, A., & Dick, F. (2017). Fractionating nonword repetition: The contributions of short-term memory and oromotor praxis are different. *PLoS One*. [5 citations]
10. Bishop, D. V., Snowling, M. J., Thompson, P. A., Greenhalgh, T., & the **CATALISE-2 consortium** (2017). Phase 2 of CATALISE: a multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *Journal of Child Psychology and Psychiatry*. [as a member of the CATALISE2 consortium] [125 citations]
11. **Krishnan, S.**, Watkins, K. E., & Bishop, D.V.M. (2016). Neurobiological basis of language learning difficulties. *Trends in Cognitive Sciences*, 20, 701-714. [53 citations]
12. Bishop, D.V.M., Snowling, M.J., Thompson, P.A., Greenhalgh, T., & the **CATALISE consortium** (2016). CATALISE: a multinational and multidisciplinary Delphi consensus study. Identifying language impairments in children. *PLoS One*. 11(7), e0158753. [as a member of the CATALISE consortium] [122 citations]
13. Lima, C., **Krishnan, S.**, & Scott, S.K. (2016). Roles of the supplementary motor areas in auditory processing and imagery. *Trends in Neurosciences*, 39(8), 527-542. [34 citations]
14. **Krishnan, S.**, Leech, R., Mercure E., Lloyd-Fox, S., & Dick, F. (2015). Convergent and divergent fMRI responses in children and adults to increasing language production demands. *Cerebral Cortex*, 25, 3261-3277. [13 citations]
15. **Krishnan, S.**, Bergstrom, L., Alcock, K.J., Dick, F. & Karmiloff-Smith, A. (2015). Williams syndrome: a surprising deficit in oromotor praxis in a population with proficient language production. *Neuropsychologia*, 67, 82-90. [5 citations]
16. Carey, D., Rosen, S., **Krishnan, S.**, Pearce, M., Shepherd, A., Aydelott, J., & Dick, F. (2015). Generality and specificity in the effects of musical expertise on perception and cognition. *Cognition*, 137, 81-105. [42 citations]
17. Dick, F., **Krishnan, S.**, Leech, R., Curtin, S. (2015). Language Development. In G. Hickok & S. Small (Eds.). *Neurobiology of Language*, 1st Edition. Academic Press. [3 citations]
18. Dick, F., **Krishnan, S.**, Leech, R., & Saygin, A. (2015). Environmental Sounds. In G. Hickok & S. Small (Eds.). *Neurobiology of Language*, 1st Edition. Academic Press. [2 citations]
19. James, P.J., **Krishnan, S.**, & Aydelott, J. (2014). Working memory predicts semantic comprehension in dichotic listening in older adults. *Cognition*, 133(1), 32-42. [2 citations]

20. **Krishnan, S.**, Alcock, K.J., Mercure, E., Leech, R., Barker, E., Karmiloff-Smith, A., & Dick, F. (2013). Articulating novel words: Oromotor contributions to individual differences in nonword repetition. *Journal of Speech, Language and Hearing Research*, 56, 1800-1812. [33 citations]
21. **Krishnan, S.**, Leech, R., Aydelott, J., & Dick, F., (2013). School-age children's and adults' identification of environmental sound objects in natural auditory scenes. *Hearing Research*, 300, 46-55. [11 citations]
22. **Krishnan, S.** (2013). A developmental perspective on the integration of language production and comprehension. *Behavioral and Brain Sciences*, 35 -36.

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## PREPRINTS & WORKING PAPERS

- Preprints** **Krishnan, S.**, Carey, D., Dick, F., & Pearce, M. (2019). Effects of statistical learning in passive and active contexts on reproduction and recognition of auditory sequences. *PsyArXiv*. <https://psyarxiv.com/vbem8/>
- under review/revision** Goody, A., **Krishnan, S.**, & Alcock, K. (under revision). Why do language and motor control develop together? Oral motor control in typical and atypical language development. *Journal of Communication Disorders*.
- In prep** **Krishnan, S.**, Chesters, J., Brittain, J.-S., Jenkinson, N., Lametti, D., & Watkins, K. E. Changes in resting state functional connectivity due to speech motor learning.
- Krishnan, S.**, Leech, R., Evans, S., Mercure, E., & Dick, F. Effects of acoustic degradation on neural activity for sentence comprehension over development.

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## TALKS

- 2019** Invited speaker, UCSF Language and Memory Lab Lab meeting
- 2018** Invited speaker, Centre for Research Excellence Workshop, UCL Institute of Child Health  
Symposium organiser and speaker, "Optimal conditions for word learning" at the Child Language Symposium, Reading  
Centre for Music and Science, Faculty of Music, University of Cambridge
- 2017** Work in progress presentation, Oxford Centre for Human Brain Activity, University of Oxford  
Speech Science Forum, Human Communication Sciences, UCL  
Speech Motor Control, Groningen
- 2016** Department of Theoretical and Applied Linguistics, University of Cambridge.  
Centre for Brain and Cognitive Development, Birkbeck, University of London.
- 2015** Institute of Cognitive Neuroscience, UCL.  
Experimental Psychology Society Meeting, London, UK.  
'Language and Development' Series, Department of Experimental Psychology, University of Oxford,
- 2014** Neurodevelopmental Disorders Seminar Series, Durham, UK.  
Workshop on Late Stages in Speech and Communication Development, UCL, London, UK.
- 2013** Symposium speaker, "The links between motor and language abilities in early and maturing typical and atypical development" at the British Psychological Society Cog Dev conference, Reading, UK.  
Speech Science Forum, Human Communication Sciences, UCL.,
- 2012** BPS Developmental Psychology Section Conference, Newcastle, UK,
- 2011** British Neuropsychology Society (BNS) Spring Meeting, London, UK.

## SELECTED CONFERENCE PROCEEDINGS

**Krishnan, S.**, Smith, H. J., Willis, H., & Watkins, K.E. (2019). Neural correlates of learning novel word forms in children with developmental language disorder. Abstract submitted for the *Society for the Neurobiology of Language Meeting*, Helsinki, Finland.

Smith, H. J., **Krishnan, S.**, Willis, H., Cler, G., & Watkins, K.E. (2019). Investigating the Microstructure of Language-Related White Matter Tracts in Developmental Language Disorder. Abstract submitted for the *Society for the Neurobiology of Language Meeting*, Helsinki, Finland.

**Krishnan, S.**, Papp, D., Smith, H. J., Willis, H., Watkins, K.E. (2019). Quantitative MRI correlates of the ability to articulate novel word forms in adolescents. Poster to be presented at the *Organisation for Human Brain Mapping*, Rome, Italy.

Wiltshire, C., Chesters, J., Healy, M., **Krishnan, S.**, & Watkins, K.E. (2019). An fMRI study of the initiation and inhibition of manual and speech responses in people who stutter. Poster to be presented at the *Organisation for Human Brain Mapping*, Rome, Italy.

Speakman, O., Watkins, K.E., & **Krishnan, S.** (2019). The influence of feedback and reward magnitude on children's word learning. Poster to be presented at the *Child Language Symposium*, Sheffield, UK.

**Krishnan, S.**, Sellars, E., Wood, H., Bishop, D. V. M., & Watkins, K. E. (2018) The influence of feedback on phonological and semantic components in word learning. Talk given at the *Child Language Symposium*, Reading, UK.

**Krishnan, S.**, Evans, S., Lima, C., Chen, S., Guldner, S., & Scott, S.K. (2016). How does musical experience affect auditory perception? Poster presented at the *Society for the Neurobiology of Language Meeting*, London, UK.

Jasmin, K., Hiroya, S., Evans, S., **Krishnan, S.**, Ostarek, M., Boebinger, D., & Scott, S.K. (2016). The neural basis of perceiving speech with a non-native rhythm. Poster presented at the *Cognitive Neuroscience Society Meeting*, New York, USA.

**Krishnan, S.**, Evans, S., Lima, C., Chen, S., Guldner, S., & Scott, S.K. (2015). How does musical experience affect auditory perception? Poster presented at the *Cognitive Neuroscience Society Meeting*, New York, USA. [presented by senior author]

**Krishnan, S.**, Evans, S., Lima, C., Chen, S., Guldner, S., & Scott, S.K. (2015). How does musical experience affect auditory perception? Poster presented at the *Society for the Neurobiology of Language Meeting*, Chicago, USA.

Chen, S., **Krishnan, S.**, Evans, S., Gomes, A., Guldner, S., Khermosia, N., Scott, S.K. (2015). Developmental differences in the identification of voluntary and involuntary vocal emotions. Poster presented at the *Society for Neurosciences Meeting*, Chicago, USA.

Hiroya, S., Jasmin, K., Evans, S., **Krishnan, S.**, Ostarek, M., Boebinger, D., Lima, C., & Scott, S.K. (2015). Effects of speaking rhythm naturalness on the neural basis of speech perception. Poster presented at the *Society for Neurosciences Meeting*, Chicago, USA.

**Krishnan, S.**, Leech, R., Mercure, E, Lloyd-Fox, S, & Dick, F. (2015). Effects of acoustic degradation on neural activity for language comprehension over development. Poster presented at the *Cognitive Neuroscience Society Meeting*, San Francisco, USA.

**Krishnan, S.**, Leech, R., Mercure, E, Lloyd-Fox, S, & Dick, F. (2013). The effects of perceptual distortion, task proficiency and development on functional neural activation for sentence comprehension. Poster presented at the *Society for the Neurobiology of Language Meeting*, San Diego, USA.

**Krishnan, S.**, Bergstrom, L., Carey, D., Karmiloff-Smith, A., & Dick, F. (2013). Children's oromotor skills and working memory may independently contribute to nonword repetition ability. Poster presented at the *Child Language Symposium*, Manchester, UK. **[Won best poster prize]**

## SCIENCE COMMUNICATION

### Writing

- Article for *Einstein Journal of Biology and Medicine*: What have we learnt about learning? Reflections from Developmental Psychology and Cognitive Neuroscience
- Conference Review for *PsyPAG Magazine*: Summer School in Manhattan: A review of Plasticity and learning from molecule to bedside

### Interviews

- **Guardian** video series on **Music & Emotion (Billy Bragg's Brain Scan)**: 120k+ views; 2000+ shares
- **BBC Radio 3** (Wellcome Weekend on 'Why Music?')
- **humanbeatbox.com**
- **teamrock.com** about beatboxer/ guitarist project
- **lonelyleap.com** Collaboration with Reeps One/ Bell Labs

### Invited speaker

- **UK beatbox championship 2018**
- **UNIQU summer school**, University of Oxford (2016, 2017, 2018)
- **Art Neuro Collective**, London
- Houston PR, **Concept Album Talks** [Breathe - Dark Side of the Moon]
- Birkbeck-UCL Centre for Neuroimaging's lab tour, **Science Week 2015**

### Live Science Researcher

- **Natural History Museum, Oxford** Electricity, Magnetism, and the Brain
- **Science Museum London** (11 March- 18 April 2015). Why do we laugh and cry? The project featured on BBC Future, in the Daily Mail, and was blogged about on the Science Museum website.
- **Oxford Science Adventures** (May 2016)

### Visuals

- **Cover art**: Johnson, M. H., & De Haan, M. (2015). Developmental cognitive neuroscience: An introduction. John Wiley & Sons.
- **Videos**: Vocal tract imaging of "Baby It's cold outside" - 4000+ views

## OUTREACH & POLICY

Member of Delphi panel CATALISE (**Criteria And Terminology applied to Language Impairments: Synthesising the Evidence**), which endorsed the term "Developmental Language Disorders" and set out the criteria for defining this group. I was invited to be a member because of my clinical + research experience with this group.

Consultant for **Booktrust UK** (national charity to promote early reading). Produced a comprehensive commissioned report with Professor Mark Johnson, titled, "A review of behavioural and brain development in the early years: the "toolkit" for later book-related skills". This report led to a conference for teachers, education professionals, local education authorities, 'Books, Babies and Brain Development: from research to practice', organised by Booktrust UK, where I was a speaker and panelist.

Co-ordinator for breakout session on word learning challenges and strategies at **Making Links Workshop** (interdisciplinary links between teachers and researchers), St. Catherine's college, University of Oxford

Invited to speak at the **Williams Syndrome Family Convention 2013**

## COMMISSIONS OF TRUST

**Representative for Early Career Researchers**, Communications Committee, Department of Experimental Psychology, University of Oxford

**Member**, WIN Open Imaging Group

**Reviewer for Academic Journals** Cerebral Cortex; NeuroImage; Neuropsychologia; Brain and Language; Brain and Cognition; Nature Scientific Reports; Developmental Psychology; Developmental Neuropsychology; Experimental Brain Research; Journal of Child Psychology & Psychiatry; Journal of Speech, Language and Hearing Research; International Journal of Language and Communication Disorders; American Journal on Intellectual and Developmental Disabilities, PLoS One; PeerJ

**Reviewer for Grants** National Science Foundation; University of Oxford Medical Sciences Division (for Wellcome Institutional Strategic Support Fund)

## REFERENCES

### Professor Dorothy Bishop

Department of Experimental Psychology,  
University of Oxford  
E: dorothy.bishop@psy.ox.ac.uk

### Professor Sophie Scott

Institute of Cognitive Neuroscience,  
University College London  
E: sophie.scott@ucl.ac.uk

### Professor Kate Watkins

Department of Experimental Psychology,  
University of Oxford  
E: kate.watkins@psy.ox.ac.uk

### Professor Frederic Dick

Department of Psychological Sciences,  
Birkbeck, University of London  
E: f.dick@bbk.ac.uk

## MEMBERSHIP

Health Professional Council UK  
*Registered Speech & Language Therapist*

Royal College of Speech and Language  
Therapists

*Non-practicing member*

Rehabilitation Council of India

Experimental Psychology Society

Society for the Neurobiology of  
Language

## EXPERTISE

Game design (iOS/ MATLAB)

Neuroimaging Software: FSL, SPM

Programming: MATLAB

MRI operator & trainer

## TEACHING EXPERIENCE

### University of Oxford

#### Stipendiary Lecturer, Lady Margaret Hall

2016-present

- Large Group Lectures to 2nd year Medicine students; students on the UNIQ summer school
- Tutorials for:
  - Psychology in Medicine
  - Introduction to Developmental and Social Psychology
  - Introduction to Cognitive Neuropsychology
  - Part 1 course in Developmental Psychology
  - Part 1 course in Language and Cognition
- Practical Demonstrations
  - Introduction to fMRI Practical
- Admissions interviews for Lady Margaret Hall (2016,2017), St Anne's College (2015)
- Personal and Organising Tutor for undergraduate students admitted to Lady Margaret Hall

### Birkbeck, University of London

#### Guest Lecturer, Birkbeck, University of London

2014 - 15

- Language
- Expertise, Plasticity, Learning & Development

### Graduate Teaching Assistant, Birkbeck, University of London

2010 - 14

- Advanced Quantitative Methods, Exam marker - MSc course
- Developmental Cognitive Neuroscience, Guest Lecturer - MSc course
- Developmental Psychology, Guest Lecturer/ Lead Teaching Assistant
- Language, Guest Lecturer (3 years)
- Critical Analysis, Lead Teaching Assistant & Guest Lecturer (4 years)
- Introduction to Research Methods - Teaching Assistant (3 years)
- General Foundations of Psychology - Seminar Leader (2 years)

### King's College London Summer School

#### Tutor

2012,13

- Co-designed and delivered summer program "Neuroscience and Education" targeted at teachers & undergraduates from a wide variety of backgrounds including medicine, psychology, and economics