

# Sayantan Mandal

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*Cognitive Science researcher with successful record of teaching classes, mentoring students and contributing to research. Methodical professional with analytical approach. Passionate about the cognitive science, computational theories of mind, rationalist epistemology and empirical aesthetics. Expertise in theoretical and experimental psycholinguistics, philosophy of language and philosophy of mind, neuroimaging and neurocomputational methods in Cognitive Science. Experienced in community outreach, and engagement with indigenous populations.*

## ALTERNATIVE CONTACT INFORMATION

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## EDUCATION

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**Concordia Center for Cognitive Science & Linguistics,  
Concordia University, Montreal, Canada**

*Dec, 2019 - Feb, 2024*

Ph.D. (Individualized Program in Cognitive Science and Linguistics)

***Dissertation:***

Ghost in the Cell: Neurobiological Roots of Mental Representations & Computations

***Advisors:***

Prof. Tobias Scheer (CNRS)

Prof. Charles Reiss (Concordia)

Dr. Sigwan Thivierge (Concordia)

***Date of Submission:*** February 11, 2024

***Date of Defense:*** July 8, 2024

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**MARCS Institute of Brain, Behavior and Development,  
Western Sydney University, Sydney, Australia.**

*Apr, 2013 - Jul, 2017*

Post-Graduate Researcher in Psycholinguistics

***Project:***

- Impact of Phonological Grammar on Production and Perception of Speech.
- Dichotic Listening and Integration of Hemispheric Information in Speech Perception.

***Advisors:***

Prof. Catherine T. Best. (MARCS)

Prof. Anne Cutler. (MARCS, Max Planck Institute of Psycholinguistics)

Prof. Jason Shaw. (MARCS, YALE)

***Additional Details:***

- Post-graduate researcher in experimental psycholinguistics and laboratory phonology.
- Conducted research on dichotic listening and brain-hemispheric integration of auditory information in early-bilingual populations.
- Conducted electromagnetic articulography (EMA) experimentations.
- Designed and implemented a modified-WUG test to probe the perception and production link in speech processing.

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**The University of Auckland, Auckland, New Zealand**

*Feb, 2012 - Mar, 2013*

Master of Arts (Honours Thesis)

- Graduated with High Honours and First Class Distinction.
- ***Thesis:*** Coronal dynamics and constraint interactions in Bangla: An Optimality Theoretic Approach.
- ***Project (Other):*** Rhythm and metrics in Urama, an under-documented Papuan language.
  - Documentation and phonetic analyses of Urama prosody.
  - Conducted interviews with indigenous populations.
  - Helped create a dictionary and e-database for Urama.

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**E.F.L. University, Hyderabad, India.**

*Jun, 2008 - Jul, 2010*

M.A. (Linguistics)

- Graduated with First Class Distinction.

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**The University of Burdwan, West Bengal, India.**

*May, 2005 - Mar, 2008*

B.A. (Honours)

- Graduated with First Class Honours.

## EXPERIENCE

### KREA University

July 2024 - Present

#### Assistant Professor

- Cognitive Science
- Cognitive Neuroscience of Language
- Bilingualistics
- Psycholinguistics
- History and Systems of Psychology

### CNRS, BCL Laboratory, Université Côte d'Azur

Nov, 2023 - Present

#### MITACS Globalink Researcher

- MITACS Globalink research fellow at the BCL Laboratories, CNRS
- Project: Neurophysiological Signatures of Phonological Computations
- Goal: Integrating neurophysiological data with formal theory.
- Collaborators: Prof. Tobias Scheer (CNRS), Dr. Alexander Marx Chabot (UMD)

### Concordia University

July, 2023

#### Instructor/Teacher

- Ling 498: Research Methods in Cognitive Neuroscience

### Concordia University

Jan, 2023 - May, 2023

#### Graduate Teaching Assistant

- Psycholinguistics & Structure of Mental Representations

### Concordia University

April, 2022 - June, 2023

#### Research Assistant

- Neural network learning algorithms for an NLP speech analysis system based on photonics with mental health diagnosis applications.

### Concordia University

Sep, 2022 - Dec, 2022

#### Graduate Teaching Assistant

- Psycholinguistics & Structure of Mental Representations

### Concordia University

Jan 2022 - May 2022

#### Graduate Teaching Assistant

- Language Acquisition and Universal Grammar

### Concordia University

Jan, 2021 - Apr, 2021

#### Graduate Teaching Assistant

- Language Acquisition and Universal Grammar

### Concordia University

Sep, 2020 - Jan, 2021

#### Research Assistant (Formal Semantics)

- Gathered, arranged and processed natural language data from Bangla, Hindi and Assamese.
- Implemented Model Theoretic semantic analyses.
- Contributed to DATIVE database.

### The University of Auckland

Mar, 2017 - Nov, 2017

## Professional Teaching Fellow.

- Designed curriculum, study materials and evaluation standards for advanced undergraduate course in Word-Recognition and Morphosyntax.
- Taught a class of over SIXTY undergraduate students.
- Designed and administered mid-term and final examinations.

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## The University of Auckland

*Feb, 2017 - Jul, 2017*

### Graduate Teaching Assistant

- Advanced Phonology

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## The University of Auckland

*Sep, 2016 - Dec, 2016*

### Examination and Grading Assistant

- Language, Mind and Society

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## The University of Auckland

*Sep, 2016 - Dec, 2016*

### Research Assistant (Instrumental Phonetics)

- Conducted acoustic and computational analyses of phonetic data from Mandarin.
- Implemented short-time Fourier transform using PRAAT.
- Created visual graphics for presentation materials.

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## E.F.L. University

*Mar, 2009 - Jan, 2010*

### E-Learning Material Designer

- Created and edited video material using open-source tools.
- Transcribed and annotated video lectures.
- Provided transliteration services.
- Developed presentation materials for teacher outreach program.
- Designed adult education material.

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## RESEARCH AND PUBLICATIONS

### Full-Length Book Chapters

- Mandal, S. (In Press). Partial veridicality and the myth of cognitive phonetics. Special Issue of the Linguistics Society of India, 2024.
- Mandal, S. (2024). Noam Chomsky. In: Shackelford T., Weekes-Shackelford V. (eds) Encyclopedia of Evolutionary Psychological Science. Springer, Cham
- Mandal, S. (2020). The cognitive revolution. In: Shackelford T., Weekes-Shackelford V. (eds) Encyclopedia of Evolutionary Psychological Science. Springer, Cham

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### Articles

- Mandal, S. & Best, C.T. (Forthcoming). Partially-veridical representations: a case study of Malayalam velar palatalization.
- Mandal, S. (Forthcoming). Universal boundary theory: an Old Icelandic Case Study. Constellations: journal of the NYI Global Institute of cultural, cognitive and linguistic studies.
- Mandal, S. (2024). Partial-veridicality at the lower-interface. Proceedings of the Western Conference on Linguistics-2023, California State University, Fresno, California
- Mandal, S. (2024.). How flat can phonology be? Proceedings of the Western Conference on Linguistics-2023, California State University, Fresno, California.

- Mandal, S. (2023). The Cognitive Phonetics of Velar Palatalization. In Proceedings of the Western Conference on Linguistics-2022, California State University, Fresno, California
- Mandal, S., Best, C. T., Shaw, J., & Cutler, A. (2020). Bilingual phonology in dichotic perception: A case study of Malayalam and English voicing. *Glossa: A Journal of General Linguistics*, 5(1), 73
- Brown, J., & Mandal, S. (2013, December). Rhythm, metrics, and the link to phonology. In Proceedings of the Australasian Language Technology Association Workshop 2013 (ALTA 2013) (pp. 112-117).

## Conference Presentations and Talks

- Mandal, S. & Biswas, B. (2023). Partially-veridical transductions at the phonetics-phonology interface. 45th Annual Conference of the Linguistic Society of India, Aligarh Muslim University, Aligarh, India.
- Mandal, S. & Biswas, B. (2023). Partial-veridicality at the lower-interface. Western Conference on Linguistics-2022, California State University, Fresno, California
- Biswas, B. & Mandal, S. (forthcoming). How flat can phonology be? Western Conference on Linguistics-2023, California State University, Fresno, California
- Mandal, S. (2023): Ghosts in the Cell: Neural Substrates for Phonological Features. 2nd PhonolEEGy Conference, University of Massachusetts, Amherst, USA.
- Mandal, S. (2023): How Flat Can Phonology Be?. French Phonology Network (RFP) Annual Conference, 2023, Niece, France.
- Mandal, S. (2023): Ghosts in the Cells: From Vibrations in the Ear to Abstractions in the Brain. Cluster on Language Research Symposium, UC Davis, USA.
- Mandal, S. (2023): Implications of a Completely Flat Phonology. Twelfth North American Phonology Conference (NAPhCxii), Université Concordia, Montreal, Quebec.
- Mandal, S. (2023): Equally Bizarre: Partial Veridicality between Primes and Substance. Twelfth North American Phonology Conference (NAPhCxii), Université Concordia, Montreal, Quebec.
- Mandal, S. (2023): Syllable-Free Phonology. 47th Penn Linguistics Conference, University of Pennsylvania. [Withdrawn due to immigration issues].
- Mandal, S. (2023): Ghost in the Cell: How the Brain Creates Symbols from Vibrations. *Shifting the Balance*: INDI Research Day, Concordia University, Montreal.
- Mandal, S. (2022). The Cognitive Phonetics of Velar Palatalization. 2022 Western Conference on Linguistics, California State University, Fresno, California
- Mandal, S. (2021). The syntax of phonology: Mirror-Image Rules. 2021 Western Conference on Linguistics, California State University, Fresno, California
- Mandal, S. (2021). Computing long-distance dependencies: a strong procedural model. DUCOG-2021, Dubrovnik, Croatia. Central European Cognitive Science Association.
- Mandal, S. (2021). SEARCH & COPY: the syntax of long-distance phonology. Approaches to Phonetics and Phonology, Lublin, Poland.
- Mandal, S. (2021). The cognitive phonetics of Malayalam velar palatalization, 28th Manchester Phonology Meeting, Manchester, England.
- Mandal, S., Best, C.T., Shaw, J. & Cutler, A. (2017). Do rules rule: Evidence of Velar Palatalization in Malayalam, Old World Conference in Phonology, Düsseldorf
- Mandal, S. (2014). Perceiving Markedness. Australian Linguistics Society Annual Conference, University of Newcastle, Newcastle Australia
- Mandal, S. (2013). Rhythmic variation in Urama, Australasian Language Technology Association, Workshop-2013. Queensland University of Technology in Brisbane, Queensland, Australia
- Mandal, S., Brown, J., Lippsett, Z. (2012): Syllable structure and rhythm in Urama, ASSTA Workshop on the Phonetic Analysis of Rhythm in Indigenous Languages, Australasian Speech-Science and Technology Association. University of Auckland, Auckland, NZ.

## Invited Talks

Sep, 2022

- Substance-Free Phonology: A Biolinguistic Program for Phonological Theory., English and Foreign Languages University, Hyderabad, India.

Apr, 2017

- Rhythm in Urama: Implications for Isochrony. Auckland University of Technology, Auckland, NZ.

Aug, 2015

- Assimilation: Phonological and Perceptual. Macquarie University, Sydney, Australia

## AWARDS AND ACCOMPLISHMENTS

### Scholarships & Research Awards

- **2022-2024.** Mitacs Globalink Research Award (IT34244).
- **2019.** Louise Dandurand Scholarship in Interdisciplinary Studies, Concordia University, Montreal.
- **2019.** Concordia International Tuition Award of Excellence, Concordia University, Montreal.
- **2018.** Norwegian Summer Institute of Language and Mind Student Scholarship.
- **2016.** Research Bursary, University of Auckland.
- **2015.** MARCS Professional Development Award, MARCS Institute, Western Sydney University.
- **2014.** MARCS Research Training Award, MARCS Institute, Western Sydney University. .
- **2013.** MARCS HDR Scholarship, MARCS Institute, Western Sydney University.

## SERVICES RENDERED

### New Zealand Linguistics Olympiads

2017

#### Examiner

- Graded and evaluated the annual New Zealand Linguistics Olympiad competition.

### Australian Linguistics Society Annual Conference

2015

#### Editor: Book of Conference Abstracts

- Designed, edited and formatted the book of abstracts for the 2015 annual ALS Conference, held in Western Sydney University.

### Red Cross, India

Nov, 2010 - Sep, 2011

#### Remote Camp Organizer

- Helped organize rural health and hygiene education and awareness camps.
- Provided technological support.
- Helped edit and design leaflets and educational brochures.

## SKILLS

### • Core Research Areas and Skills

- Cognitive Neuroscience
- Cognitive and Evolutionary Psychology
- fMRI Methods in Biolinguistics & Cognitive Neuroscience
- EEG Methods in Cognitive Neuroscience.
- Neurobiology of Language.
- Neurocomputational Modeling of Phonology-Phonetics Interface.
- Experimental Methods in Biolinguistics.

- Behavioral Psycholinguistics.
- Philosophy of Mind
- Philosophy of Language
- Universal Grammar
- Paninian Grammar
- Modularity of Mind in Philosophy and Neuroscience
- Neurophilosophy & Philosophy of Science
- Substance-Free Phonology.
- Formal Language Theory.
- Generative Grammar.
- Theories of Computation & Computational Theory of Mind.
- Symbolic and Procedural Models of Phonology.
- **Computational and Quantitative Skills**
  - FSL (Advanced)
  - SPM (Intermediate)
  - EEGLab (Advanced)
  - Psychophysics Toolbox (Advanced)
  - Python (Advanced).
  - PRAAT (Advanced).
  - Matlab & GNU Octave (Advanced Intermediate).
  - Audacity (Intermediate).
  - R (Intermediate).
  - Bash & Linux (Advanced).
  - GNU PSPP Statistical Package (Intermediate).
  - Statistical Methods in Cognitive Science.
- **Teaching and Mentoring**
  - Over three years' experience in teaching undergraduate and graduate classes.
  - Experienced in teaching second language learners.
  - Extensive experience in teaching academic reading and writing in English.
  - Taught classes in Canada, Australia, New Zealand and India.
  - Subjects taught:
    - Academic reading and writing (English Language).
    - Philosophy of Universal Grammar
    - Language, Mind and Society
    - Psycholinguistics
    - Research Methods in Neurolinguistics
    - Advanced Phonology.
    - Language Acquisition.
    - Morphology.

## REFERENCES

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### 1. Prof. Tobias Scheer

Department of Linguistics

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**Email:** Tobias.SCHEER@univ.cotedazur.fr

**2. Prof. Charles Reiss**

Concordia Center for Cognitive Science & Linguistics.

Classics, Modern Languages & Linguistics

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**3. Prof. Catherine T. Best**

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