# Swarnendu **Moitra**

LINGUIST · ELECTRONICS ENGINEER

✉ smoitra.sll.rs@jadavpuruniversity.in   |   🏠 swarmoi.github.io/   |   🐙 swarmoi

## **Edu**cation

### M.Phil in Linguistics – ( *72 %* )
JADAVPUR UNIVERSITY

*Kolkata, INDIA*
*Aug. 2019 – May. 2021*

### M.A in Linguistics – ( *9.53 / 10* )
JADAVPUR UNIVERSITY

*Kolkata, INDIA*
*Jul. 2017 – Jun. 2019*

### B.Tech in Electronics and Communications Engineering – ( *7.68 / 10* )
DR. SUDHIR CHANDRA SUR DEGREE ENGINEERING COLLEGE

*Kolkata, INDIA*
*Aug. 2013 – May. 2017*

## **Ski**lls

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|---|---|
| **Languages** | Bangla (native), Hindi (near - native), English (native like proficiency), German (basic) |
| **Programming** | python, R, MATLAB, JavaScript |
| **Mark-up** | LaTeX, HTML |
| **Experiments** | jsPsych, Linger, OpenSesame, PsychoPy, Ibex Farm |
| **Other Softwares** | Adobe Photoshop, Microsoft Office, Praat, ELAN, Audacity |

## **Res**earch Projects

### Effects of scope interactions : An experimental study on Scrambling
*Feb 2020 - Ongoing*

DR. PAUL MARTY (UNIVERSITY COLLEGE LONDON)

DR. ISHANI GUHA (MASSACHUSETTS INSTITUTE OF TECHNOLOGY)

*Guide(s)*

- Our aim is to experimentally trace the effects of scope interactions between a modified numeral quantifier subject and a universal quantifier object in SOV word order Languages.
- In this study, we want to experimentally investigate **if object scrambling freezes the scope of an object universal quantifier**.
- We designed a series of experiments which included the Truth Value Judgement Task and Picture Selection Task, coupled with norming studies.
- Responsibilities : Design Experimental items, Integrate online experimental tools such as jsPsych and Amazon Mechanical Turk for the Experiment. Host the Experiment on a remote Cloud server and deploy Node.js runtime to upload data of the trials into a database.

### Decoding Visual Stimulus from Visual Cortex Data, (Neuromatch Project)
*July 2020*

FATEMEH ABDOLLAHI (UNIVERSITY OF ALBERTA), REKHA CRAWFORD (SWARTHMORE COLLEGE)

SREEKAR REDDY (UNIVERSITY OF CINCINNATI), PRANJAL GUPTA (INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY)

*Collaborator(s)*

- Neuropixel Data from the visual cortex of a mouse (Steinmetz dataset) was decoded using a variety of classifiers such as LDA and Random Forest as a part of group project at Neuromatch Academy.
- Classifiers were able to predict the stimulus vs. No stimulus conditions as well as left vs. right contrast with reasonable accuracy. Random Forest classifier provided the highest classification accuracy based on average firing rate data compared to other classifiers

### Accessibility effects on production is independent of word order: Evidence from English, Hindi and Bangla
*Mar 2020 - Ongoing*

MS. KANISHKA JAIN, FULLBRIGHT SCHOLAR (BROWN UNIVERSITY)

*Collaborator*

- We predict that incremental production is affected by the grammatical constraints of the language and not word order
- We cross linguistically analyse two different word order with three different language and find differences in production choices. Suggesting Accessibility varies within word-order, Hence Word-order cannot be a rational metric for generalization.

### Manifestation of Agrammatism in Bengali - English Bilingual Aphasia
*Sept 2019 - Oct 2019*

DR. ARPITA BOSE, (UNIVERSITY OF READING)

PROF. NILADRI SEKHAR DASH (INDIAN STATISTICAL INSTITUTE - KOLKATA)

*Guide(s)*

- As an intern, my work was to transcribe Audio data of Aphasic Patients (Verbatim) of a Narration task
- Quantitative Production Analysis also known as QPA was undertaken for analysis of the aphasic sentence production, which was later compared with healthy adult controls.

### Grammars are shaped by ease of processing: Evidence from Hindi Tree-Bank
*Aug 2019 - Dec 2019*

Ms. Mudafia Zafar, (Indian Institute of Technology - Delhi)
*Collaborator*

- Languages employ strategies to ease production and comprehension. In SOV word order languages(ex. Japanese) one such strategy is to reduce the number of structurally required arguments by having fewer verb valencies, known as Intransitive Bias. Literature predicts "Short before Long" constituents in SVO and vice-versa in SOV.
- In a Corpus study,we used ssf.api python package on News and Conversation Corpus data from Hindi Dependency Tree-Bank to test the predictions for Hindi.
- We observed in the Corpus that core arguments closer to the Verb than adjunct where adjuncts/obliques mostly occurred before the core arguments.
- Responsibilities : Write source code in python using ssf.api package to retrieve target constituents/constructions from the Hindi Dependency tree-bank. Upload the source code to a server for data processing.

### Neurophysiology of Scope Ambiguity in Head-Final Languages: Evidence from Bangla
*Jan 2019 - May 2019*

Dr. Samir Karmakar, Jadavpur University

Prof. Dipak Ghosh, Jadavpur University
*Guide(s)*

- We predict that sentences which is inherently ambiguous( with multiple readings) will require more semantic processing without context and is there a default reading for such situations?
- We implemented a 2x2 design, where we crossed for Quantifier(Universal/Existential) over Plain numeral(Distributive/Non-distributive). We investigated by using self-paced reading (SPR) and Event related potential (ERP) paradigms. Theoretically the condition Existential - Non-distributive will be the most ambiguous reading and we predicted this condition would give the highest peak for the N400 component in ERP.

## Summer Schools, Internships & Workshops

### Summer Schools

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|---|---|---|
| 2020 | **Neuromatch Academy**, Online summer school for Computational Neuroscience ( Org. by : **IEEE brain, Facebook Reality labs, UPenn, DeepMind and others)** | *Worldwide* |
| 2019 | **ESSLLI - 31**, European Summer School in Logic, Language and Information ( Org. by : **University of Latvia**) | *Riga, Latvia* |

### Internships

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|---|---|---|
| 2018-19 | **UGC-UPE II project - Intercultural Communication in Multilingual Urban Spaces**, part time field assistant for data collection and transcription ( **Dept. of Linguistics, University of Calcutta - July 2018 - August 2019**) | *Kolkata* |
| 2019 | **Neuro Cognition Lab - Sir C V RAMAN Centre for Physics and Music**, Running Psycho/Neurolinguistic Experiments ( **Jadavpur University, January 2019 - August 2019**) | *Kolkata* |
| 2019 | **Linguistic Research Unit (L.R.U)**, transcribe Audio data of Aphasic Patients (Verbatim) of a Narration task ( **Indian Statistical Institute, Kolkata - Sept'2019**) | *Kolkata* |

### Workshops

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|---|---|---|
| 2019 | **Computational Cognitive Science**, Innovations and Trends in Computational Cognitive Science, ( Org. by : **Banasthali Vidyapith**) | *Banasthali, India* |
| 2019 | **Field Linguistics**, Language Documentation, data management and transcription, ( Org. by : **Jadavpur University**) | *Kolkata, India* |
| 2019 | **Language Acquisition**, Documenting child language acquisition in lesser-known languages, ( Org. by : **Jadavpur University**) | *Kolkata, India* |
| 2018 | **Applied Linguistics**, Experimental and Empirical Methods in Linguistics, ( Org. by : **Indian Institute of Technology : B.H.U**) | *Varanasi, India* |
| 2017 | **Language Acquisition**, Three Day Workshop on "Second Language Acquisition, ( Org. by : **Jadavpur University**) | *Kolkata, India* |

## Grants and Achievements

**Rashtriya Uchchatar Shiksha Abhiyan (RUSA) - Travel Grant for Overseas Conference** *Jun 2019*

AWARDED

- Recieved **1125 USD** Travel Grant in support for paper presentation at **25th Himalayan Languages Symposium (HLS-25)** held at University of Sydney, Australia

**Neuromatch Academy Summer School** *July 2020*

FULL SCHOLARSHIP

- Received Full scholarship to attend Computational Neuroscience Summer School

**Swami Vivekananda Merit-cum-Means Scholarship** *2019-20*

AWARDED

- Received **805 USD** scholarship per-annum for MPhil.

**University Grants Commission (UGC) - (NET) National Eligibility Test in Linguistics** *Dec 2018*

QUALIFIED

- Qualified for Assistant Professor in India

# Professional Experience

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| 2020 | **Local Organizing Committee**, International Conference on Rhythm in Speech and Music(ICRSM 2020) ( Org. by : **Jadavpur University**) | *Kolkata, India* |
| 2019 | **Volunteer**, 7th International Conference on Endangered and Lesser Known Languages ( Org. by : **Jadavpur University**) | *Kolkata, India* |
| 2018 | **Volunteer**, 46th All India Conference of Dravidian Linguists ( Org. by : **Jadavpur University**) | *Kolkata, India* |

# Extracurricular Activity

**LingClub, Jadavpur University** *Jadavpur University*

CO-FOUNDER AND COORDINATOR *Aug. 2018 - PRESENT*

- The LingClub of the School of Languages and Linguistics,Jadavpur University, is an initiative by the current students of the school to concert their efforts to organise 1. LINGVISTIKO (Colloquium) 2. ARTICULATE (Reading Group) 3. ASSIMILATION(Outreach Prog)

**Hindustani Classical Flautist** *India*

TRAINED IN NORTH - INDIAN STYLE CLASSICAL MUSIC *2016 - Present*

- Completed 2nd Year Diploma in Hindustani Classical Music : Bamboo Flute (Bansuri)

# Presentation

## *Conferences*

**In Search of Inverse Scope in Bangla** *Minneapolis, USA*

ISHANI GUHA, SWARNENDU MOITRA AND PAUL MARTY *Accepted*

11th (Formal) Approaches to South Asian Languages, [(F)ASAL - 11]

University of Minnesota 26th - 28th March 2021

**An acoustic study of Mech Phonemes: Evidence for Coding Error** *Kolkata, India*

SWARNENDU MOITRA AND MUDAFIA ZAFAR *Accepted (Not presented)*

International Conference on Rhythm in Speech and Music from Neuro-Cognitive Perspectives

Jadavpur University 16th - 18th January 2020

**The Curious Case of Oral Stops in Mech** *Paris, France*

MUDAFIA ZAFAR AND SWARNENDU MOITRA *Presented*

35th SOUTH ASIAN LANGUAGES ANALYSIS ROUNDTABLE (SALA-35)

Institut national des langues et civilisations orientales (INALCO), 29th - 31st October 2019

**Numeral Classifiers in Mech** *Sydney, Australia*

SWARNENDU MOITRA, MUDAFIA ZAFAR, ATANU SAHA AND SULKA MUNOT *Presented*

25th Himalayan Languages Symposium (HLS-25))

University of Sydney 24th - 29th June 2019,

**A Spectrogram Analysis of Loan Words in MECH : Evidence in Favour of Loanword Adaptation**

*Kanpur, India*

SWARNENDU MOITRA, MUDAFIA ZAFAR, SHANKHA SANYAL, ARCHI BANERJEE, SAMIR KARMAKAR AND DIPAK GHOSH

*Presented*

24th International Symposium on Frontiers of Research in Speech and Music (FRSM-24)

Allenhouse Institute of Technology 6th - 7th July 2019

**Number in Toto and Limbu: A Comparative Study**

*Kolkata, India*

SWARNENDU MOITRA, MUDAFIA ZAFAR, AND ARUP MAJUMDER

*Presented*

The 7th International Conference on Endangered and Lesser Known Languages

Jadavpur University, 21st - 22nd February 2019

## Publications

**Study and analysis of data encryption techniques and implementation using MATLAB programming**

*Kolkata, India*

ANANYA BANERJEE, SWARNENDU MOITRA, URMEE KARMAKAR, SAYAN GHOSH, SAHELI DATTA AND SANDIPAN DEBNATH

*Published*

International Journal of Advanced Research in Computer Engineering and Technology (IJARCET)

Volume 06, Issue 05, May 2017, ISSN : 2278 - 1323

# **Ref**erees

**Prof. Dipak Ghosh**

*Jadavpur University*

EMERITUS PROFESSOR,SIR C V RAMAN CENTRE FOR PHYSICS AND MUSIC

deegee111@gmail.com

**Dr. Samir Karmakar**

*Jadavpur University*

DIRECTOR, SCHOOL OF LANGUAGES AND LINGUISTICS

samir.karmakar@jadavpuruniversity.in

**Dr. Ishani Guha**

*University of Delhi*

AD-HOC ASSISTANT PROFESSOR, DEPARTMENT OF LINGUISTICS

ishani.guha@gmail.com