

Swarnendu Moitra

LINGUIST · ELECTRONICS ENGINEER

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Employment

Research Assistant

London, United Kingdom

QUEEN MARY UNIVERSITY OF LONDON (DEPARTMENT OF LINGUISTICS)

Aug. 2021 –

NEW YORK UNIVERSITY, ABU DHABI (COMPUTATIONAL RESEARCH BUILDING)

- Project: SAVANT - Systematicity and Variation In Word Structure Processing Across Languages: A Neuro-Typology Approach
- PI: Linnaea Stockall, Co-Is: Dustin A. Chacón, Alec Marantz

Education

M.Phil in Linguistics – (72 %)

Kolkata, INDIA

JADAVPUR UNIVERSITY

Aug. 2019 – May. 2021

M.A in Linguistics – (9.53 / 10)

Kolkata, INDIA

JADAVPUR UNIVERSITY

Jul. 2017 – Jun. 2019

B.Tech in Electronics and Communications Engineering – (7.68 / 10)

Kolkata, INDIA

WEST BENGAL UNIVERSITY OF TECHNOLOGY

Aug. 2013 – May. 2017

Skills

Languages	Bangla (native), Hindi (near - native), English (native like proficiency), German (basic)
Programming	python, R, Julia, JavaScript, MATLAB
packages/lib	eelbrain, mne-python, tidyverse, brms, lme4, Scikit-learn, tensorflow, spaCy
Mark-up	LaTeX, (R)Markdown, quarto, HTML
Experiments	jsPsych, Linger, OpenSesame, PsychoPy, Ibex Farm
Exp. Hardware	fMRI (Siemens), EEG (BioSemi), MEG (Kanazawa Institute of Technology)

Research Projects

Systematic behavioural and neural differences between morphosyntactic and morphosemantic processing

Feb 2021 - Ongoing

DR. DUSTIN A. CHACÓN (NEW YORK UNIVERSITY, ABU DHABI & UNIVERSITY OF GEORGIA)

DR. LINNAEA STOCKALL (QUEEN MARY UNIVERSITY OF LONDON)

PI(s)

PROF. ALEC MARANTZ (NEW YORK UNIVERSITY)

The ESRC funded SAVANT project (Systematicity and Variation In Word Structure Processing Across Languages: A Neuro-Typology Approach) is a program of Neuro-Typology, which combines the extremely high temporal resolution of Magnetoencephalography (MEG) and Encephalography (EEG) with the simplicity and practicality of a single word reading paradigm implemented systematically across a typologically diverse and understudied set of languages.

lexiVAULT - A Lexical database for understudied language

Feb 2021 - Ongoing

DR. SAMANTHA WRAY (NEW YORK UNIVERSITY, ABU DHABI & DARTMOUTH COLLEGE)

HIND SADDIKI (R.A) (NEW YORK UNIVERSITY)

PI(s)

- Design tools to scrape data from the internet and augment with available corpus
- Design a rule base stemmer for each language
- Design and implement ML models for the calculation of lexical statistics
- Design the interface with open source practices and make it available online for public use

Effects of scope interactions : An experimental study on Scrambling

Feb 2020 - Ongoing

DR. PAUL MARTY (UNIVERSITY COLLEGE LONDON)

Guide(s)

DR. ISHANI GUHA (MASSACHUSETTS INSTITUTE OF TECHNOLOGY)

- 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)

Collaborator(s)

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

- 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)

Guide(s)

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

- 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

Guide(s)

PROF. DIPAK GHOSH, JADAVPUR UNIVERSITY

- 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

2022	SMLP 2022 , Sixth Summer School on Statistical Methods for Linguistics and Psychology, (Org. by : University of Potsdam, Potsdam)	<i>Germany</i>
2021	CuttingEEG , 5th symposium for cutting edge methods on EEG research. (Org. by : Le Cube Université Aix-Marseille, Aix-en-Provence)	<i>France</i>
2020	Neuromatch Academy , Online summer school for Computational Neuroscience (Org. by : IEEE brain, Facebook Reality labs, UPenn, DeepMind and others)	<i>Online</i>
2019	ESSLLI - 31 , European Summer School in Logic, Language and Information (Org. by : University of Latvia)	<i>Riga, Latvia</i>

INTERNSHIPS

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)	<i>Kolkata</i>
2019	Neuro Cognition Lab - Sir C V RAMAN Centre for Physics and Music , Running Psycho/Neurolinguistic Experiments (Jadavpur University, January 2019 - August 2019)	<i>Kolkata</i>
2019	Linguistic Research Unit (L.R.U) , transcribe Audio data of Aphasic Patients (Verbatim) of a Narration task (Indian Statistical Institute, Kolkata - Sept'2019)	<i>Kolkata</i>

WORKSHOPS

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

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

TEACHING

2022	Teaching Assistant , London Summer School on Neurolinguistics (Org. by : Queen Mary University of London)	<i>London, UK</i>
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OTHERS

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

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

How long is long? M100 response in Bangla tracks number of phonemes not graphemes of glyphs

Philadelphia, USA

SWARNENDU MOITRA, DUSTIN A. CHACÓN AND LINNAEA STOCKALL

Presented

The Society for the Neurobiology of Language [SNL-2022],

Loews Philadelphia Hotel, Philadelphia, 6 - 8 October, 2022

Morphological recomposition and the concrete/abstract distinction in Bangla

York, UK

SWARNENDU MOITRA, DUSTIN A. CHACÓN AND LINNAEA STOCKALL

Presented

Architectures and Mechanisms for Language Processing [AMLaP-2022],

The Principal, York, 7 - 9 September, 2022

Complex word de/recomposition across languages: lexical decision and MEG studies

Zurich, Switzerland

LINNAEA STOCKALL, DAVE KENNETH CAYADO, DUSTIN ALFONSO CHACÓN, KARIN KAVCIC, SWARNENDU MOITRA,

Presented

CHRISTINA MANOUILIDOU, ALEC MARANTZ, SUHAIL MATAR, BOJANA RISTIĆ, SAMANTHA WRAY AND ROK ŽAUCER

The Crosslinguistic Perspectives on Processing and Learning [X-PPL 2022],

University of Zurich, 12 - 13 September, 2022

Interaction between Word Order, Quantifier Scope and Lexical Information: Experimental Evidence from Bangla

Illinois, USA

ISHANI GUHA, SWARNENDU MOITRA AND PAUL MARTY

Presented

Annual Meeting of the Chicago Linguistic Society 57 [CLS - 57],

University of Chicago, 6 - 8 May, 2021

Inverse Scope in Scrambling Languages: the case of Bangla

Tucson, USA

ISHANI GUHA, SWARNENDU MOITRA AND PAUL MARTY

Presented

West Coast Conference on Formal Linguistics 39 [WCCFL - 39],

University of Arizona, 8 - 11 April, 2021.

In Search of Inverse Scope in Bangla

Minneapolis, USA

ISHANI GUHA, SWARNENDU MOITRA AND PAUL MARTY

Presented

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

MUDAFIA ZAFAR AND [SWARNENDU MOITRA](#)

35th SOUTH ASIAN LANGUAGES ANALYSIS ROUNDTABLE [SALA-35]

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

[Paris, France](#)

Presented

Numeral Classifiers in Mech

[SWARNENDU MOITRA](#), MUDAFIA ZAFAR, ATANU SAHA AND SULKA MUNOT

25th Himalayan Languages Symposium [HLS-25]

University of Sydney 24th - 29th June 2019,

[Sydney, Australia](#)

Presented

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

[SWARNENDU MOITRA](#), MUDAFIA ZAFAR, SHANKHA SANYAL, ARCHI BANERJEE, SAMIR KARMAKAR AND DIPAK GHOSH

24th International Symposium on Frontiers of Research in Speech and Music [FRSM-24]

Allenhouse Institute of Technology 6th - 7th July 2019

[Kanpur, India](#)

Presented

Number in Toto and Limbu: A Comparative Study

[SWARNENDU MOITRA](#), MUDAFIA ZAFAR, AND ARUP MAJUMDER

The 7th International Conference on Endangered and Lesser Known Languages [ELKL-7]

Jadavpur University, 21st - 22nd February 2019

[Kolkata, India](#)

Presented

Proceedings

Interaction between Word Order, Quantifier Scope and Lexical Information: Experimental Evidence from Bangla.

ISHANI GUHA, [SWARNENDU MOITRA](#), PAUL MARTY

in Proceedings of the 57th Annual Meeting of the Chicago Linguistic Society.

Forthcoming

Inverse Scope in Scrambling Languages: the case of Bangla

ISHANI GUHA, [SWARNENDU MOITRA](#), PAUL MARTY

in Proceedings of the 39th West Coast Conference on Formal Linguistics.

IN PRESS

Publications

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

ANANYA BANERJEE, [SWARNENDU MOITRA](#), URMEE KARMAKAR, SAYAN GHOSH, SAHELI DATTA AND SANDIPAN DEBNATH

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

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

[Kolkata, India](#)

Published

Referees

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