

Michelle ‘Misha’ Oraa Ali

Curriculum vitae

CONTACT INFORMATION Brown University misha_oraa_ali@brown.edu
Cognitive, Linguistic and Psychological Sciences
Providence, RI, USA 02912 michelleoraaali.github.io

EDUCATION **Brown University**, Providence, RI Fall 2019-Present
Ph.D. in Cognitive Science

- Under supervision of **Dr Leslie Welch** and **Dr Cindy Xiong**
- Conducting research on **data visualization** and **communication**

Mount Holyoke College, South Hadley, MA 2013-17
Bachelor of Arts, Neuroscience and Behavior, Graphic Narrative and Visual Storytelling

- *Magna cum Laude* with High Honors in Neuroscience; *Phi Beta Kappa*
- Thesis: *Prosody, Poetry and Processing: an ERP Investigation of Auditory Imagery*

RESEARCH EXPERIENCE **Harvard University**
Research Assistant, **Department of Psychological Sciences** April - August 2019

- Under supervision of **Dr Elizabeth Spelke** in the Lab for Developmental Studies
- Worked with **Rhea Howard** (member of the Evolutionary Psychology Laboratory) on designing stimuli for tasks evaluating welfare tradeoff decisions in children
- Collected data with infant participants with **Dr Ashley Thomas** for tasks aimed to study cues of [close social affiliation](#)
- With **Caitlin Connolly**, created stimuli for a project aimed at studying the efficacy of teaching notions of compositionality when embedded in engaging narratives

Massachusetts Institute of Technology
Research Affiliate, **Brain and Cognitive Sciences** Feb 2019-Present
Research Support Associate, **Brain and Cognitive Sciences** June 2017-Feb 2019

- Under supervision of **Dr Edward Gibson**
- Investigated prosody as a candidate for a cross-linguistic universal in collaboration with **Leon Bergen** (UCSD).
 - Developing a pipeline for analyzing recordings for prosodic features using Hidden Markov model based forced aligners and optimizing ways to extract relevant acoustic features of spoken speech in Praat.
- Assisting visiting researcher, **Paula Rubio-Fernandez** (University of Oslo) in investigating referential communication, Theory of Mind and lexical pragmatics.
 - Examined automaticity of pragmatic inference with a false-belief task using a self-paced reading paradigm (through IbexFarms). [[PsyArxiv - Preprint](#)]
 - With **Project Prakash - Sinha Lab** for Vision Research (MIT): Collected and analyzed eye-tracking and behavioral data to understand the development of cognitive abilities (functional visual acuity, language, Theory of Mind) in **children** (sighted, blind, and newly sighted) in New Delhi, India.
 - With **Julian Jara-Ettinger** (Yale University), built a series of online reaction time experiments using JsPsych to explore efficiency in communication, looking at color and material adjectives.
 - With **Hannah Rohde & Maddie Long** (University of Edinburgh), and **Marta Bialecka-Pikul** (Jagiellonian University): Prepared stimuli and processed auditory data for referential communication tasks.
- Assisted in data collection via event related potential (ERP) and functional magnetic resonance imaging (fMRI) for **Ev Fedorenko** (MIT, Harvard, MGH).

Janelia Research Campus, Howard Hughes Medical Institute Summer 2016
Undergraduate Research Scholar

- Under supervision of **Dr Stephen Huston**
- Studied sensorimotor integration and context dependent behavior in *Drosophila melanogaster* using optogenetics, immunohistochemistry and confocal microscopy.

Mount Holyoke College, South Hadley, MA

- *Lead Undergraduate Investigator, Neuroscience & Behavior* 2015-2018
 - Thesis Student, under supervision of **Dr Mara Breen**
 - Employed ERPs to investigate the role of rhythm and metrical structure in implicit prosody during silent reading of poetry.
 - Three-time recipient of Harap Fund Grant for Independent Research
- *Research Assistant, Neuroscience & Behavior* 2016-Present
 - Under supervision of **Dr Renae Brodie**
 - Behavioural ecology research on the effect of unmanned aerial vehicles (drones) on urban avian populations.
- *Research Assistant, Biological Sciences* 2015-16
 - Under supervision of **Dr Craig Woodard**
 - Investigated role of orphan nuclear receptor, β FTZ-F1, and neuropeptide secretion of steroid hormone, 20-hydroxyecdysone in development during the metamorphosis of *Drosophila melanogaster*.
 - Utilized genetic engineering and molecular biology techniques in conjunction with light and fluorescence microscopy.
- *Research Assistant, Neuroscience & Behavior* 2014-15
 - Under supervision of **Dr Jared Schwartz**
 - Investigated mice models of autism spectrum disorder with neuroimmunological and behavioral neuroscience techniques with a focus on maternal immune asthma using social approach tasks in BTBR and C57 mice.

University of Pennsylvania, 2015-16
Undergraduate Research Fellow, Center for Cognitive Neuroscience

- Under supervision of **Dr Anjan Chatterjee** [[Publication Link](#)]
- In collaboration with **Children's Hospital of Pennsylvania** and **Center for Human Appearance**, conducted an independent research project on the social responses to facial appearance, specifically focusing on craniofacial disfigurement.
- Constructed a corpus of images of patients who underwent reconstructive surgeries by scraping through craniofacial surgical archives
- Collected data via Qualtrics and Amazon Mechanical Turk and data analyses and visualization in R and SPSS.
 - Recipient of Harap Fund Grant for Independent Research

JOURNAL
PUBLICATIONS

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- [1] Long, M.; Rohde, H.R.; **Oraa Ali, M.**; Rubio-Fernandez, P. (2020) Attentional control predicts pronominalization independent of competing referents. *In review at Journal of Memory and Language*.
- [2] Breen, M.; Fitzroy, A.B. & **Oraa Ali, M.**(2019). Event-Related Potential Evidence of Implicit Metric Structure during Silent Reading. *Brain sciences*, 9(8), 192. [Publication Link](#) - [Open Access](#)

- [3] Rubio-Fernandez, P.; Mollica, F.; **Oraa Ali, M.** & Gibson, E.A.(2019) How do you know that? Automatic belief inferences in passing conversation. *Cognition* [PsyArxiv]
- [4] Jamrozik, A.; **Oraa Ali, M.**; Sarwer, D. & Chatterjee, A.(2017). More than skin deep: Judgments of individuals with facial disfigurement. *Journal of Psychology of Aesthetics, Creativity and the Arts.* [Publication Link]

CONFERENCE
TALKS

Presenting Author Indicated with *

- [1] **Oraa Ali, M.**, Fitzroy, A.B., & *Breen, M. Prosody, Poetry and Processing: ERP Evidence for Hierarchical Metrical Structure in Silent Reading. *15th International Conference on Music Perception and Cognition and 10th triennial conference of the European Society for the Cognitive Sciences of Music.* Montreal, Canada. 23-28 July 2018.
- [2] **Oraa Ali, M.**, Fitzroy, A.B., & *Breen, M. Prosody, Poetry and Processing: ERP Evidence for Rhythmic Structure in Silent Reading. *31st CUNY Conference on Human Sentence Processing*, University of California, Davis, CA. 15-17 March 2018.
- [3] ***Oraa Ali, M.**. MuSyC: Music, Synaesthesia, Colour. *Art and Science symposium at the 24th Conference of the International Association of Empirical Aesthetics.* Universitat Wien, Vienna, Austria. 29 August - 1 September 2016.

INVITED TALKS

- [4] ***Oraa Ali, M.** How do children understand the meaning of "each"? Xiong Lab, UMass Amherst, USA. July 2022.
- [5] ***Oraa Ali, M.**. Music, Synaesthesia and Art. *DayCon - Science in the News.* Harvard University, Cambridge, USA. 15 June 2019.

CONFERENCE
POSTERS

- [1] **Oraa Ali, M.**, & Feiman, R. (When) do children know what "each" means? *Budapest CEU Conference on Child Development.* Online. 4-8 January 2021.
- [2] Long, M.R.; Rohde, H.; **Oraa Ali, M.** & Rubio-Fernandez, P. The role of communicative strategies and cognitive control on referential efficiency across the adult lifespan. *8th biennial Experimental Pragmatics Conference.* University of Edinburgh, Edinburgh, UK. 19-21 June 2019.
- [3] Long, M.R.; Rohde, H.; **Oraa Ali, M.** & Rubio-Fernandez, P. Referential efficiency across adulthood: communicative strategies and cognitive control. *32nd CUNY Sentence Processing Conference.* University of Colorado, Boulder, USA. 29-31 March 2019.
- [4] Rubio-Fernandez, P.; *Shukla, V.; Ben Ami, S.; Ralekar, C.; Vaidya, A.; **Oraa Ali, M.** & Sinha, P. Perspective taking in newly-sighted children: Do they orient towards an interlocutor's face? *32nd CUNY Sentence Processing Conference.* University of Colorado, Boulder, USA. 29-31 March 2019.
- [5] *Rubio-Fernandez, P.; ***Oraa Ali, M.**, & Gibson, E.A. Epistemic inferences in passing conversation: Pragmatics as a test of Theory of Mind accounts. *31st CUNY Sentence Processing Conference.* University of California, Davis, USA. 15-17 March 2018.
- [6] ***Oraa Ali, M.**; Fitzroy, A.B. & Breen, M. Prosody, Poetry and Processing: ERP Evidence for Rhythmic Structure in Silent Reading. *11th Cornell Undergraduate*

Linguistics Colloquium. Cornell University, Ithaca, NY. 29-30 April 2017. [*absent due to illness*]

- [7] ***Oraa Ali, M.**; Jamrozik, A.; Sarwer, D. & Chatterjee, A. Interpersonal judgments of individuals with facial disfigurement before & after treatment. *24th Conference of the International Association of Empirical Aesthetics*. Universitat Wien, Austria. 29 August - 1 September 2016.
– Recipient, **Robert Frances Award** and **Third Best Poster prize**.
- [8] ***Oraa Ali, M.** & Huston, S.J. Behavioral Effects of Single Visual Neuron Stimulation. *Janelia Research Symposium, Janelia Research Center*, Ashburn, VA. 3 August 2016.
- [9] ***Oraa Ali, M.**; Jamrozik, A.; Sarwer, D. & Chatterjee, A. Interpersonal judgments of individuals with facial disfigurement before and after treatment. *28th Annual Convention of the Association for Psychological Science*. Chicago, IL. 26-29 May 2016.
– Winner, **Building Bridges Poster Award**, National Institute of Dental & Craniofacial Research, National Institute of Health, USA.
- [10] ***Oraa Ali, M.**; Jamrozik, A.; Sarwer, D. & Chatterjee, A. Interpersonal judgments of individuals with facial disfigurement before and after treatment. *North-east Undergraduate Research on Neuroscience (NEURON)*. Quinnipiac University, CT. 28 February 2016.
- [11] *Nanda, P.; Emerson, F.; Schwartz, A.; **Oraa Ali, M.**; Steffens, E. & Schwartz J.J. Maternal Immune Activation & Social Cognition: A model for environment effects on the development of social behavioral deficits in autism spectrum disorders. *Northeast Undergraduate Research on Neuroscience (NEURON)*. Quinnipiac University, CT. 22 February 2015.

REFEREED
WORKSHOP
POSTERS

- [12] Ben-Ami, S.; Davison, M.; **Oraa Ali, M.**; Gandhi, T.; Gilad-Gutnick, S.; Gupta, P.; Kumar, R.; Raja, S.; Ralekar, C.; Shukla, V.; Tiwari, K.; Rubio-Fernandez, P.; Sinha, P. From the Snellen chart to the Seguin Form Board Test: Looking for new measures of functional vision. *The Blind Brain Workshop on the Sensory Deprived Brain*. IMT School for Advanced Studies Lucca, Italy. 11-13 October 2018.

TECH DEMOS

- [13] ***Oraa Ali, M.** MuSyC: Music, Synaesthesia and Art. *4th Digital Humanities Symposium and Fellows Showcase*, Five College Digital Humanities, Amherst College, MA, USA. 6 May 2017.
- [14] ***Oraa Ali, M.** MuSyC: Music, Synaesthesia, Color. *Remixing Senses, Tech Expo, Hacking Arts Conference*, MIT Media Lab, Cambridge, MA, USA. 19 November 2016.
- [15] ***Oraa Ali, M.** MuSyC: Integrating Art and Science. *3rd Digital Humanities Symposium and Fellows Showcase*, Five College Digital Humanities, Amherst College, MA, USA. 30 April 2017.

AWARDS

- **Diversity Enhancement Award**, 45th Boston University Conference on Language Development. 2020
- **Diversity Enhancement Award**, 43rd Boston University Conference on Language Development. 2018
- **Student Travel Award**, 31st CUNY Human Sentence Processing Conference 2018

- **Finalist, Hacking Arts Hackathon**, MIT Media Lab 2016
- **Robert Frances Award (Outstanding Student Research Contribution)** 2016
International Association of Empirical Aesthetics, Vienna, Austria
- **NIDCR Building Bridges Travel Award**, National Institute of Health 2016
- **Student Caucus Travel Award**, Association of Psychological Science 2016
- **Most Interdisciplinary Project: MuSyC**, Hampshire Hackathon 2016

Mount Holyoke College, South Hadley, MA:

- **Sue Barry Award** 2017
 - Awarded to one graduating senior every year for demonstrating "*vision, joy and curiosity*" in the pursuit of research in science.
- **Phi Beta Kappa** 2017
- **Mary Lyon Scholar** 2017
- **Academic Excellence Award**, Neuroscience & Behavior 2017, 2016
- **President and Dean of College Fund** 2016

GRANTS AND
FELLOWSHIPS

- **Diverse Intelligence Summer Institute Fellow**, Summer 2021
 - Worked in interdisciplinary teams on projects about curiosity and the evolutionary value of art

Brown University

- **Presidential Fellowship** 2019-2022
 - In recognition of outstanding graduate students across disciplines.

Five College Digital Humanities, Five College Consortium & The Andrew W. Mellon Foundation

- **Five College Digital Humanities Student Fellowship** 2016-17
- **Five College Digital Humanities Summer Student Fellowship** 2016
- **Five College Digital Humanities Microgrant** 2016

Mount Holyoke College

- **Harap Fund Grant for Independent Research** 2016, 2017, Feb & May 2018
 - For pursuit of independent research and travel (*four time recipient*).
- **21st Century Scholarship for Academic Excellence** 2013-17
- **MakerSpace Grant** Feb 2016, Oct 2016
 - For the development of MuSyC (*two time recipient*).
- **Laurel Fellowship** 2015-16
 - For pursuit of study in *Cognitive Neuroscience and Evolutionary Biopoetics* at the **University of Maastricht, The Netherlands** [*Declined due to pursuit of on-campus research opportunities*]
- **LYNK-UAF Grant - Pursuit of Scientific Research** 2015
 - For pursuit of independent research anywhere of one's choosing.

TEACHING

Brown University, Providence, RI

- **Co-Instructor for Visualizing Information, Department of Cognitive, Linguistic and Psychological Sciences** Fall 2022
 - Developed and taught tutorials for several data visualization tools for a class of 17 students
 - Provided feedback and resources for design guidelines for students' projects
- **Teaching Assistant for Children's Thinking: The Nature of Cognitive Development, Department of Cognitive, Linguistic and Psychological Sciences** Summer 2021
 - Graded weekly papers for 40 students in an online class settings
 - Guided students' individual final papers on topics in developmental psychology
- **Teaching Assistant for Language Processing in Humans and Machines, Departments of Computer Science, and Cognitive, Linguistic and Psychological Sciences** Spring 2021
 - Was responsible for teaching and grading a weekly discussion section for a group of 11 students.
 - Guided students' individual research proposals on interdisciplinary approaches of language processing in psycholinguistics and natural language processing.
- **Teaching Certificate I Recipient, The Harriet W. Sheridan Center for Teaching and Learning** 2019
 - Participated in an intensive semester-long workshop which aims to helping graduate students develop their teaching practice to support diverse learners.

Mount Holyoke College, South Hadley, MA

- **Teaching Assistant, Visual Culture of Protest English, Africana Studies and Critical Social Thought** Spring 2017
 - Provided technical and research support for advanced seminar of 27 students.
 - Facilitated discussion about visual archives of protest and revolution from second half of the 20th century.
 - Responsible for curating content for course related social media and outreach.
- **Laboratory Teaching Assistant, Cell Biology Biological Sciences** Spring 2016
 - Taught scientific techniques such as epifluorescence microscopy, protein purification and polymer chain reaction to group of 50 students.
- **Teaching Assistant, Statistics for Psychology Psychology & Education** 2014-15
 - Taught fundamental statistical concepts and SPSS, and provided academic support to a class of 72 students.
- **Tutor, Introduction to Neuroscience & Behavior Neuroscience & Behavior** 2014-15
 - Provided one on one tutoring for students in introductory neuroscience course.

- **Student Resource, AccessAbility Services** 2014-17
 - Provided peer academic support for students in AccessAbility Services for several courses: **Research Methods in Psychology, Cognitive Psychology, Organic Chemistry, Evolution and Neurobiology**

SERVICE

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- Organizer, LingLangLunch Seminar Series**, Brown 2020-21
 - Invited speakers whose work is related to domains of language and linguistic across the world - coordinated meetings and advertisements for their talks.
 - Of the 20 invited speakers, 19 were of (self-declared) minority groups.

- Contributor, BrainWeek RI**, Brown 2021
 - Created illustrations and animations to illustrate aspects about group membership and social dynamics for an exercise aimed at grade-school students for an outreach event organized by BrainWeek RI.

- Member, Colloquium Organizing Committee**, Department of Cognitive, Linguistic and Psychological Sciences, Brown 2020-21
 - Helped select a set of prominent scholars in the field to invite as speakers for the department's annual colloquium speaker series.
 - Coordinated meetings with speakers and facilitated research and networking meetings with other graduate students.

- Member, Science Communication Committee**, Carney Institute, Brown 2020
 - Developed 2 summer workshops to address graduate student interests in aspects of science communication.

- Member, Community Engaged Scholarship Learning Community**, Swearer Center, Brown 2019-20
 - Participated in a year long learning community centered around community engaged scholarship and how to ethically establish research partnerships with local communities.

- Judge, Massachusetts State Science & Engineering Fair**, MIT 2018
 - Evaluated projects of high school students in the theme of Behavioral Science.

- Student Liaison, Neuroscience & Behavior**, Mount Holyoke College 2016-17
 - Provided mentorship to peers about pursuing research in neuroscience, course planning and academic strategies.

Volunteer, CUNY Conference for Human Sentence Processing, Cambridge, MA 2017

- Zine Coordinator, OUTreach**, Mount Holyoke College 2015-16
 - Curated the 3rd annual Gender & Sexuality Zine "*What is Pride?*" [\[PDF\]](#)
 - Facilitated panel about experiences of queer international students at the first Mount Holyoke Queer Alum conference.
 - Helped organize events about intersectional feminism, activism and intergroup solidarity and provide support for LGBT students on campus.

- Co-President, Neuroscience Student Forum**, Mount Holyoke College 2015-16
 - Helped student-led journal club to discuss different topics in neuroscience.
 - Curated a collaborative neuroscience related art exhibition for Brain Awareness week entitled: "*Synapse: Bridging the Gap Between Art and Science*".

	Student Volunteer, Association for Psychological Science , Chicago, IL	2016
	Volunteer Presenter, The Franklin Institute , Philadelphia, PA	2015
	<ul style="list-style-type: none"> • Showcased eye tracker technology in the perception of visual art at <i>Science After Hours</i> event in "ART + SCIENCE". 	
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NON-ACADEMIC POSITIONS	Archives & Special Collections , Mount Holyoke College, USA	2015-17
	<i>Student Archivist</i>	
	<ul style="list-style-type: none"> • Curated an exhibition for the 40th anniversary of LGBTQ college organizations and in honor of the "The Astronomer". • Catalogued the feminist zine collection followed by digital data visualization. 	
	Science & Technology, Deccan Chronicle , India	2011-13
	<i>Journalist</i>	
	<ul style="list-style-type: none"> • Wrote articles about the representation of women, LGBTQ+ and disabled individuals for a weekly segment for a national newspaper. 	
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OTHER INDEPENDENT PROJECTS	Freelance Illustrator and Artist	2006-Present
	<ul style="list-style-type: none"> • Designed original characters and illustrated experimental stimuli for research projects aimed at both children and adults <ul style="list-style-type: none"> • Clients include researchers at Harvard University, University of California Merced, Brown University and Massachusetts Institute of Technology • Created illustrations for literary and poetry journal journals • Designed covers for event programs & magazines • Created logos for organizations and fundraising events. 	
	Radio DJ and Sound Engineer	2014-19
	<ul style="list-style-type: none"> • <i>DJ and Engineer</i> for 4 seasons on WMBR 88.1 FM, MIT, Cambridge, MA • <i>DJ</i> for 7 seasons on WMHC 91.5 FM, Mount Holyoke College, South Hadley, MA 	
	MuSyC: Music, Synaesthesia, Color	2016-19
	<ul style="list-style-type: none"> • Used electrical engineering, signal processing, fabrication, data visualization, rapid prototyping & design to create a device which simulates chromesthetic synaesthesia. • Developing a real-time music visualizer for the WMBR (MIT Radio) website. [Link] 	
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ART SHOWS	Solo Shows	
	[1] Experimental Art Gallery, India Habitat Centre, New Delhi, India	2016
	- Title: " <i>Curiouser & Curiouser: An Experimental Exhibition about Paintbrushes & Petridishes</i> "	
	[2] Blanchard Student Art Gallery, South Hadley, MA, USA	2016
	- Title: " <i>Curiouser & Curiouser: Integrating Art and Science</i> "	
	[3] Convention Centre, India Habitat Centre, New Delhi, India	2007
	- Title: " <i>More Than Meets The Eye</i> "	
	Selected Group Shows	
	[4] LIST Art Building, Brown University, Providence, RI, USA	2022-23
	- Title: " <i>Our Sensational, Dull Universe</i> "	
	[5] Graduate Student Council, Brown University, Providence, RI, USA	2022
	- Title: " <i>STEAM Room SciArt Gallery</i> "	
	[6] South County Art Association, Kingston, RI, USA	2022
	- Title: " <i>95th Annual Members' Exhibition</i> "	
	[7] Olympia Art Collective, South Hadley, MA, USA	2015

- Title: "*Rooms Of Their Own*"
- [8] Blanchard Student Art Gallery, South Hadley, MA, USA 2016
- Title: "*Synapse: Bridging the Gap Between Art and Science*"
- [9] Olympia Art Collective, Northampton, MA, USA 2016
- Title: "*Women Artists for Women Artists*".
- [10] Olympia Art Collective, South Hadley, MA, USA 2015
- Title: "*Olympia*".
- [11] KRITI, Alliance Francaise de Delhi, Delhi, India 2011
- Title: "EcoFestival, Exhibition by Professional Artists".
- [12] Bienal Izmir, Izmir, Turkey 2011
- Title: "*1.International Izmir Modern Arts*"
- [13] Biennale Chianciano, Museo d'Arte, Chianciano Terme, Italy 2009
- Title: "*International Exhibition of Contemporary Arts*"
- [14] HelpAge India, The Oberoi, New Delhi, India 2008
- Title: "*Art for Aged*"
-