

Michelle Oraa Ali

Curriculum vitae

CONTACT INFORMATION	Massachusetts Institute of Technology Brain and Cognitive Sciences Cambridge, MA, USA 02139	ali26m@mtholyoke.edu Phone: +1(413)437-3151 michelleoraaali.mit.edu
EDUCATION	Mount Holyoke College , South Hadley, MA Bachelor of Arts, Neuroscience and Behavior, Graphic Narrative and Visual Storytelling <ul style="list-style-type: none"> • <i>Magna cum Laude</i> with High Honors in Neuroscience; <i>Phi Beta Kappa</i> • Thesis: <i>Prosody, Poetry and Processing:an ERP Investigation of Auditory Imagery</i> 	2013-17
RESEARCH EXPERIENCE	Massachusetts Institute of Technology <i>Research Support Associate, Brain and Cognitive Sciences</i> <ul style="list-style-type: none"> • Under supervision of Dr Edward Gibson • Investigated prosody as a candidate for a cross-linguistic universal in collaboration with Leon Bergen (UCSD). <ul style="list-style-type: none"> • Developing a pipeline for analyzing recordings for prosodic features by taking advantage of 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. <ul style="list-style-type: none"> • 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 <i>Undergraduate Research Scholar</i> <ul style="list-style-type: none"> • Under supervision of Dr Stephen Huston • Studied sensorimotor integration and context dependent behavior in <i>Drosophila melanogaster</i> using optogenetics, immunohistochemistry and confocal microscopy. Mount Holyoke College , South Hadley, MA	2017-Present
	<ul style="list-style-type: none"> • <i>Lead Student Investigator, Neuroscience & Behavior</i> <ul style="list-style-type: none"> • Under supervision of Dr Mara Breen • Employed ERP to investigate the role of rhythm and metrical structure in implicit prosody during silent reading of poetry. <ul style="list-style-type: none"> – Three-time recipient of Harap Fund Grant for Independent Research • <i>Research Assistant, Neuroscience & Behavior</i> <ul style="list-style-type: none"> • Under supervision of Dr Renae Brodie • Behavioural ecology research on the effect of unmanned aerial vehicles (drones) on urban avian populations. 	2015-Present 2016-Present

- *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, Summer 2015
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

ACADEMIC AWARDS

- **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
 - Across themes of Brain & Development, Artificial Intelligence, Life Hacks and Environment.

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	Five College Digital Humanities , Five College Consortium & The Andrew W. Mellon Foundation <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Harap Fund Grant for Independent Research 2016, 2017, Feb & May 2018 <ul style="list-style-type: none"> • For pursuit of independent research and travel (<i>four time recipient</i>). • 21st Century Scholarship for Academic Excellence 2013-17 • MakerSpace Grant Feb 2016, Oct 2016 <ul style="list-style-type: none"> • For the development of MuSyC (<i>two time recipient</i>). • Laurel Fellowship 2015-16 <ul style="list-style-type: none"> • For pursuit of study in <i>Cognitive Neuroscience and Evolutionary Biopoetics</i> at the University of Maastricht, The Netherlands [<i>Declined due to pursuit of on-campus research opportunities</i>] • LYNK-UAF Grant - Pursuit of Scientific Research 2015 <ul style="list-style-type: none"> • For pursuit of independent research anywhere of one's choosing.
JOURNAL PUBLICATIONS	<p>Jamrozik, A.; Oraa Ali, M.; Sarwer, D. & Chatterjee, A.(2017). More than skin deep: Judgments of individuals with facial disfigurement. <i>Journal of Psychology of Aesthetics, Creativity and the Arts</i>. [Publication Link]</p> <p>Rubio-Fernandez, P.; Mollica, F.; Oraa Ali, M. & Gibson, E.A.(2018) How do you know that? Automatic belief inferences in passing conversation. <i>In review at Cognition</i>. [PsyArxiv - Preprint]</p>
PUBLICATIONS IN PREPARATION	<p>Oraa Ali, M.; Fitzroy, A.B. & Breen, M.(2018) Prosody, Poetry and Processing: ERP Evidence for Rhythmic Structure in Silent Reading. <i>Manuscript in preparation</i>.</p>
CONFERENCE TALKS	<p>Presenting Author Indicated with *</p> <p>[1] Oraa Ali, M., Fitzroy, A.B., & *Breen, M. Prosody, Poetry and Processing: ERP Evidence for Hierarchical Metrical Structure in Silent Reading. <i>15th International Conference on Music Perception and Cognition and 10th triennial conference of the European Society for the Cognitive Sciences of Music</i>. Montreal, Canada. 23-28 July 2018.</p> <p>[2] Oraa Ali, M., Fitzroy, A.B., & *Breen, M. Prosody, Poetry and Processing: ERP Evidence for Rhythmic Structure in Silent Reading. <i>31st CUNY Conference on Human Sentence Processing</i>, University of California, Davis, CA. 15-17 March 2018.</p> <p>[3] *Oraa Ali, M.. MuSyC: Music, Synaesthesia, Colour. <i>Art and Science symposium at the 24th Conference of the International Association of Empirical Aesthetics</i>. Universitat Wien, Vienna, Austria. 29 August - 1 September 2016.</p>
CONFERENCE POSTERS	<p>[4] *Rubio-Fernandez, P.; *Oraa Ali, M., & Gibson, E.A. Epistemic inferences in passing conversation: Pragmatics as a test of Theory of Mind accounts. <i>31st CUNY Sentence Processing Conference</i>. University of California, Davis, USA. 15-17 March 2018.</p> <p>[5] *Oraa Ali, M.; Fitzroy, A.B. & Breen, M. Prosody, Poetry and Processing: ERP Evidence for Rhythmic Structure in Silent Reading. <i>11th Cornell Undergraduate</i></p>

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

- [6] ***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**.
- [7] ***Oraa Ali, M.** & Huston, S.J. Behavioral Effects of Single Visual Neuron Stimulation. *Janelia Research Symposium, Janelia Research Center*, Ashburn, VA. 3 August 2016.
- [8] ***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.
- [9] ***Oraa Ali, M.**; Jamrozik, A.; Sarwer, D. & Chatterjee, A. Interpersonal judgments of individuals with facial disfigurement before and after treatment. *Northeast Undergraduate Research on Neuroscience (NEURON)*. Quinnipiac University, CT, UAA. 28 February 2016.
- [10] ***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, USA. 22 February 2015.

HARDWARE
DEMOS

- [11] ***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.
- [12] ***Oraa Ali, M.** MuSyC: Music, Synaesthesia, Color. *Remixing Senses, Tech Expo, Hacking Arts Conference*, MIT Media Lab, Cambridge, MA, USA. 19 November 2016.
- [13] ***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.

TEACHING

Mount Holyoke College, South Hadley, MA

- **Teaching Assistant, Visual Culture of Protest** Spring 2017
English, Africana Studies and Critical Social Thought
 - 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** Spring 2016
Biological Sciences
 - Taught scientific techniques such as epifluorescence microscopy, protein purification and polymer chain reaction to group of 50 students.

	<ul style="list-style-type: none"> • Teaching Assistant, Statistics for Psychology 2014-15 Psychology & Education <ul style="list-style-type: none"> • Taught fundamental statistical concepts and SPSS, and provided academic support to a class of 72 students. • Tutor, Introduction to Neuroscience & Behavior 2014-15 Neuroscience & Behavior <ul style="list-style-type: none"> • Provided one on one tutoring for students in introductory neuroscience course.
SERVICE	<hr/> <p>Judge, Massachusetts State Science & Engineering Fair, MIT 2018</p> <ul style="list-style-type: none"> • Evaluated projects of high school students in the theme of Behavioral Science. <p>Student Liaison, Neuroscience & Behavior, Mount Holyoke College 2016-17</p> <ul style="list-style-type: none"> • Provided mentorship to peers about pursuing research in neuroscience, course planning and academic strategies. <p>Volunteer, CUNY Conference for Human Sentence Processing, Cambridge, MA 2017</p> <p>Student Resource, AccessAbility Services, Mount Holyoke College 2014-17</p> <ul style="list-style-type: none"> • Provided peer academic support for students in AccessAbility Services for several courses: Organic Chemistry, Research Methods in Psychology, Cognitive Psychology, Evolution and Neurobiology. <p>Zine Coordinator, OUTreach, Mount Holyoke College 2015-16</p> <ul style="list-style-type: none"> • Curated the 3rd annual Gender & Sexuality Zine "<i>What is Pride?</i>" [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. <p>Co-President, Neuroscience Student Forum, Mount Holyoke College 2015-16</p> <ul style="list-style-type: none"> • Helped student-led journal club to discuss different topics in neuroscience. • Curated a collaborative neuroscience related art exhibition for Brain Awareness week entitled: "<i>Synapse: Bridging the Gap Between Art and Science</i>". <p>Student Volunteer, Association for Psychological Science, Chicago, IL 2016</p> <p>Volunteer Presenter, The Franklin Institute, Philadelphia, PA 2015</p> <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".
NON-ACADEMIC POSITIONS	<hr/> <p>Archives & Special Collections, Mount Holyoke College, USA 2015-17 <i>Student Archivist</i></p> <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. <p>Science & Technology, Deccan Chronicle, India 2011-13 <i>Journalist</i></p> <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. <p>Freelance Illustrator and Artist 2006-Present</p> <ul style="list-style-type: none"> • Illustrated literary journals, designed covers for programs & magazines, created logos for organizations and fundraising events.
OTHER INDEPENDENT PROJECTS	<hr/> <p>Radio DJ and Sound Engineer 2014-Present</p> <ul style="list-style-type: none"> • <i>DJ and Engineer</i> for 4 seasons on WMBR 88.1 FM, Massachusetts Institute of Technology, Cambridge, MA <ul style="list-style-type: none"> - Show Name: Colourless Green Ideas Sleep Furiously • <i>DJ</i> for 7 seasons on WMHC 91.5 FM, Mount Holyoke College, South Hadley, MA <ul style="list-style-type: none"> - Show Names: Darling Mermaid Darlings, Swag Hags, The Cinnamon Nuns

MuSyC: Music, Synaesthesia, Color 2016-Present

- Used electrical engineering, signal processing, fabrication, data visualization, rapid prototyping & design to create a device which simulates chromesthetic synaesthesia.
- Currently developing a real-time music visualizer for the WMBR (MIT Radio) website. [\[Link to Current Beta version\]](#)

SKILLS

Programming:

- Most Experience with **R, JavaScript, HTML/CSS, Python**
- Basic Experience with **UNIX, EPrime, Arduino, MATLAB, L^AT_EX**

Software and Platforms:

- **Amazon Mechanical Turk, PsiTurk, IbexFarm, Praat**, GEPHI, SPSS, Adobe Photoshop and Illustrator, StoryMap^{JS}, Qualtrics, Mesquite, ImageJ⁺⁺, FIJI, Ethovision, AutoCAD

Neuroscience:

- 3 years of experience with Event-related potential(*ERP*) -BioSemi ActiView system
- Basic experience with *eye-tracking*, functional magnetic resonance imaging (*fMRI*) corpus construction, rodent behavioral testing and stereotaxic surgery, optogenetics.

Other:

- Proficient at illustration and graphic design (digital and traditional media)
- Basic experience with sound engineering and radio broadcast engineering
- Basic experience with fabrication (3D printing and laser cutting)
- Natural Languages: English, Hindi, Urdu, French, Sanskrit, German

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> " | |

Group Shows

- | | |
|---|------|
| [4] Blanchard Student Art Gallery, South Hadley, MA, USA | 2016 |
| - Title: " <i>Synapse: Bridging the Gap Between Art and Science</i> " | |
| [5] Olympia Art Collective, Northampton, MA, USA | 2016 |
| - Title: " <i>Women Artists for Women Artists</i> ". | |
| [6] Olympia Art Collective, Mount Holyoke, South Hadley, MA, USA | 2016 |
| - Title: " <i>Presenting Olympia</i> ". Mount Holyoke Art Studio, South Hadley. | |
| [7] KRITI + Alliance Francaise de Delhi, New Delhi, India | 2011 |
| - Title: " <i>EcoFestival, Exhibition by Professional Artists</i> ". | |
| [8] Bienal Izmir, Izmir, Turkey | 2011 |
| - Title: " <i>1.International Izmir Modern Arts</i> " | |
| [9] Biennale Chianciano, Museo d'Arte, Chianciano Terme, Italy | 2009 |
| - Title: " <i>International Exhibition of Contemporary Arts</i> " | |
| [10] HelpAge India, The Oberoi, New Delhi, India | 2008 |
| - Title: " <i>Art for Aged</i> " | |