Michelle Oraa Ali

$Curriculum\ vitae$

| Contact |
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| Information |

Massachusetts Institute of Technology Brain and Cognitive Sciences Cambridge, MA, USA 02136

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EDUCATION

Mount Holyoke College, South Hadley, MA

2013-17

- Bachelor of Arts, Neuroscience and Behavior, Graphic Narrative and Visual Storytelling
- Phi Beta Kappa; Magna cum Laude with High Honors in Neuroscience & Behavior
- Thesis: Prosody, Poetry and Processing: an ERP Investigation of Auditory Imagery

Research EXPERIENCE

Massachusetts Institute of Technology

2017-Present

Research Support Associate, Brain and Cognitive Sciences

- Under supervision of **Dr Edward Gibson**
- Investigated prosody as a candidate for a cross-linguistic universal in collaboration with **Leon Bergen** (UCSD).
- Assisted in data collection via event related potential (ERP) and functional magnetic resonance imaging (fMRI) for **Ev Fedorenko** (MIT, Harvard, MGH).
- Assisted visiting researcher, Paula Rubio-Fernandez (University of Oslo) in investigating referential communication, Theory of Mind & lexical pragmatics.
- Collected and analyzed data for **Project Prakash**, in New Delhi, India an initiative from the **Sinha Lab** for Vision Research (MIT).
- Prepared stimuli and processed auditory data for a referential communication task in collaboration with **Hannah Rohde & Maddie Long** (University of Edinburgh), Marta Bialecka-Pikul (Jagiellonian University) and Julian Jara-Ettinger (Yale University).

Janelia Research Campus, Howard Hughes Medical Institute Undergraduate Research Scholar

Summer 2016

- Studied sensorimotor integration and context dependent behavior in *Drosophila* melanogaster using optogenetics, immunohistochemistry and confocal microscopy.

Mount Holyoke College, South Hadley, MA

• Under supervision of **Dr Stephen Huston**

• Lead Student Investigator, Neuroscience & Behavior

2015-Present

- 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.
 - 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, βFTZ-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
 - Under supervision of **Dr Jared Schwartzer**
 - 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**
- 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 corpus of images of patients who underwent reconstructive surgeries, experimental design via Qualtrics, data collection via Amazon Mechanical Turk and data visualization
 - Recipient of Harap Fund Grant for Independent Research

JOURNAL PUBLICATIONS

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.*

Rubio-Fernandez, P.; Mollica, F.; Oraa Ali, M. & Gibson, E.A.(2018) How do you know that? Automatic belief inferences in passing conversation. *Submitted; in review*.

PUBLICATIONS IN PREPARATION

Oraa Ali, M.; Fitzroy, A.B. & Breen, M.(2018) Prosody, Poetry and Processing: ERP Evidence for Rhythmic Structure in Silent Reading. *Manuscript in preparation*.

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.; McCune, C.; Sano, K. 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.

Conference Posters

- [4] *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.
- [5] *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]

- [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. & Schwartzer 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.

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.

AWARDS

- Diversity Enhancement Award, 43rd Boston University Conference on Language Development.
- Student Travel Award, 31st CUNY Sentence Processing 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 | |
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| | • 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 Andlon Foundation Five College Digital Humanities Student Fellowship Five College Digital Humanities Summer Student Fellowship Five College Digital Humanities Microgrant | rew W. Mel- 2016-17 2016 2016 | |
| | Mount Holyoke College Harap Fund Grant for Independent Research 2016, 2017, Feb For pursuit of independent research and travel (four time recipient) 21st Century Scholarship for Academic Excellence MakerSpace Grant Feb 20 For the development of MuSyC (two time recipient). Laurel Fellowship For pursuit of study in Cognitive Neuroscience and Evolutionary In the University of Maastricht, The Netherlands [Declined due on-campus research opportunities] LYNK-UAF Grant - Pursuit of Scientific Research For pursuit of independent research anywhere of one's choosing. | 2013-17 16, Oct 2016 2015-16 Biopoetics at | |
| 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 Biological Sciences | Spring 2016 | |
| | Taught scientific techniques such as epifluorescence microscopy, protion and polymer chain reaction to group of 50 students. | tein purifica- | |

 \bullet Taught fundamental statistical concepts and SPSS, and provided academic support to a class of 72 students.

2014-15

• Teaching Assistant, Statistics for Psychology

Psychology & Education

• Tutor, Introduction to Neuroscience & Behavior Neuroscience & Behavior

2014-15

• Provided one on one tutoring for students in introductory neuroscience course.

SERVICE

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 Student Resource, AccessAbility Services, Mount Holyoke College 2014-17

• Provided peer academic support for students in AccessAbility Services for several courses: Organic Chemistry, Research Methods in Psychology, Cognitive Psychology, Evolution and Neurobiology.

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 Volunteer Presenter, The Franklin Institute, Philadelphia, PA 2015

• Showcased eye tracker technology in the perception of visual art at *Science After Hours* event in "ART + SCIENCE".

Non-Academic Positions

Archives & Special Collections, Mount Holyoke College, USA $Student\ Archivist$

2015 - 17

- \bullet Curated an exhibition for the $40^{\rm th}$ 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 Journalist

2011-13

• Wrote articles about the representation of women, LGBTQ and disabled individuals for a weekly segment for a national newspaper.

Freelance Illustrator

2006-Present

• Illustrated literary journals, designed covers for programs & magazines, created logos for organizations and fundraising events.

OTHER INDEPENDENT PROJECTS

Radio DJ and Sound Engineer

2014-Present

- DJ and Engineer for 4 seasons on WMBR 88.1 FM, Massachusetts Institute of Technology, Cambridge, MA
 - Show Name: Colourless Green Ideas Sleep Furiously
- DJ for **7 seasons** on WMHC 91.5 FM, Mount Holyoke College, South Hadley, MA
- 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 and 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
- Basic Experience with Python, UNIX, EPrime, Arduino, MATLAB, LATEX

Software and Platforms:

• Amazon Mechanical Turk, PsiTurk, IbexFarms, GEPHI, Praat, 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 Drone piloting, surveillance
- 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)

ART SHOWS

Solo Shows

| [1] | Experimental Art Gallery, India Habitat Centre, New Delhi, India - Title: "Curiouser & Curiouser: An Experimental Exhibition about Paintbrushes & Petridishes" | 2016 |
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| [2] | Blanchard Student Art Gallery, South Hadley, MA, USA - Title: "Curiouser & Curiouser: Integrating Art and Science" | 2016 |
| [3] | Convention Centre, India Habitat Centre, New Delhi, India - Title: "More Than Meets The Eye" | 2007 |
| | Blanchard Student Art Gallery, South Hadley, MA, USA - Title: "Synapse: Bridging the Gap Between Art and Science" | 2016 |
| [5] | Olympia Art Collective, South Hadley, MA, USA - Title: "Olympia: Last Event". | 2016 |
| [6] | Olympia Art Collective, Northampton, MA, USA - Title: "Women Artists for Women Artists". | 2016 |
| [7] | Olympia Art Collective, Mount Holyoke, South Hadley, MA, USA - Title: "Presenting Olympia". Mount Holyoke Art Studio, South Hadley | 2016 y. |
| [8] | KRITI + Alliance Française de Delhi, New Delhi, India - Title: "EcoFestival, Exhibition by Professional Artists". | 2011 |
| [9] | Bienal Izmir, Izmir, Turkey - Title: "1.International Izmir Modern Arts" | 2011 |
| [10] | Biennale Chianciano, Museo d'Arte, Chianciano Terme, Italy - Title: "International Exhibition of Contemporary Arts" | 2009 |
| [11] | Help Age India, The Oberoi, New Delhi, India - Title: "Art for Aged" | 2008 |