Michelle Oraa Ali Curriculum vitae

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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 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

- 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

[1] 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

#### [2] 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.

# [3] Research Assistant, Biological Sciences

2015-16

- Under supervision of Dr Craig Woodard
- Investigated role of orphan nuclear receptor, çFTZ-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.

### [4] Research Assistant, Neuroscience & Behavior

2014-15

• 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

- [5] 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.
- [6] 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

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

### AWARDS

- [1] **Diversity Enhancement Award**, 43rd Boston University Conference on Language Development. 2018
- [2] Student Travel Award, 31st CUNY Sentence Processing Conference. 2018
- [3] Finalist, Hacking Arts Hackathon, MIT Media Lab 2016
- [4] Robert Frances Award (Outstanding Student Research Contribution)
  International Association of Empirical Aesthetics, Vienna, Austria 2016
- [5] NIDCR Building Bridges Travel Award, National Institute of Health 2016
- [6] Student Caucus Travel Award, Association of Psychological Science 2016
- [7] Most Interdisciplinary Project: MuSyC, Hampshire Hackathon 2016
  - Across themes of Brain & Development, Artificial Intelligence, Life Hacks and Environment.

## Mount Holyoke College:

[8] Sue Barry Award,

2017

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

# GRANTS AND FELLOWSHIPS

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

[13] Five College Digital Humanities Student Fellowship

2016-17

[14] Five College Digital Humanities Summer Student Fellowship

[15] Five College Digital Humanities Microgrant

2016

2016

Mount Holyoke College

 $[16] \ \textbf{Harap Fund Grant for Independent Research} \qquad \qquad 2016,\ 2017,\ (2018 \ x \ 2)$ 

• For pursuit of independent research and travel (four time recipient).

[17] 21<sup>st</sup> Century Scholarship for Academic Excellence

2013-17

[18] MakerSpace Grant

 $2016 \times 2$ 

• For the development of MuSyC (two time recipient).

[19] 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]

## [20] LYNK-UAF Grant - Pursuit of Scientific Research

2015

• For pursuit of independent research anywhere of one's choosing.

## 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. 15<sup>th</sup> International Conference on Music Perception and Cognition and 10<sup>th</sup> 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. 31<sup>st</sup> 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 24<sup>th</sup> 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. 31<sup>st</sup> 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. 11<sup>th</sup> 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. 24<sup>th</sup> 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. 28<sup>th</sup> 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.
- [11] \*Oraa Ali, M. MuSyC: Music, Synaesthesia and Art. 4<sup>th</sup> 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. 3<sup>rd</sup> Digital Humanities Symposium and Fellows Showcase, Five College Digital Humanities, Amherst College, MA, USA. 30 April 2017.

# TEACHING

### Mount Holyoke College, South Hadley, MA

- [1] 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 20<sup>th</sup> century.
  - Responsible for curating content for course related social media and outreach.
- [2] 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.
- [3] Teaching Assistant, Statistics for Psychology
  Psychology & Education
  - Taught fundamental statistical concepts and SPSS, and provided academic support to a class of 72 students.
- [4] Tutor, Introduction to Neuroscience & Behavior
  Neuroscience & Behavior
  - Provided one on one tutoring for students in introductory neuroscience course.

Demos

SERVICE

- [1] Judge, Massachusetts State Science & Engineering Fair, MIT 2018
  - Evaluated projects of high school students in the theme of Behavioral Science.
- [2] Student Liaison, Neuroscience & Behavior, Mount Holyoke College 2016-17
  - Provided mentorship to peers about pursuing research in neuroscience, course planning and academic strategies.
- [3] 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.
- [4] Mentor, Mount Holyoke Girls in Technology Conference 2017
  - Volunteer. MHCGIT invites high school girls from all over Massachusetts to a one-day immersive experience, as they learn more about technology and its pervasiveness in almost every field. Through hands-on workshops, talks, bonding, and mentorship, it aims to break stereotypes, and highlight the importance of women in tech-related fields. (absent due to illness)
- [5] Zine Coordinator, OUTreach, Mount Holyoke College 2015-16
  - Curated the 3<sup>rd</sup> 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.
- [6] 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".
- [7] Volunteer Presenter, The Franklin Institute, Philadelphia, PA 2015
  - ullet Showcased eye tracker technology in the perception of visual art at Science  $After\ Hours$  event in "ART + SCIENCE".

Non-Academic Positions

- [1] **Archives & Special Collections**, Mount Holyoke College, USA 2015-17 Student Archivist
  - Curated an exhibition for the 40<sup>th</sup> anniversary of LGBTQ college organizations and in honor of the "The Astronomer".
  - Catalogued the feminist zine collection followed by digital data visualization.
- [2] Science & Technology, Deccan Chronicle, India Journalist

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

- [3] Freelance Illustrator 2006-Present
  - Illustrated literary journals, designed covers for programs & magazines, created logos for organizations and fundraising events.

OTHER INDEPENDENT PROJECTS [1] Radio DJ and Sound Engineer

2014-Present

2011-13

- DJ and Engineer for 4 seasons on WMBR 88.1 FM, Cambridge, MA
- DJ for 7 seasons on WMHC 91.5 FM, South Hadley, MA
- [2] 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 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<sup>JS</sup>, Qualtrics, Mesquite, ImageJ<sup>++</sup>, FIJI, Ethovision, AutoCAD

## Neuroscience:

- $\bullet\,$  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 and 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 ???