

Bryan Jose Medina

Curriculum Vitae

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Education

- 2021- Present **Ph.D. Student, Brain and Cognitive Sciences,**
Massachusetts Institute of Technology, Cambridge, MA.
Advised by Dr. Josh McDermott and Dr. Ila Fiete
- 2016-2021 **B.S. Computer Science, Minor in Mathematics, Minor in Cognitive Sciences,**
University of Central Florida, Orlando, FL.

Technical Skills

Programming PYTHON, JAVA, C++, C, R, MATLAB, JAVASCRIPT, L^AT_EX, BASH
Software EMACS, R STUDIO
Libraries and Frameworks PYTORCH, PROCESSING, NUMPY, SCIPLY, MATPLOTLIB, PLOTLY, ARDUINO

Research Experience

- 2021- **Graduate Student, *Fiete Lab*,** MIT
Advisor: Dr. Ila Fiete
- 2021- **Graduate Student, *Laboratory for Computational Audition*,** MIT
- 2020-2021 **Visiting Student, *Department of Brain and Cognitive Sciences*,** MIT
- 2020 **MSRP-BIOx Research Intern, *Center For Brains, Minds, and Machines*,** MIT
Advisor: Dr. Josh McDermott
- 2019 **Undergraduate Program in Neural Computation Research Intern, *Center for the Neural Basis of Cognition*,** Carnegie Mellon University
Advisor: Dr. Robert E. Kass
- 2018-2019 **Undergraduate Research Assistant, *Center for Research in Computer Vision*,**
University of Central Florida
Advisor: Dr. Mubarak Shah
- 2017 **Undergraduate Research Assistant, *Hu-Lab*,** University of Central Florida
Advisor: Dr. Haiyan Hu

Awards and Honors

- 2021 ***Henry E. Singleton Fellowship*,** MIT
2021 ***Dean of Science Fellow*,** MIT

- 2021 *National Science Foundation Graduate Research Fellow*
- 2021 *Order of the Pegasus Award* (Most Prestigious and Significant Award at UCF)
- 2020 *Hispanic Heritage Scholarship Fund of Metro Orlando Scholar*
- 2020 *Hispanic Scholarship Fund Scholar*
- 2020 McNair Summer Research Institute Scholarship
- 2020 Massachusetts Institute of Technology Summer Research Fellow (NSF Funded)
- 2019 Ronald E. McNair Scholar
- 2019 Carnegie Mellon University Summer Research Fellow (NIH Funded)
- 2017 President's Honor Roll (x4)
- 2017 Dean's List (x5)
- 2016 *Bright Futures Academic Scholar*

Publications

Chen Y, Douglas H, **Medina B.J.**, Olarinre M, Siegle J.H., Kass R.E. (Accepted in 2022). *Population Burst Propagation Across Interacting Areas of the Brain*. **Journal of Neurophysiology**.

Abstracts, Conferences, and Presentations

ARO 2024. McPherson, M. J., Undurraga, E., **Medina, B. J.**, McDermott, J. H., (2024, February). *Preferences for loudness and pitch vary across cultures*. In review.

CCN 2023. **Medina, B. J.**, McDermott, J. H., (2023, August). *Normative modeling of auditory memory for natural sounds*. Poster Presentation.

COSYNE 2023. **Medina, B. J.**, McDermott, J. H., (2023, March). *Normative modeling of auditory memory for natural sounds*. Poster Presentation.

ARO 2023. **Medina, B. J.**, McDermott, J. H., (2023, February). *Psychoacoustics of Auditory Memory for Natural Sounds*. Poster Presentation.

Cog Lunch. **Medina, B. J.**, (2022, November). *Understanding auditory memory*. Department-wide talk at MIT.

MSRP Bio Presentation. Richardson, A. G., **Medina, B. J.**, Hicks, J. M., McDermott, J. H., (2022, August). *Discovering the Perceptual Space of Natural Sounds from Similarity Judgements*. Poster Presentation.

UCF 2021 Student Symposium. **Medina, B. J.**, Saddler, M. R., McDermott, J. H., (2021, April). *Pitch Representations Emerge in Artificial Neural Networks Optimized for Everyday Auditory Tasks*. Poster Presentation.

ARO 2021. **Medina, B. J.**, Saddler, M. R., McDermott, J. H., (2021, February). *Pitch Representations Emerge in Artificial Neural Networks Optimized for Everyday Auditory Tasks*. Abstract Accepted.

CECIIS-2020. **Medina, B. J.**, Saddler, M. R., McDermott, J. H., (2020, October). *Investigating artificial neural networks optimized for ecological auditory tasks as a normative model of pitch perception*. Abstract accepted. Oral presentation.

SACNAS. **Medina, B. J.**, Saddler, M. R., McDermott, J. H., (2020, October). *Investigating artificial neural networks optimized for ecological auditory tasks as a normative model of pitch perception*. Abstract accepted. Poster presentation.

Baylor University McNair Conference. Medina, B. J., Saddler, M. R., McDermott, J. H., (2020, October). *Investigating artificial neural networks optimized for ecological auditory tasks as a normative model of pitch perception*. Abstract accepted. Poster presentation.

MSRPx BIO Presentation. Medina, B. J., Saddler, M. R., McDermott, J. H., (2020, August). *Investigating artificial neural networks optimized for ecological auditory tasks as a normative model of pitch perception*. Oral presentation.

UCLA McNair Conference. Medina, B. J., Saddler, M. R., McDermott, J. H., (2020, July). *Investigating artificial neural networks optimized for ecological auditory tasks as a normative model of pitch perception*. Abstract accepted. Poster presentation.

Vision Sciences Society Annual Meeting. Hernandez, C. I., Rahill, K., Pham, M., Manriquez, L., Louis, P., Figueroa, A., Medina, B. J., Wolfe, B., Sawyer, B. D., (2020, May). *Prevalence effects are not driving hazard detection on the road*. Abstract accepted. St. Pete Beach, FL. Did not attend due to COVID-19 (Coronavirus) pandemic.

Showcase of Undergraduate Research Excellence. Hernandez, C. I., Rahill, K., Pham, M., Manriquez, L., Louis, P., Figueroa, A., Medina, B. J., Wolfe, B., Sawyer, B. D., (2020, April). *Prevalence effects are not driving hazard detection on the road*. Abstract accepted to Conference at the University of Central Florida, canceled due to COVID-19 (Coronavirus) pandemic

Center for the Neural Basis of Cognition's Summer Undergraduate Poster Session. Medina, B. J., Olanrire, T., Siegle, J., Kass, R. E., (2019, August). *Response Latencies Across Six Visual Areas in the Mouse*. Presented research conducted with Dr. Robert E. Kass and Tolani Olanrire, Ph.D. student in Machine Learning, at Carnegie Mellon University

Leadership, Membership and Outreach

- 2023 **Decoding the Brain, Cambridge Science Festival, MIT**
Supervisor: Dr. Jill Crittenden
- 2023 **Speed Science, McGovern Institute for Brain Research, MIT**
Supervisor: Julie Prior, Kara Flyg
- 2023 **Decoding the Brain, McGovern Institute for Brain Research, MIT**
Supervisor: Dr. Jill Crittenden
- 2020-2021 **Graduate Prep Advisor, Academic Advancement Programs, University of Central Florida**
Supervisor: Colleen Smith
- 2020 **Attendee, Virtual Brains, Minds, and Machines Summer Course, Center for Brains, Minds, and Machines**
- 2020-2021 **Vice-President, SACNAS, University of Central Florida**
Advisor: Michael Aldarondo-Jeffries
- 2020-2021 **Co-Founder, Vice-President, Cognitive Sciences Club, University of Central Florida**
Advisor: Dr. Luis Favela
- 2020 **Journal Club Attendee, UCF NLP Group, University of Central Florida**
Advisor: Dr. Fei Liu

- 2020 **Attendee, *Quantitative Methods Workshop***, Massachusetts Institute Of Technology
Advisor: Dr. Mandana Sassanfar
- 2020 ***GIS Day Volunteer***, University of Central Florida
- 2019, 2020 **Volunteer, *SECME Regional Competition***, University of Central Florida
- 2019, 2020 **Judge, *SECME Codecraft Computer Programming Competition***,
University of Central Florida
- 2018-2019 **STEM Ambassador *Initiatives in STEM***, University of Central Florida
Advisor: Rene Johnston
- 2016 **Teacher, *Hour of Code***, University of Central Florida

Teaching

- 2023 **Teaching Assistant, *9.35 Perception***, MIT
Advisor: Josh McDermott
- 2022 **Co-Lecturer, *The Ballad of You and Your Brain (MIT Educational Studies Program SPARK!)***, MIT
Co-Lecturer: Yasmine Sami
- 2022 **Lecturer, *Introduction to Python Programming, Peer Lecture Series***, MIT
- 2021 **Teaching Assistant, *Quantitative Methods Workshop***, MIT
- 2020 **Tutorial, *UCF NLP***, University of Central Florida
- 2019 **Python Lecturer, *LabX***, University of Central Florida
- 2019-2020 **Undergraduate *EXCEL Tutor***, University of Central Florida
- 2017 **Teaching Assistant and Lecturer, *Summer Institute @ UCF***,
University of Central Florida

Advisees

- 2022 **Ariana Richardson (MSRP)**. *Currently:* Undergraduate at Georgia Institute of Technology

Invited Podcasts, Talks, and Workshops

- 2020 **Graduate School Preparation Podcast, *Elements of an Application for Funding***, University of Central Florida
- 2020 **Undergraduate Research and Transfer Process Panel**, Valencia College
- 2019 **STEM Seminar Student Panel**, University of Central Florida
- 2018 **Mathematics Workshop**, Hialeah Gardens High School
- 2018 **Lecture on Computer Science and Engineering**, Orange County Preparatory Academy

Certification

- 2020 ***CITI Program, Social / Behavioral Research Investigators and Key Personnel***

Relevant Coursework

Computer Science + Statistics Courses Object Oriented Programming, Algorithms, Robot Vision, Machine Learning*, Advanced Artificial Intelligence*, Senior Design, Statistical Theory I, Statistical Foundations for Data Science and Artificial Intelligence, Computer Understanding of Natural Language*, Information and Inference (6.437), Numerical Computing

Mathematics Courses Calculus I-III, Ordinary Differential Equations, Linear Algebra, Probability, Random Processes and Applications, Introduction to Topology

Neuroscience + Cognitive Sciences courses Language and Culture, Philosophy of Mind, Perception, Minds and Machines: Philosophy of Cognitive Science, Systems Neuroscience I (9.011), Computational Cognitive Science (9.660), Computational Cognitive Neuroscience (NEURO1401), Biology of the Inner Ear (SHBT 201), Audition: Neural Mechanisms, Perception and Cognition (SHBT 205)

* - *Graduate Coursework (completed during undergrad)*

** - *In Progress*

*** - *To be completed*

█ Languages

English Fluent
 Spanish Fluent
 Portuguese Basic