Bryan Jose Medina

Curriculum Vitae

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Education

2016– **B.S. Computer Science, Minor in Mathematics and Cognitive Sciences**, *University of Central Florida*, Orlando, FL, GPA: 3.82/4.00.

Technical Skills

Programming	Python, Java, C++, C, R, Matlab, Javascript, LaTeX, Bash
Software	Emacs, MS Word, MS Powerpoint
Libraries and Frameworks	TensorFlow, Keras, PyTorch, PyGame, Processing, Numpy, SciPy, Matplotlib

Experience

Summer 2020 **MSRP-BIOx Research Intern, *Center For Brains, Minds, and Machines***, Massachusetts Institute Of Technology

Advisor: Dr. Josh McDermott

Investigated viability of deep neural networks as a model for human pitch perception

Developed code in TensorFlow to perform numerous auditory tasks and developed layer-wise tests to compare model performance to humans

Funded by the Center for Brains, Minds, and Machines, the National Science Foundation, and the Ronald E. McNair Scholars Program

Jan. 2020 **Attendee, *Quantitative Methods Workshop***, Massachusetts Institute Of Technology

Attended workshops on spike train analysis, machine learning, systems neuroscience, cognitive science, and genomics

Networked with professors, post-docs, graduate students and research assistants.

Assisted other attendees with Matlab questions

Nov. 2019 – Feb. 2020 **Independent Researcher**, University of Central Florida

Developed generative models with gated recurrent networks in order to optimize sound synthesis

Compared gated recurrent networks to long-short term memory units on music synthesis

Aug. 2019 – Mar. 2020 **Undergraduate Research Assistant, *Laboratory for Autonomy-Brain Exchange (LabX)***, University of Central Florida

Advisor: Dr. Ben D. Sawyer

Experimented with Generative Adversarial Networks and how they function with images, audio, and neural data like Electroencephalograms

Assisted in editing and developing code for a driving simulation study

Summer 2019 **Undergraduate Program in Neural Computation Research Intern, *Center for the Neural Basis of Cognition***, Carnegie Mellon University

Advisor: Dr. Robert E. Kass

Used statistical analyses, like Two-way ANOVA and t-tests, in Python, Matlab, and R to establish feed-forward functional relationships between six visual processing regions in mice

Developed code as foundation for future exploratory research

Funding by the National Institute for Health

Aug. 2018 – Feb. 2019 **Undergraduate Research Assistant, *Center for Research in Computer Vision***, University of Central Florida

Advisor: Dr. Mubarak Shah

Learned how to use and develop code with KERAS

Developed convolutional neural networks to recognize actions in video files

Leadership and Membership

July 2020- **Vice-President, *SACNAS***, University of Central Florida

Advisor: Michael Aldarondo-Jeffries

Planned outreach activities with club Outreach Coordinator

Worked with advertising chair to promote club on social media

Mar. 2020- **Co-Founder**, **Vice-President, *Cognitive Sciences Club***, University of Central Florida

Advisor: Dr. Luis Favela

Organized workshops for techniques in Cognitive Sciences research

Invited professors to give talks on their research

Reach out and advertise club to students around campus

Jan. 2020- **Journal Club Attendee, *UCF NLP Group***, University of Central Florida

Advisor: Dr. Fei Liu

Accepted to attend biweekly meetings on various topics in natural language processing, such as multi-document summarization, natural language generation, and natural language understanding

Learning PYTORCH with the help of graduate students and Dr. Fei Liu

Awards and Honors

July 2020 ***Hispanic Heritage Scholarship Fund of Metro Orlando* Scholar**

June 2020 ***Hispanic Scholarship Fund* Scholar**

Oct. 2019 **Ronald E. McNair Scholar**

2017– **President's Honor Roll** (x4)

2017– **Dean's List** (x4)

Aug. 2016 **Bright Futures Academic Scholar**

Poster Presentations, Conference, and Abstracts

MSRPx BIO Presentation **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.* Powerpoint 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

Teaching

May 2019 **Tutorial, *UCF NLP***, University of Central Florida

Gave the lab a presentation on recurrent neural networks, long short term memory units, gated rectified units, and transformers

Oct. 2019 – Dec. 2019 **Python Lecturer, *LabX***, University of Central Florida

Presented to *LabX* lab members the basics of python programming, such as variables, functions, conditional statements, loops, and the like

Demonstrated and walked through pre-constructed examples made before presentations

Jan. 2019 – May 2020 **Undergraduate *EXCEL* Tutor**, University of Central Florida

Tutored students in UCF's *EXCEL* program on various topics in Mathematics, Physics, and Computer Science

Mentored students on future opportunities to explore and how to study for current and future courses

June 2017 – July 2017 **Teaching Assistant and Lecturer, *Summer Institute @ UCF***, University of Central Florida

Lectured video game development to various students in Orange, Osceola and Seminole county

Created various assignments and examples for students to learn from and use as reference material

Graded assignments from students in a timely manner.

Invited Talks and Workshops

Sept. 2019 **STEM Seminar Student Panel**, University of Central Florida

Discussed techniques, tips and tricks on how to succeed as an undergraduate in a STEM field.

Dec. 2018 **Mathematics Workshop**, Hialeah Gardens High School

Presented and lectured students on topics in Calculus for AP Exam Preparation.

Demonstrated to students the career possibilities available to them upon studying mathematics.

Nov. 2018 **Talk and Lecture on Computer Science and Engineering**, Orange County Preparatory Academy

Discussed to elementary school students the importance of diversity in STEM fields and careers

Explained to students concepts of Python program and showed students how to construct a simple game with the *PyGame* Python library

Volunteering

Feb. 2020, Feb. 2019 **Volunteer, *SECME Regional Competition***, University of Central Florida

Helped students setup and present their SECME competition entries

Discussed competition entries with individual groups

Jan. 2020 ***SECME Codecraft Computer Programming Competition*** **Judge**, University of Central Florida

Judged competitions entries from elementary school and middle school students.

Provided feedback on their project submissions and how they could improve as programmers

Feb. 2020, Nov. 2019 ***GIS Day*** **Voluneer**

Helped set up event and guide students to designated work stations

Jan. 2019 ***SECME Codecraft Computer Programming Competition*** **Judge**, University of Central Florida

Judged competitions entries from middle school and high school students.

Evaluated them on efficiency of code, use of comments, readability, and creativity of solution

Nov. 2016 ***Hour of Code*** **Teacher**, University of Central Florida

Taught basic programming concepts to elementary school students in a hands-on environment

Certification

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

Relevant Coursework

Computer Science Courses	Discrete Structures II (Theory of Computation), Computer Science I (Data Structures), Object Oriented Programming, Computer Science II (Algorithms), Robot Vision, Machine Learning**, Advanced Artificial Intelligence**, Processes for Object Oriented Software Development, Senior Design I and II*.
Mathematics Courses	Calculus I-III, Ordinary Differential Equations, Linear Algebra, Probability, Random Processes and Applications, Advanced Calculus*, Mathematical Foundations of Machine Learning and Artificial Intelligence*.
Relevant Coursework	Statistical Theory I, Chemistry I, Chemistry II, General Psychology, Biological Principles, Numerical Computing, Language and Culture*.

* - *To be completed by Dec. 2020*

** - *Graduate Coursework*

Languages

English	Fluent
Spanish	Fluent
Portuguese	Basic