

# ISAAC MENCHACA

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## EDUCATION

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**University of California, Riverside**

*B.S. Bioengineering*

Additional Courses: Machine Organization and Assembly Language, Object-Oriented Programming, and Data Structures and Algorithms.

## TECHNICAL STRENGTHS

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- **Behavioral Experiment Implementation:** Psychtoolbox, psychoPy, jsPsych
- **Neuroimaging Data Collection and Processing Tools:** EEG, fMRI, EEGLAB, Nipype (FSL, SPM)
- **Programming and Version-Control:** Python, C++, Swift, Matlab, Shell-scripting/ Unix, Git
- **Data Retrieval, Merging, and Cleaning:** RDMS, SQLAlchemy / ipython-sql, Pandas, Numpy
- **Machine Learning, Deep Learning, Data Analysis:** Scikit-learn, Keras, Scipy, Statsmodels
- **Data Visualization:** Seaborn, Matplotlib, Plotly

## EXPERIENCE

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**Cognitive and Neural Computation Lab**

June 2019 - Present

*Research Assistant — PI: Dr. Megan Peters*

- HIPAA/ CITI certified. Responsible for recruitment and maintenance of research participant forms (Subject Eligibility Criteria, MRI Screening, Research Informed Consent, and Research Participant Rights).
- Maintained strong documentation skills of project data and analysis using dedicated directories and git-version control.
- Responsible for collection of behavioral, EEG, and fMRI data of human subjects. (Psychtoolbox, psychoPy).
- Documented a preprocessing protocol and pipeline to clean and format pupillometry, EEG, and fMRI , and analyze EEG and fMRI data. (Matlab: EEGLAB, ET Artifact removal, SPM; Python: Jupyter Notebooks, Scikit-Learn, Nipype, Numpy, Scipy, Matplotlib/ Seaborn, Pandas; Other: FSL).

**Chrono-Biological Alarm Clock**

October 2018 - May 2019

*Senior Capstone Project*

- Designed a system that prevents users from waking up during slow wave sleep (SWS), a factor of preventing morning grogginess.
- Wrote an IRB for approval of human subject experimentation, and designed a working prototype with a budget of \$1000 (only \$150 used).
- Set a Bluetooth connection with consumer-grade EEG and self-made iOS app to receive real-time microvolt data, and programmed an iOS app to undergo real-time power spectral analysis. (Analyzed with Python, designed with Swift, Objective-C).
- Gave poster presentation of system to Bioengineering faculty and peers. Top project by faculty.

**Citrus Clonal Protection Program**

October 2015 - Feb. 2020

*Diagnostics Assistant — PI: Dr. Georgios Vidalakis*

- Assist in disease diagnostics to introduce, investigate, and maintain the safe mechanism of citrus varieties into California with accordance to state (CDFA) and federal policies (USDA).
- Undergo general duties including: lab clean-up, autoclave, assistant training, creating labels, retrieving samples, and preparation of chemical solutions and diagnostic samples.
- Perform total nucleic acid extraction, purification, quantitation, and PCR/ qPCR (SYBR Green and Taqman assays) for viroid/ pathogen detection.
- Organize and selectively collect queried sequence data from BLAST database using Unix, Cyberduck, and UCR's SSH cluster system.