Julio C Enciso-Alva

Applied Mathematician + Data Scientist

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Qualifications:

- Data analysis, from early exploration and curation of raw data to answers for specific questions and presentation with publication quality.
- Leadership of a student organization, from ideation of activities to deployment.
- Skilled in interdisciplinary/heterogeneous teamwork.
- Motivated by curiosity and adept to intellectual challenges.

General skills:

Programming Languages:	Matlab, Python, R, C++, MySQL
Software:	GNU Linux, MS Office, Git, Jupyter, LaTeX, Tableau
Research Areas:	Constrained Optimization, Inverse Problems, Numerical Methods, Bayesian Hierarchical Models, Applications to Clinical Data
Spoken Languages:	English, Spanish, German

Experience:

Graduate Teaching Assistant Jan 2019 – Present
University of Texas at Arlington

- Taught 6 college-level classes including Contemporary Mathematics and Calculus for Business and Economics, with enrollments from 70 to 120 students.
- Taught students about applications of mathematics to different areas, this by using example problems related to their majors.
- Adapted lecture structure to hybrid for 3 semesters during COVID-19 Pandemic, using recorded live stream with live chat and digitalized board notes.

Officer (Student Organization) Aug 2020 – May 2023
SIAM Graduate Chapter at UTA

- Served as Vice-president from 2020 to 2021, and as president from 2021 to 2022.
- Operated a monthly seminar of alumni and professors, getting 12 attendants on average.
- Coordinated 3 review sessions each semester for undergraduate-level Calculus midterms, getting an average of 40 attendants.
- Initiated a department-wide event to spotlight current research done by graduate undergraduate students. Attendance is expected from 50 to 60.

Graduate Peer Mentor Aug 2021 – May 2022
University of Texas at Arlington

- Guided a first-year graduate student into the PhD program until he selected a research advisor.
- Trained this person for the Preliminary Exam of Analysis, obtaining a passing grade.

Research projects:

Evaluation of fMRI-informed EEG Source Imaging techniques (Current)

- Surveyed recent literature for techniques of fMRI-informed Source Imaging techniques.
- Gathered relevant known results about these techniques, such as rates of convergence, robustness to noise, reconstruction error, etc.

Validation of Electrical Source Imaging techniques from ECoG data in a pig model 2021-2022

- Inspected simultaneous recordings of ECoG and needle electrodes in the pig brain before and after an induced lesion on the Medial Cerebral Artery.
- Adapted standard Electrical Source Imaging techniques, designed for human data, to this dataset.
- Examined the results from Electrical Source Imaging using ECoG data against the ground truth, obtained from needle electrodes inside the brain.

Electrical Source Imaging from EEG during epilepsy on infants 2020-2021

- Inspected recordings of EEG from infants with Focal Cortical Dysplasia during ictal activity.
- Correlated relevant stages of ictal activity with their spatial origin.
- Facilitated the comparison of the obtained results with the predictions from recent literature.

Education:

PhD, General Mathematics Jan 2019 – Present
University of Texas at Arlington

BS, Applied Mathematics + Biology Aug 2012 – May 2018
Universidad Autonoma del Estado de Hidalgo

Publications:

Metabolic modulation of synaptic failure and thalamocortical hypersynchronization with preserved consciousness in Glut1 deficiency.
DOI: 10.1126/scitranslmed.abn295 Oct 2022

The Color of Noise and Weak Stationarity at the NREM to REM sleep transition in Mild Cognitive Impaired subjects.
DOI: 10.3389/fpsyg.2018.01205 Jul 2018

Awards:

Outstanding Graduate Student Researcher April 2023
University of Texas at Arlington
