Julio C Enciso-Alva

Applied Mathematician + Data Scientist

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GENERAL SKILLS

Programming	Matlab, R, Python, C++, MySQL
Software	GNU Linux, MS Office, Git, Jupyter, LaTeX, ggplot
Languages	English, Spanish, German
Miscellanea	Graphic Design, Latino American Studies

EDUCATION

2019 – 2024	**PhD, General Math**	UTA, TX, USA
2023	**MSC, General Math**	UTA, TX, USA
2012 – 2018	**BS, Applied Math + Biology**	UAEH, Hidalgo, Mex

ACADEMIC APOINTMENTS

2019 – 2024 **Graduate Teaching Assistant** UT Arlington

- Taught multiple college-level classes as either Lab Instructor or Instructor of Record.
- Showed applications of mathematics by using example problems related to different majors.
- Adapted lectures to format during COVID-19 Pandemic.

2021 – 2023 **Graduate Peer Mentor** UT Arlington

- Guided first-year fellow graduate students, until they selected a research advisor.
- Co-supervised integration of fellow students to duties as Lab Instructors.
- Co-trained fellow students for Preliminary Examinations, obtaining a passing grade.

2020 – 2023 **Officer at SIAM Graduate Chapter at UT Arlington**

- Served as Vice-president (2020 – 2021) and as President (2020 – 2023).
- Coordinated a monthly seminar for alumni and professors.
- Directed review sessions for midterm exams as a fundraiser activity.
- Initiated a department-wide research symposium.

Aug 2023 **Assessment of Core Curriculum** UT Arlington

- Served as rater in the assessment of core curriculum objectives.
- Deidentified works from students were graded to investigate consistency.

PUBLICATIONS

- Enciso-Alva JC, Dobariya A, Johnson TE, Mickey B, Pascual JM, Su J. **(in review). A Robust ECoG Source Localization Method Using Brain Data Analytics Validated by Pig Intracerebral Recordings.** *NeuroImage*. Manuscript number: NIMG-23-1554
- Rajasekaran K, Ma Q, Good LB, Kathote G, Jakkamsetti V, Liu P, Avila A, Enciso-Alva JC, Markussen KH, Marin-Valencia I, Sirsi D, Hacker PMS, Gentry MS, Su J, Lu H, Pascual, JM. **(2022). Metabolic modulation of synaptic failure and thalamocortical hypersynchronization with preserved consciousness in Glut1 deficiency.** *Science Translational Medicine*, 14(665), eabn2956. DOI: 10.1126/scitranslmed.abn295
- Rosales-Lagarde A, Rodriguez-Torres EE, Itzá-Ortiz BA, Miramontes P, Vázquez-Tagle G, Enciso-Alva JC, García-Muñoz V, Cubero-Rego L, Pineda-Sánchez JE, Martínez-Alcalá CI, Lopez-Noguerola JS. **(2018). The Color of Noise and Weak Stationarity at the NREM to REM Sleep Transition in Mild Cognitive Impaired Subjects.** *Frontiers in Psychology*, 9, 1205. DOI: 10.3389/fpsyg.2018.01205

CURRENT RESEARCH

Electrical Source Imaging (ESI) is used to estimate the location of neural electrical activity inside the brain, based on recordings from MEG/EEG. Applications include non-invasive detection of epileptogenic zones.

Since MEG/EEG are physically limited to a low spatial resolution, so is ESI. Additional modalities of data, such as fMRI or PET, can be incorporated into ESI to increase its resolution, speed, and robustness to noise.

My current research is towards better multi-modal ESI methods, based on clinical applications.

Involved areas:

- Numerical Linear Algebra
- Partial Differential Equations
- Finite Element Methods
- Object-Oriented Programming
- Constrained Optimization
- Uncertainty Quantification
- Bayesian Models
- Unsupervised Learning

HONORS

Apr 2023 **Outstanding Graduate Student Researcher** UT Arlington