Julio Cesar Enciso-Alva, PhD

Applied Mathematician & Data Scientist

Motivated by intellectual challenges. Adapts easily. First-generation.

Arlington, TX, ZIP 76013
enciso.alva.jc@gmail.com
+1 817 405 8335
/julio-enciso-alva/
encisoalva.github.io

EXECUTIVE SUMMARY

- Certified in data handling: maintenance, visualization, analysis, modeling, prediction, and decision-making.
- Qualified to analyze, implement, and develop algorithms tailored for specific purposes.

KEY SKILLS

- Problem-solving, interdisciplinary research, written and oral communication.
- Leadership, mentoring, project development and deployment.
- **Programming:** Matlab, Python, R, C++, MySQL, MS Office macros.
- **Software:** GNU Linux, MS Office, Tableau, Git, Jupyter, LaTeX, ggplot2, GeoGebra.
- **Libraries:** Sci-kit, PyTorch, Tensorflow, CUDA, Shiny.

EDUCATION

- [2024] **PhD. in General Mathematics.** University of Texas at Arlington @ Texas, USA.
  - Dissertation: New Methods in EEG Source Localization based on EEG and Post-Mortem Pathology Data.
- [2017] **B.S. in Applied Mathematics.** Universidad Autónoma del Estado de Hidalgo @ Hidalgo, Mexico.
  - Thesis: Weak Stationarity in Polysomnography Recordings of Older Adults as a Marker for Mild Cognitive Impairment.

CERTIFICATIONS

- Meta Database Engineer Specialization.
- IBM Data Engineering Professional Certificate.

TEACHING

- Served as a Teaching Assistant (2 courses) and Instructor of Record (8 courses) at UT Arlington.
- Enrollment was approx. 50 students per section.

RESEARCH PROJECTS (SELECTED)

- Forecasting of mycotoxin outbreaks in corn farms in Texas.
  - Audit of forecast model: sensibility analysis with respect to inputs, robustness towards scale and sources of input data, extensibility to different weather conditions –to states other than Texas.
  - The forecast model is integrated into a publicly available dashboard to be launched in late 2025.
- Non-invasive monitoring of ictal activity in infants with Glut deficiency.
  - By using ESI, the use of intracranial electrodes was avoided, resulting in a less invasive procedure.
- Enhancement of ESI using pathology data (stroke approximate location).
  - Localization errors were reduced by 60% compared to ESI methods with similar runtime.

PUBLICATIONS

- Enciso-Alva JC. **(2024). Expected Natural Density of Countable Sets after Infinitely Iterated de Finetti Lotteries, Computed via Matrix Decomposition.** *ArXiv*, submit/5836682.
- Enciso-Alva JC, Dobariya A, Johnson TE, Mickey B, Pascual JM, Su J. **(submitted). A Robust ECoG Source Localization Method Using Brain Data Analytics Validated by Pig Intracerebral Recordings.** *NeuroImage*.
- Rajasekaran K, et al. **(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.abn2956
- Rosales-Lagarde A, et al. **(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