Zurich, Switzerland +41 76 805 25 21 Carlos.Arzaga@kispi.uzh.ch

CARLOS ARZAGA

DATA SCIENTIST | RESEARCHER | CLINICAL NEUROPHYSIOLOGIST

PROFILE

Dynamic Data Scientist and researcher with deep domain expertise as a Clinical Neurophysiologist. Adept at utilizing machine learning algorithms to analyze complex biomedical data, driving actionable insights, and impactful research. Passionate about advancing healthcare technologies through innovative solutions and interdisciplinary collaboration.

EDUCATION

Master of Science in Applied Information and Data Science — FEB 2023 – SEP 2025
HSLU – Lucerne University of Applied Sciences and Arts — Lucerne, Switzerland
Thesis title: *"An Unsupervised Deep Learning Algorithm for Burst Suppression Detection in Pediatric EEG Data: Assessing Generalizability"*

Bachelor of Science in Neuroscience — AUG 2016 – MAY 2018
University of Texas at Dallas — Dallas, TX, USA

EXPERIENCE

Neurophysiology Specialist – Neurology | EEG/Epilepsy — FEB 2024 - Present
University Children's Hospital Zurich (KISPI) — Zurich, Switzerland

- Performed, analyzed, and assisted in the diagnosis of outpatient, inpatient, and long-term (Telemetry) EEGs
- Performed evoked potentials (SSEPs, AEPs, VEPs) examinations
- Served as clinical annotator for EEGs supporting ongoing epilepsy research studies
- Assisted as an educating preceptor to new rotating medical residents

Visiting Graduate Researcher – ICU Cockpit Research Group
University Hospital Zurich (USZ) — AUG 2023 - JAN 2024
Project: Evaluation of Burst-Suppression Detection Models — Zurich, Switzerland

- Evaluated ML models for automatic burst-suppression detection in EEG signals
- Built a new data annotation pipeline using Label Studio
- Curated and pre-processed EEG signals; evaluated performance of several detection models

Neurophysiology Specialist – Neurology | EEG/Epilepsy — NOV 2020 - JAN 2024
University Hospital Zurich (USZ) — Zurich, Switzerland

- Analyzed real-time EEG/single-cell data for DBS implantation (Parkinson's/Epilepsy)
- Supported PI research on neurocritical biomarkers using EEG and fNIRS systems
- Executed EEG + fNIRS studies on neurocritical patients; managed all resulting data
- Developed study design for integrating commercial EEG/NIRS systems via literature review

Surgical Neurophysiologist

Monitoring Concepts (US IOM) — AUG 2018 – SEP 2020 — Dallas, TX, USA

- Analyzed neurodiagnostic tests to maintain nervous system integrity during surgery
- Executed comprehensive intraoperative monitoring strategies with surgical/anesthesia teams.
- Process analytical and clinical patient data and consolidate reports promptly
- Established partnerships in new markets through successful pilot programs
- Developed training protocols and served as an educational preceptor to new staff

Research Assistant - Aging and Memory Research Laboratory

AUG 2017 – DEC 2018

University of Texas at Dallas — Dallas TX, USA

- Executed electrophysiology/genetics to find memory biomarkers in rodent tissue
- Managed tissue histology, blood collection, and data for doctoral student thesis
- Managed housing and care for an aging rat colony, ensuring research protocols

Anesthesia Technician – Anesthesiology | Surgery

APRIL 2015 – AUG 2018

Baylor Scott & White Medical Center — Plano TX, USA

- Provided critical support to anesthesiologists for surgical procedures and emergencies, including invasive monitor insertion (CVC/arterial) and difficult airway management
- Prepared, calibrated, and troubleshot anesthesia delivery systems
- Operated autologous blood recovery machine (Cell Saver) equipment

COMPUTER SKILLS

PROGRAMMING & DEVOPS
Python, R, HTML, Git, Bash, GitLab, GitHub, Docker, MLOps

AI & MACHINE LEARNING
PyTorch, TensorFlow, Keras, scikit-learn, Weights & Biases, Time-Series Analysis, Algorithm Development

DATABASES
MySQL, MongoDB, REDCap

BUSINESS INTELLIGENCE
Tableau, Power BI

CERTIFICATIONS

- Deep Tech Talent Certificate (EIT)
- Board Certified in Intraoperative Neurophysiological Monitoring (ABRET)
- Good Clinical Practice-Module1 (USZ)
- Good Clinical Practice-Module2 (USZ)
- Basic Life Support (KISPI)

LANGUAGES

- English (Native/bilingual proficiency)
- Spanish (Native/bilingual proficiency)
- German (Professional working proficiency)

RESEARCH INTERESTS

Healthcare Foundation Models || XAI || Generalizability || Clinical Biomarkers || Precision Medicine ||

PERSONAL INTERESTS

Traveling || Analog Film Photography || Baking || Run Clubs || Basketball || Gravel cycling ||

PUBLICATIONS

Arzaga, C., Staubli, O., Birbaumer, M., Ramantani, G., & Keller, E. (2025). An unsupervised deep learning algorithm for burst suppression detection in pediatric EEG data: Assessing generalizability [Abstract P136]. Clinical and Translational Neuroscience, 9(4), Article 45. https://doi.org/10.3390/ctn9040045

To be continued...