Aslane Mortreau

Biostatistician & Data Scientist

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Experience

Research Engineer (Biostatistician), LVMH Recherche – Orléans, France — Aug 2023 – Now

- Led statistical analyses of in vivo cosmetic efficacy studies, including longitudinal modeling (linear mixed-effects models), time-to-event analysis (Kaplan-Meier, Cox regression), and post-hoc comparisons via estimated marginal means.
- Collaborated with clinical and regulatory teams to write and validate Statistical Analysis Plans (SAPs), handle missing data (MCAR/MAR), and ensure methodological alignment with claim validation and internal regulatory standards.
- Developed modular and reusable R Shiny applications for non-statisticians to conduct automated analyses and visualize results.
- Designed and implemented end-to-end automated statistical workflows (from raw clinical data to formatted tables/figures), reducing analysis turnaround time by >50%.
- Actively contributed to cross-functional innovation projects, including the development of an AI-driven molecular substitution engine using graph embeddings (metapath2vec) for sustainable formulation strategies.
- Tools and methods: R (lme4, survival, emmeans, Shiny), Python, Shiny, Docker, Google Cloud Platform, Git

Analytics Engineer, dFakto – Paris, France — Sep 2022 - Aug 2023

- Designed and implemented scalable data models using the Data Vault methodology to support long-term analytical traceability across domains, including healthcare, public policy, and finance.
- Developed analytical marts and reporting layers for operational dashboards, leveraging business logic versioning and auditability standards.

Education

EPISEN, Msc Biomedical Engineering/ AI

- **Coursework:** Bioinformatics, Data Science, Fluid Mechanics, Genomics, Genetics, Health Economics, Image Processing, Medical Imaging, Networks, OOP, Pharmacology, Physiology, Proteomics, Signal Processing

University of Michigan, Summer Program

- **Coursework:** Algorithms, Data Science/NLP, Web Developpement

ESIEA, 1st Year - Msc Computer Science/ Data Science

- **Coursework:** Data Science, Hardware, Networks, OOP, Signal Processing, Statistics

University of Nantes, BS in Statistical Engineering

- **Coursework:** Algebra, Calculus, Group Theory, Markov Chain, Probability, Python, Statistics

Publications

From tradition to innovation: The telecommunications metamorphosis with AI and advanced technologies — Oct 2023
Khadija Slimani,Khoulji Samira, ***Aslane MORTREAU***, Kerkeb MOHAMED Larbi
10.32629/jai.v7i1.1099

Efficacy and safety of the short-term Paul glaucoma implant in the treatment of refractory uveitis glaucoma : a retrospective study — In press
Martin Chevallier, ***Aslane MORTREAU***

Pregnancy in Women Aged 49 and Older: Medical, Psychological and Social Follow-Up, and Obstetric and Neonatal Complications — In press
Lucile Neveu, ***Aslane MORTREAU***

Skills

- **Statistical Methods:** Linear and generalized linear models, Mixed-effects models (LMM, GLMM), Survival analysis (Kaplan-Meier, Cox), Repeated measures ANOVA, Post-hoc tests (EMMeans), Non-parametric tests, Missing data handling (MCAR/MAR), Power/sample size estimation
- **Statistical Programming:**
  - **R:** lme4, mmrm, survival, emmeans, ggplot2, dplyr, shiny
  - **SAS:** Base, Macro, SAS Certification : Clinical Trials Programming Professional (In progress)
  - **Python:** pandas, numpy, matplotlib, scikit-learn, networkx, PyTorch
  - **SQL:** PostgreSQL, BigQuery
- **Data Engineering & Workflow Automation:**
  - Pipeline orchestration: Dagster, Airflow
  - Data modeling: dbt, Data Vault
  - Containerization: Docker
  - Versioning & CI/CD: Git
  - Cloud: GCP
- **Clinical & Regulatory Standards:** CDISC (SDTM, ADaM), GCP principles
- **Data Visualization & Apps:** R Shiny (interactive dashboards), Streamlit, Grafana
- **Languages:** French (native), English (fluent)

Certifications

Clinical Trials : Good Clinical Pratice — Novartis
Testing with Dagster — Dagster Labs
Dagster & dbt — Dagster Labs
Dagster Essentials — Dagster Labs

Projects & Technologies

TrialLytics – Biostatistical Automation Platform triallytics.mortreau.net

- Developed a user-friendly platform for automated statistical analysis of clinical trial data, including ANOVA, mixed models, Cox regression, log-rank tests, and normality checks.
- Generated dynamic plots, diagnostics, and downloadable reports via R Shiny.
- Tools Used: R, Shiny, emmeans, survival, Docker, GCP

CDISC Clinical Data Pipeline github repository

- Built an automated pipeline conforming to CDISC (SDTM, ADaM) standards for structured clinical datasets.
- Orchestrated with Dagster for reproducibility and modular execution.
- Tools Used: Python, Dagster, Pandas, Polars

Raw Material Substitution

- Designed a graph-based model using metapath2vec to identify compatible raw material substitutes in cosmetic formulations.
- Represented molecules and interactions in a heterogeneous graph; integrated dgl and PyTorch.
- Tools Used: Python, dgl, Gensim, PyG

AVM Detection on MRI using Deep Learning

- Designed a convolutional neural network (CNN) to detect arteriovenous malformations (AVMs) in MRI brain scans.
- Integrated grayscale density features and autoencoder-based latent representations to improve classification performance.
- Explored metric learning approaches for similarity-based retrieval of AVM-like regions.
- Tools Used: PyTorch, Torchvision, NumPy, Matplotlib, scikit-learn

Epidemiological Simulator epidemio.mortreau.net

- Built an interactive simulator to model the impact of testing strategies and vaccination on outbreak dynamics.
- Implemented SIR-based modeling with configurable parameters for scenario planning.
- Tools Used: Python, Streamlit, Docker, Google Cloud Platform

Automated SAS Code Generation for Claim Statistical Analysis github repository

- Developed a system that generates SAS-compliant Statistical Analysis (SA) code directly from consumer questionnaire data.
- Translates validated claim logic into SAS procedures (PROC FREQ, PROC MEANS...) based on pre-specified templates and study metadata.
- Reduces manual programming time and ensures consistency, traceability, and regulatory compliance across multiple studies.
- Tools Used: SAS (Base/Macro)

References

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