Joseph ALLYNDREE

PhD candidate at INRAE - MRU BIOEPAR & MIA - AI & Animal Welfare
+33 782 970 922 joseph.allyndree@inrae.fr Joseph Allyndree J-ally JAllyndree
16 Chemin de Chalin, 69130 Ecully, FRANCE

First year PhD student, I'm passionate about the applications of computer science in the world of biology. Currently applying my skills to the research of new methods of characterizing and quantifying cattle behaviors, especially by using accelerometers data. I'm looking for research laboratories working on **Time Series Classification** which would be open to collaborations in the animal welfare sector, or looking for exchanges of methods and data, where I am already experienced.

Experience

INRAE - MRU BIOEPAR & MRU MIA **Octobre 2023 - Now**
PhD candidate - Accelerometer Time Series Classification for animal welfare quantification *Nantes - Paris, France*

- **Research Question :** Development of cattle behaviors and social interaction caracterization methods for a better welfare evaluation in the agroecological transition context.

VistaMilk **March 2023 – Sept. 2023**
Research Intern - AI Model Development *Dublin, Ireland*

- Developed and trained Machine Learning models for the **classification of Multivariate Time Series** (accelerometer data acquired from calf movements).
- Implemented and tested various **ETL pipelines** for the realization of a dataset (correction of the time drift of the accelerometer and of the manual annotations, cleaning of the data, grouping of the accelerometer recordings and behaviors).
- **Mediation of the research project** to farmers and farm operators : creation of an application to display and interact with the generated classification results
- ***Key Technologies*** **:** *Boris Annotation Software, TensorFlow, Pytorch, Keras, sktime, Matplotlib, Seaborn, R-Shiny*

bioMérieux & Hospices Civils de Lyon **May 2022 – August 2022**
Research Intern - Data Analytics and Visualisation *Lyon, France*

- Implemented a new normalization of transcriptomic markers values (on proprietary biomedical data, which were immunogenomics oriented).
- Realized the preliminary analysis of the data (visualization, preparation and cleaning) and generated multiple graphs views for a better understanding of the biological interactions.
- ***Key Technologies*** **:** *R, Dplyr, ggplot2, Python, Seaborn, Scikit-Learn, RGPD compliance*

Autour de la bière **April 2021 – May 2021**
Intern - Microbrewery (800 L production/week) *Lyon, France*

- Analysed the decision making process of the company for a better understanding of the brewery management.
- Researched and developed a rice based beer recipe, which went into production later on.

Education

INRAE **Oct. 2023 – Now**
PhD - IA and Animal Welfare (MRU BIOEPAR & MIA Paris Saclay) *Nantes - Paris, France*

AgroParisTech **Sep. 2020 – Sep. 2023**
Engineering MSc - Data Science (IODAA) *Paris, France*

- Physics modelisation
- Object Oriented Programming
- Programming for Data Science and analysis
- Reinforcement learning and game theory
- Statistics for data analysis
- Satistics for high dimensionality selection

Paris Saclay University **Sep. 2022 – Sep. 2023**
MSc - Computational Biology (AMI2B) *Paris, France*

- Theory of languages and graph optimization
- Database Systems, management and optimization
- Reproducibility for mass -OMICS analysis
- Image Analysis for biology
- Chatbots and conversations

Conference Presentations

- **AICS 2023**: "Personalised Weighted AdaBoost for Animal Activity Recognition from Sensor Data"

Personal & Academic Projects

- **Automatic detection of weeds from drone images :** using traditional computer vision techniques in combination with deep learning to detect weed in an agricultural field. Developed in collaboration with the IDEEV INRAE research center.
- **Data and Model Engineering :** model optimisation for Supervised, Deep and Reinforcement learning in several domain (NLP tasks, Game tasks, Tabular data).
- **Workflow implementation :** automatic acquisition, treatment, visualization and exploitation of Next Generation Sequencing data (multigenome indexing, mapping and counting).
- **Feature selection :** utilization and comparison of various methods for reducing and selecting dimensions of -OMICS data.
- **Modelisation :** implemented a graphical application which visualizes in real time the movement of a crowd from a top down view.
- **Portfolio management :** calculation of real time cryptocurrencies portfolio gains and losses (utilization of the Binance API)

Technical Skills

Programming languages : Python, R, VBA/Excel.
Python Librairies : TensorFlow, PyTorch, Keras, Scikit-Learn, Numpy, Pandas, sktime, OpenCV, Seaborn, Matplotlib.
Tools & Platforms : Git, Github, Gitlab, Bash, SSH, VSCode, Jupyter Notebooks, Deepnote, Weight and Biases, Google colab.
Languages : French - Native | English - Fluent (TOEIC : 985) | Spanish - Proficient | Chinese - Basic knowledge

Extracurricular Activities

Hosting of blockchain, cryptocurrency and NFTs' conferences **2022**
Hold a stand at the International Agricultural Fare - Presentation of Agdatahub Paris | **2021**
Vice president of the AgroBienvenue association **2020 - 2021**
Gap year in Taïwan - Rotary Youth Exchange Student **2015 - 2016**