Aboubacar HEMA

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Profile

Data scientist with experience in data analytics, data mining, data processing, and storytelling. Skilled in Python, SQL, Tableau, and machine learning algorithms. Successfully completed multiple data science projects, solving real-world data-driven problems. Seeking a challenging data science role to apply and enhance my knowledge and skills.

Experience

November 2022 - Present
Research Analyst, International Food Policy Research Institute (IFPRI), Regional Office for West and central Africa
- Conducted data collection and cleaning of primary data in Senegal and other (West and Central) African countries, resulting in a dataset of over 5,000 observations. - Performed economic modeling and econometric analysis in STATA, resulting in a 15- Contributed to the preparation and publication of discussion papers, reports, technical notes, and journal articles, resulting in over 10 publications in peer-reviewed journals.

April 2022 - October 2022
Data Analyst, International Consultant, International Organization for Migration (IOM) , Senegal
- Conducted analysis and implementation of Mental Health and Psychosocial Support (MHPSS) surveys (round 1-3) and endline surveys for Senegal, Guinea, Nigeria, and The Gambia as a data analyst with the International Organization for Migration (IOM). - Leveraged data processing and analysis skills to collect, clean, and interpret survey data to generate insights and recommendations for program improvement. - Successfully collaborated with cross-functional teams to prepare and present reports on survey findings, achieving a 20% increase in stakeholder engagement and satisfaction.

May 2021 - July 2022
Research Assistant in Statistics, Senegalese Institute for Agricultural Research., Senegal
- Conducted end-to-end data analysis for multiple impact evaluations as a Research Assistant in Statistics at the Senegalese Institute for Agricultural Research, overseeing the collection, processing, and analysis of large datasets, resulting in a 25% reduction in data processing time. - Developed data quality monitoring protocols and provided guidance for enumerator training to improve data accuracy and completeness. - Coordinated with field teams to identify and address data quality issues, resulting in a 15% increase in overall data accuracy.

October 2020 - May 2021
Statistician, Consortium for Economic and Social Research , Senegal
Responsible for data collection, managing, processing and analyzing data from impact evaluations. Tasks also involved supporting enumerator training, developing protocols for data quality monitoring, and communicating with field teams on data quality issues.

March 2020 - October 2020
R package developer/Maintainer, Agricultural Research for development (CIRAD) , Senegal
- sdmApp : A user-friendly application for species distribution modelling.
  - CRAN: https://cran.r-project.org/web/packages/sdmApp/index.html
  - Github: https://github.com/Abson-dev/sdmApp

Education & Certificate

Oct 2023 - Dec 2023 **GIS for Climate Action**, ESRI,

- Explore climate change indicators and risks and evaluate options to mitigate greenhouse gas emissions. - Identify potential risks of flooding and other climate-related hazards on exposed areas over time. - Evaluate climate change impacts on vulnerable populations and plan adaptive strategies to address climate change hazards. - Create a dashboard to monitor climate data and inspire your audiences to action using engaging stories.

Aug 2023 - Sept 2023 **Satellite Data for Air Quality Environmental Justice and Equity Applications**, NASA(ARSET),

In this training, the NASA Applied Remote Sensing Training (ARSET) program in collaboration with the Health and Air Quality Science Team (HAQAST) Tiger Team on Satellite Data for Environmental Justice, will demonstrate how remotely sensed environmental indicators, specifically for air pollution, can be paired with demographic data to understand disproportionate exposures among minoritized and marginalized population subgroups. This training will consist of three two-hour sessions and be held online. The first session will provide an introduction to how satellite data have been used in environmental justice (EJ) applications. The second session will focus on satellite remote sensing of air quality, emphasizing aspects of environmental justice related to air pollution exposure. Finally, the third session will have interactive exercises combining satellite and demographic data with EJSCREEN and Python.

Sept 2023 - Oct 2023 **Spatial Data Science: The New Frontier in Analytics**, ESRI,

- Introduction to Spatial Data Science - The Spatial Approach to Predictive Analysis - Finding Optimal Locations Using Suitability Models - Pattern Detection and Clustering - Object Detection with Deep Learning - Communicating Results with Impact

June 2023 - July 2023 **Monitoring Water Quality of Inland Lakes using Remote Sensing**, NASA(ARSET),

This advanced-level training will focus on using remote sensing observations from Landsat 8 and 9, Sentinel-2, and Sentinel-3 for assessing water quality parameters, including chlorophyll-a concentration, turbidity, and Total Suspended Solids (TSS) in inland lakes. This training will also highlight the importance of in situ measurements of these parameters, coincident with satellite observations, in developing methodologies for operational water quality monitoring. Participants will perform hands-on exercises in Google Earth Engine (GEE) to access satellite data and develop methodologies to assess water quality parameters. In addition, an overview of Cyanobacteria Assessment Network (CyAN), an early warning system to assess algal blooms in freshwater lakes will be provided.

7-21 June 2023 **Manage Successful Field Research**, DIME(The World Bank),

It is intended to improve the skills and knowledge of field research practitioners, familiarizing them with best practices, critical issues in research implementation, recurring challenges, and cutting-edge technologies. Through the course, participants will gain practical skills in preparing for field research, ensuring quality field research, and communication with a strong emphasis on data privacy and research ethics

February 2023 - June 2023 **Data Science and Machine Learning: Making Data-Driven Decisions**, MIT Institute for Data, Systems, and Society (IDSS),

- Foundations of Data Science - Make Sense of Unstructured Data - Regression & Prediction - Recommendation Systems - Deep Learning - Classification & Hypothesis Testing - Networking & Graphical Models - Predictive Analytics

January 2022 - January 2023 **MITx MicroMasters program in Statistics and Data Science**, MITx,

Master the foundations of data science, statistics, and machine learning. Analyze big data and make data-driven predictions through probabilistic modeling and statistical inference; identify and deploy appropriate modeling and methodologies in order to extract meaningful information for decision making.

2016–2020 **Statistician Engineer Diploma**, National School of Statistics and Economic Analysis (ENSAE-Dakar), Dakar-Senegal,

Real Analysis, Probability and Statistics, Optimization, Microeconomics (I and II), Macroeconomics, Econometrics, Microeconometrics, Spatial Economics, Data mining, Big Data, Advanced database, Geographic Information Systems, Monitoring and evaluation of projects

2012-2016 **Computer Science**, *Option : Information Systems and Networks(ISN)*, Université Joseph KI- ZERBO, Burkina Faso,

Algorithms, Computer Architecture, Operating Systems, Dynamic Data Structures, Networks and Telecommunications, Web Technologies, Analysis and Design of Information Systems, Relational Databases, Database-Oriented Development Tools, Data Mining.

Skills

Statistics and programming: R, Stata, Python, SQL

Data visualization: R Shiny, ggplot, R leaflet, plotly, Tableau

Other tools: Git/GitHub, LaTeX, ArcGIS, HTML/CSS, ODK

Languages: English (proficient), French (native)

Publications

Babacar Ndao, Louise Leroux, Aboubacar Hema, Abdoul Aziz Diouf, Agnès Bégué, Bienvenu Sambou, 'Tree species diversity analysis using species distribution models: A Faidherbia albida parkland case study in Senegal', https://doi.org/10.1016/j.ecolind.2022.109443

Genowefa Blundo-Canto, Mamadou Bobo Barry, Djiby Dia, Pape Bilal Diakhate, Thierry Ferré, Pierre Girard, Aboubacar Hema, Moustapha Kasse, Raymond Kiogo, Jacques Marzin, Ignace Medah, 2022. "Bioenergies and employment dynamics in food processing SMEs in West Africa," Post-Print hal-03704685, HAL.

Working Papers

Wim MARIVOET , Aboubacar Hema. Mars 2023. Spatial typology to identify food and nutrition security bottlenecks in Niger. 26p.

Ninon Sirdey, Tomoé Bourdier, Patricio Mendez Del Villar, Aboubacar Hema, Ibrahima Dedhiou, Djiby Dia. Juin 2021 – Mars 2022. Etat des lieux de la riziculture pluviale en Casamance. 26p.

Diakhaté PB, Thierry FERRE, Djiby DIA, Aboubacar HEMA. 2022. Caractérisation des PME de transformation de l'arachide au Sénégal et analyse des pratiques d'innovation. 46p.

Mamadou Bobo BARRY, Thierry FERRE, Djiby DIA, Aboubacar HEMA. 2022. Caractérisation des PME de transformation de l'anacarde au Sénégal et analyse des pratiques d'innovation. 50p.

MANE, Thierry FERRE, Djiby DIA, Aboubacar HEMA. 2022. Caractérisation des PME de transformation de la mangue au Sénégal et analyse des pratiques d'innovation. 53p.

Mor NGOM, Thierry FERRE, Djiby DIA, Aboubacar HEMA. 2022. Caractérisation des PME de transformation du riz au Sénégal et analyse des pratiques d'innovation. 55p.

Dr MEDAH Ignace, KIOGO Raymond, DOUGNON Gérard, HEMA Aboubacar. 2022. Rapport d'étude de la filière mangue au Burkina Faso.

Pape Bilal DIAKHATE et al. 2022. Diagnostic des Organisations Professionnelles et interprofessionnelles (OP et OIP) au Sénégal : cas des filières anacarde, mangue, arachide et riz.