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Stanford Center for Biomedical Ethics
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CURRENT POSITION

Stanford-GSK.ai Postdoctoral Fellow, Stanford Center for Biomedical Ethics 2023 – present
School of Medicine, Stanford University

EDUCATION

Ph.D. Laboratory of Informatics, Modelling and Optimization of Systems, University of Clermont Auvergne 2021
Dissertation: Development of clustering algorithms for categorical data and applications in Health

M.Sc. Computer Science, University of Clermont Auvergne 2018

M.Eng. Applied Mathematics, University of Clermont Auvergne 2018

B.A. Applied Mathematics, Sidi Mohamed Ben Abdellah University 2015

SCHOLARSHIPS AND FELLOWSHIPS

Stanford-GSK.ai Postdoctoral Fellow, Stanford University 2023 – present
Mitacs Accelerate Postdoctoral Fellow, Simon Fraser University 2022 – 2023
Postdoctoral Fellow, University of Clermont Auvergne 2022 – 2022

TEACHING EXPERIENCE

Stanford University Teaching

Responsible Conduct of Research, Stanford University Fall 2023, Fall 2024, Winter 2025, Spring 2025
Co-organized and team-taught a course designed to help students identify and mitigate ethical concerns in research. Implemented traditional lectures, discussion-based lectures, and case-based lectures. Led the discussions of small student groups (~10 students). Reviewed students' self-reflection on ethical issues they encountered during their study.

Foundations of Bioethics, Stanford University Winter 2024
Co-taught Foundation of Bioethics in a large class format (~240 students) to students from multiple majors—graded student essays and held office hours.

Building a Successful Academic Career, Stanford University Winter and Spring 2024
Mentored five Black students through the Ernest Houston Johnson Scholars Program. Provided practical advice to students for achieving successful academic and personal goals at Stanford.

African Development University Teaching

Introduction to Artificial Intelligence, African Development University Summer 2022
Instructed an introductory class on Artificial Intelligence (AI) for students of a newly launched major in AI. Designed the course, practical exercises, and an exam to assess students' learning.

University of Clermont Auvergne Teaching

Relational Databases, Databases and Web, Statistics and Probability, Information Systems
University of Clermont Auvergne Fall 2020, Spring 2020
Assisted professors with practical exercise preparation and assessment for undergraduate students. Activities include database implementation using MySQL servers and Microsoft Access, as well as statistical modeling in Python.

Relational Databases, Algorithmic, Software Engineering
University of Clermont Auvergne Spring 2019
Assisted professors with practical exercise preparation and assessment for undergraduate students. Activities include database implementation using MySQL servers and Microsoft Access, as well as software implementation in Java.

Shell Programming, University of Clermont Auvergne Spring 2018
Assisted professors with practical exercises in Shell (bash) programming and grading.

ADDITIONAL COURSEWORK AND TRAINING

Qualitative Research Spring 2025
Stanford University

Health Innovations for Equity: The basics of design and innovation to create impact Spring 2024
Stanford University

Responsible Sharing of Human Research Data Spring 2024
Stanford University

TensorFlow: Data and Deployment Apr 2020
Coursera x DeepLearning.ai

Deep Learning Nov 2019
Coursera x DeepLearning.ai

Advance Data Science with IBM Sep 2019
Coursera x IBM

General Data Protection Regulation Apr 2019
French Commission on Information Technology and Liberties

April 20XX

RESEARCH EXPERIENCE

Postdoctoral Fellow, Center for Biomedical Ethics 6/2023 – present
Stanford University School of Medicine
Supervisors and Mentors: Dr. David Magnus, Dr. Mildred Cho, Dr. Russ Altman, Dr. Michelle Mello, and Dr. Danton Char

Research focuses on the ethical, legal, and social implications of AI in healthcare. My goal is to develop context-specific methods and frameworks for identifying and mitigating risks associated with AI. These include developing technical bias assessment measures and processes for stakeholder engagement (e.g., patients, clinicians, ethicists, AI developers) in risk evaluations.

Postdoctoral Fellow, Laboratory of Dr. Sylvain Moreno 8/2022 – 5/2023
School of Interactive Arts and Technology, Simon Fraser University

Employed AI and machine learning methods to characterize the relationship between lifestyle activities and cognitive health in older adult populations from the UK-Biobank and the US Health and Retirement Study. This research has laid the groundwork for understanding how modifiable risk factors such as reading and exercising affect cognitive health. Our findings suggest that, in certain subpopulations, the negative impact of inactivity may outweigh the positive effects of engaging in the same lifestyle activity.

Postdoctoral Fellow, Laboratory of Informatics, Modelling and Optimization of Systems 5/2022 – 7/2022
University of Clermont Auvergne

Contributed to the development of a machine learning technique for anomaly detection in streaming data in collaboration with Pfeiffer Vacuum. Supervised two master's students' internships in explainable AI and dimensionality reduction.

Machine Learning Scientist, Prevision.io 10/2021 – 2/2022

Contributed to the literature assessment on AI, DevOps, and Model Engineering in the context of the European project AIDOaRt. Wrote seven technical blog posts explaining the company's products and competitive advantages.

Graduate student, Laboratory of Informatics, Modelling and Optimization of Systems 10/2018 – 9/2021
University of Clermont Auvergne

Developed two machine learning techniques for qualitative data analysis using advanced probabilistic and mathematical theories. Collaborated with national and internal researchers to validate the methods on longitudinal health survey data. Supervised four master's students' internships.

PUBLICATIONS

Peer-reviewed Publications

Mahamadou, A. J. D., & Trotsyuk, A. A. (2025). Revisiting technical bias mitigation strategies. Annual Review of Biomedical Data Science, 8.

Mahamadou, A. J. D., Rodrigues, E. A., Vakorin, V., Antoine, V., & Moreno, S. (2025). Interpretable machine learning for precision cognitive aging. Frontiers in Computational Neuroscience, 19, 1560064.

Mahamadou, A. J. D., Rodrigues, E. A., & Moreno, S. (2025). The Impact of Lifestyle Factors on Trajectories of Cognitive Subtypes in the Older Adult Population. Scientific Reports. (In press)

Kerckhove, N., Delage, N., Cambier, S., Cantagrel, N., Serra, E., Marcaillou, F., ... & Authier, N. (2022). eDOL mHealth app and web platform for self-monitoring and medical follow-up of patients with chronic pain: observational feasibility study. JMIR Formative Research, 6(3), e30052.

Anne Marthe Sophie Ngo, **Mahamadou, A. J. D.**, Michael F. Mbouopda, Engelbert MN. (2022). DragStream: An anomaly and concept drift detector in data streams. International Conference on Data Mining IncrLearn Workshop.

Mahamadou, A. J. D., Antoine, V., Nguifo, E. M., & Moreno, S. (2021). Apport de l'entropie pour les c-moyennes floues sur des données catégorielles. In EGC (pp. 519-520).

Mahamadou, A. J. D., Antoine, V., Nguifo, E. M., & Moreno, S. (2020). Categorical fuzzy entropy c-means. In 2020 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE) (pp. 1-6). IEEE.

Mahamadou, A. J. D., Antoine, V., Christie, G. J., & Moreno, S. (2019). Evidential clustering for categorical data. In 2019 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE) (pp. 1-6). IEEE.

Additional Publications

Mahamadou, A. J. D., Trotsyuk, A. A., Waeiss, Q., Magnus, D. 2025. *5.5 Ethical Considerations* (Chapter 5, Science and Medicine). In The AI Index 2025 Annual Report.

SELECTED INVITED PRESENTATIONS

"An introduction to Artificial Intelligence Fairness" 02/2025
Collaboratory Monday Meetings, Arizona University, USA

"Fairness in Cross-Domain Adaptation" 12/2023
GlaxoSmithKline, London, UK

"Algorithmic Fairness in Changing Environments" 10/2023
Genetics Seminars, Stanford University, USA

"AI Ethics in Changing Environments" 10/2023
Khulna University of Engineering and Technology, Bangladesh

"Intelligence Artificielle pour la prise de décisions au Niger" 10/2023
Université du Numérique, AINSI, Niger

POSTER ABSTRACTS

Mahamadou, A. J. D. "On Defining "Vulnerable Groups" In AI Bias Mitigation Solutions," American Society for Bioethics and Humanities. Portland, OR, October 2025. (Incoming)

Mahamadou, A. J. D., Trotsyuk, A. A. "Staying One Step Ahead: Emerging AI, Eroding Ethical Principles, and the Impact on Clinical AI Deployment," American Society for Bioethics and Humanities. Portland, OR, October 2025. (Incoming)

Mahamadou, A. J. D. "Integrating Participatory Methods with Technical Fairness Solutions: Enhancing Bias Mitigation and Equity in AI Systems," NeurIPS Workshop on Algorithmic Fairness through the Lens of Metrics and Evaluations. Vancouver, BC, December 2024.

Mahamadou, A. J. D. "Revisiting Technical Algorithmic Fairness," American Society for Bioethics and Humanities. Saint-Louis, MO, September 2024.

Mahamadou, A. J. D., Federico C., Kostick-Quenet K. "Artificial intelligence for precision medicine: How close to 'personalized' can we really get?" Ethical, Legal, and Social Implications of Genomic Research 6th Congress. New York, NY, June 2024.

Mahamadou, A. J. D., Rodrigues, E. A., Vakorin, V., Moreno, S. **"**Lifestyle Factors and Cognitive Aging: A Personalized Approach," Organization for Human Brain Mapping Annual Meeting, Montreal, QC, July 2023.

Rodrigues, E. A., **Mahamadou, A. J. D.,** Antoine V., Moreno S. (2022). **"**Profiling the Healthy Aging Population: A Machine Learning Approach," Cognitive Neuroscience Society Annual Meeting, San Francisco, CA, April 2022.

AWARDS, HONORS

Mitacs Accelerate Postdoctoral Fellowship	2022
IsDB Smart Economic Grant	2022
Best Nigerien student in France based on academic performance	2020
Best performing model, Data Science Olympics Follow-up Competition	2020
PhD funding, French National Agency of Research	2018
Niger-Morocco Cooperation Scholarship	2012

LEADERSHIP AND COMMUNITY INVOLVEMENT

Project Consultant, AI For Good Institute 6/2024 – 7/2024
Advised a project group on the ethical, legal, and social implications of healthcare AI

Member of the Stanford Justice, Equity, Diversity, and Inclusion Committee (JEDI) 2/2024 – 12/2024
Participate in the promotion of JEDI at Stanford through regular committee meetings.

Mentor, Stanford Black Community Services Center 1/2024 – 6/2024
Mentored four black students through the Building a Successful Academic Career program and introduced them to research and career exploration concepts.

Bioethics Consultant, Stanford Benchside Ethics Consultation Service 7/2023 – present
Consult researchers on ethical issues arising from laboratory and clinical research.

Science Council Adviser and AI Program Adviser, African Development University 11/2022 – 5/2023
Member of the Science Council of the African Development University to advise on AI curriculum.

Education Programs Coordinator, The Africa I Know 10/2021 – 9/2022
Coordinated the launch of the first The Africa I Know Scholar Cohort.

Postdoctoral Representative at the C-ACIS Faculty Senate Committee, Stanford University 8/2023 – 5/2024
Represented Stanford postdoctoral fellows at the C-ACIS faculty senate committee.

Peer-reviewer 10/2018
International Conference on Complex Systems
International Conference on Big Data Analytics
IEEE International Conference on Data Science and Advanced Analytics
Journées de la Recherche en Informatique – Computer Science Research Days
Conference on Complex Networks and Their Applications
International Conference on Pattern Recognition and Artificial Intelligence
European Conference on Information Technologies -- Applications and Theory
International Conference on Extraction and Knowledge Management