

CURRICULUM VITAE

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Citizenship: France, Niger

I. Summary

I am a computer scientist and ethicist working at the intersection of artificial intelligence (AI), ethics, and human-centred AI. My background is in applied mathematics (BSc and MEng) and computer science (MSc and PhD). I have eight years of research experience spanning natural language processing (MBZUAI & Gates Foundation, UAE), AI ethics (Stanford School of Medicine, USA), AI and cognitive health, causal inference (Simon Fraser University, Canada), and machine learning model development (University of Clermont Auvergne, France). I have taught various courses in computer science, statistics, probability, and ethics, accumulating nearly 300 hours of teaching, and I have supervised eight graduate-level students. My long-term vision is to advance the next generation of personalized and trustworthy AI by developing intelligent systems that understand, adapt to, and responsibly collaborate with individuals across healthcare, education, and other high-impact societal domains.

II. Expertise and research interests

- Theories and applications of machine learning and deep learning.
- Applied Mathematics, Statistics, and Probability.
- AI ethics.
- NLP and Generative AI.
- Human-centred AI.
- AI and Health.
- Global health.
- Uncertainty modelling.
- Causal inference.

III. Education

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| 2018/10 to 2021/09 | PhD in computer science, University of Clermont Auvergne, Aubiere, France
Thesis: Development of unsupervised learning algorithms and applications in health (supervisor: Dr E. Mephu Nguifo). |
| 2017/09 to 2018/09 | MSc in computer science; double curriculum, ISIMA, University of Clermont Auvergne, Aubiere, France. |

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Abdoul Jalil Djiberou Mahamadou, PhD

2015/09 to 2018/09	MEng in applied mathematics, Polytechnic School of the University of Clermont Auvergne, Aubière, France.
2012/09 to 2015/07	BSc in applied mathematics, Sidi Mohamed Ben Abdellah University, Fez, Morocco.

Additional training

Stanford University

2023, 2024, 2025	HIPAA: Protecting Patient Privacy.
2025/03 to 2025/06	Qualitative analysis.
2024/09	ISIC: Responsible Conduct of Biomedical Research. Certificate of Completion ID: 6550162
2024/05 to 2024/06	Health Innovations for Equity: The Basics of Design and Innovation for Impact (BIOS 410).
2024/05 to 2024/06	Responsible Sharing of Human Research Data (BIOS 415).
2023/09 to 2023/12	CERSI Immersion Course in Drug Discovery, Development, and Regulation.

Coursera

2020/04	TensorFlow: Data and Deployment. DeepLearning.ai. Certificate of Completion ID: KMD3DKZH7WVU.
2019/11	Deep Learning. DeepLearning.ai Certificate of Completion ID: 6V8WSCP33YM2.
2019/09	Data Science. IBM Certificate of Completion ID: 6HHEAT8V4K4V.
2023/09 to 2023/12	CERSI Immersion Course in Drug Discovery, Development, and Regulation.

Simon Fraser University

2022/08	Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. Certificate of completion ID: 0000836619.
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CNIL France

2019/04	Introduction to the General Data Protection Regulation.
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Training scholarships and grants

2023/06 to present	Postdoctoral Fellowship Stanford-GSK.ai (inaugural cohort).
2022/08 to 2023/05	Mitacs Accelerated Postdoctoral Fellowship, \$86 000 USD
2018/10 to 2021/09	Doctoral scholarship from the French National Research Agency, \$120 000 USD
2012/09 to 2015/06	Scholarship from the Moroccan Agency for International Cooperation, \$2700 USD

2012/09 to 2018/09 Scholarship from the National Agency for Scholarship Allocations of Niger.

Awards and distinctions

2021, 2019 Start-up in automated irrigation (PhiField), funding from the [Islamic Development Bank](#) (4th place out of 47 grant applications from 23 countries) in 2021. Public prize award from the national entrepreneurship competition e-Takara in Niger in 2019.

2020 First prize for the best Nigerien student in France.

2019 Best AI Model (Second Phase): Data Science Olympics Competition, France. Defeated Prevision.io AutoML before joining the company.

IV. Selected Technical Skills

- **Large Language Models:** Transformer-based LLMs, Agentic AI, RAGs, Model fine-tuning
- **Programming languages:** Python, R, C++/C, Java, Fortran, MATLAB.
- **Libraries and frameworks for ML:** TensorFlow, PyTorch, Scikit-Learn, Pandas, NumPy, SciPy, Statsmodels, and Matplotlib.
- **Software engineering:** Git, UML, object-oriented programming.
- **Databases:** SQL, entity-association modeling.
- **Web development:** HTML, CSS, JavaScript, Flask.
- **Operating systems:** Windows, Linux.
- **Cloud:** Azure, AWS.

V. Research Experiences

2026/05 to present **Mohamed Bin Zayed University of AI & Gates Foundation, Abu Dhabi, UAE**
AI, Global South, Inclusion and Personalization

- Developing causal-based, weight-driven, mechanistic interpretability techniques for AI deception detection, steering, and monitoring
- Developing a personalized behavior-driven paradigm for AI systems
- Evaluating the cultural sensitivity and inclusion of AI in the Global South
- Developing AgriLLM 2.0, an agricultural large language model

2023/06 to 2026/04 **Centre for Biomedical Ethics, Stanford School of Medicine, Stanford, USA**
Ethical, social, and legal implications of AI in healthcare. SCBE is rebranded as GCBE; see [here](#).

- Developed in [Python](#), a new mathematical individual fairness metric based on Laplacian matrices and the reweighting of training data.
- Stakeholder engagement in AI [risk assessment](#) at Stanford Health Care. Thematic analysis of 64 interviews from 9 AI use cases obtained from patients, clinicians, developers, and medical staff.
- Qualitative research on researchers' perceptions of equity, diversity, and representation of AI data and models for health (NIH 1R01HG014227-01A1). Involved in participant recruitment, the conduct of interviews, and qualitative analysis of data.

- Developed frameworks for responsible AI development and use and data governance in Africa.

2022/08 to 2023/05

Computational Neuroscience Research Laboratory, Simon Fraser University, Surrey, Canada

Impact of lifestyle factors on the cognitive health of older adults in collaboration with Circle Innovation.

- Processing of missing data, multivariate analysis, longitudinal trajectory modelling, and applications of interpretable machine learning models (Explainable Boosting Machines) in [Python](#) and R to study the effects of life activities on cognitive health.
- Causal modelling of the impact of lifestyle activities on cognitive health (quasi-experimental methods and causal forests). Initiated the development of a technique for determining the causal graph in the Causal Forests model.

2022/05 to 2022/07

Computer Science Laboratory, University of Clermont Auvergne, Aubière, France

Anomaly detection by unsupervised learning.

- Developed in Python in collaboration with Pfeiffer Vacuum, a new unsupervised learning method for anomaly and concept drift detection in time series.

2021/10 to 2022/02

Prevision.io, Nantes, France

Machine Learning Scientist

- Developed a model for YouTube ad detection with deep learning models. Collected and labelled data manually.
- Contributed to a scientific review of the literature on AI, DevOps, and Model Engineering for the European AIDoArt project.
- Wrote 7 technical blogs on AI concepts, Prevision.io products, and benchmarking studies between Prevision.io products and competitors.

2018/10 to 2021/09

Computer Science Laboratory, University of Clermont Auvergne, Aubière, France

PhD student

- Developed two clustering methods ([CFE](#) and [CatECM](#)) for qualitative data. Used the belief functions theory to model the uncertainty of object assignment to clusters.
- Applications of the developed model in the study of chronic pain and cognitive health.
- Collaborated nationally with the Analgesia Institute and internationally with Simon Fraser University.

VI. Teaching and Mentoring

Stanford University

Courses	Descriptions	Tasks	Hourly volumes
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Responsible Conduct of Research (MED 255) Years: 2023, 2024, 2025 Levels: Undergraduate and graduate	Identification and resolution of ethical issues in research. Approximately 30 students per session. Topics covered: authorship of articles, plagiarism, peer review and publications, rigour and reproducibility, safety of the research environment, conflicts of interest, animal research, use of biological materials, social responsibility, ChatGPT.	Reading student essays. Moderation of group discussions. Course reviews and evaluations.	42h
Foundations of Bioethics (HUMBIO 174) Year: 2024 Level: Undergraduate	Introduction to bioethics. About 240 students. Topics covered: theories of bioethics, informed consent, truth, confidentiality, genetic testing, precision medicine, genetic engineering of organisms, organ transplantation, end of life, and public health ethics.	Lectured on the course on public health ethics. Student services. Student essay evaluations.	27h
Successful academic career (UAR 56) Year: 2024 Level: Undergraduate	Tutoring four Black Stanford students through the Ernest Houston Johnson Scholars Program on Successful Academic Careers.	Discussions about my academic journey. Questions & Answers about academic careers. Participation in workshops.	15h30
Total hours			84h 30

African Development University

Materials	Descriptions	Tasks	Hourly volumes
Artificial intelligence Year: 2022 Level: Undergraduate	Introduction to AI for 30 students (one of the first AI trainings in Niger). Topics covered: supervised, unsupervised, and deep learning.	Lectures, tutorials, and practical work. Student evaluations.	30h

University of Clermont Auvergne

Materials	Descriptions	Tasks	Hourly volumes
Relational databases Years: 2019, 2020	Introduction to relational databases. Approximately 30 students per session.	Conduct of tutorials and practical work.	40h

Level: Graduate		Student evaluations.	
Probability and Statistics Years: 2020 Level: Undergraduate	Introduction to probability theories and statistics. Approximately 30 students per session.	Conduct practical work in Python.	36h
Databases and Web Years: 2020 Level: Undergraduate	Introduction to web databases. Approximately 30 students per session.	Conduct of tutorials and practical work.	45h
Information Systems Years: 2020 Level: Undergraduate	Introduction to Information Systems. Approximately 30 students per session.	Conduct of tutorials and practical work.	21h
Software Engineering Years: 2019 Level: Undergraduate	Introduction to software development. Approximately 30 students per session.	Conduct of practical work in Java.	12h
Algorithmic Years: 2019 Level: Undergraduate	Introduction to algorithmics. Approximately 30 students per session.	Lectures and conduct of practical work.	12h
Shell programming Years: 2018 Level: Undergraduate	Introduction to Shell Programming. Approximately 30 students per session.	Conduct of practical work.	18h
Total hours			184h

Mentoring

2026/06 to 2026/08	Mentoring the internship of a bachelor's student (VIPUL BATRA) for the development of workflows for public, open agricultural data ingestion.
2022/08 to 2023/03	Supervised the project of a PhD student (MAHAMAN Hadiza) on the study of the effects of life factors on cognitive health.
2022/05 to 2022/09	Supervised the internship of a master's student (TOUMANI Remy) on the study of the effects of life factors on cognitive health.
2022/05 to 2022/07	Supervised the internship of a master's student (BAKARI Rayane) on dimensionality reduction.
2021/11 to 2022/04	Supervised the project of two master's students (EL HAYEL Hiba and ARHARAS Aafaf) in unsupervised learning.

2020/11 to 2021/04 Supervised the project of two master's students (LOEB Amaury and RUFFIE Pascal) in unsupervised learning.

Workshop Organization

2026 AI and the Self: Human Identity, Authenticity, and Agency in the Age of AI, NeurIPS, Paris, Date TBD

2026 The Future of NLP Needs Ethical Considerations: An Interactive Tutorial for Researchers and Students, ACL, China, Date TBD

VII. Publications

*: Equal contributions.

Research publications in peer-reviewed journals

1. **Mahamadou, A. J. D.**, Trotsyuk, A. A., Downing, N. L., Char, D., & Mello, M. M. (2026). Mitigating Bias in Sepsis Risk Prediction Models: Insights from a Stakeholder-Based Ethical Assessment. *The American Journal of Bioethics*, 26(2), 124-126. <https://doi.org/10.1080/15265161.2025.2608630>.
2. Mello, M. M., Trotsyuk, A. A., **Mahamadou, A. J. D.**, & Char, D. (2026). The AI Arms Race in Health Insurance Utilization Review: Promises of Efficiency and Risks of Supercharged Flaws. *Health Affairs*, 45(1), 6-13. <https://doi.org/10.1377/hlthaff.2025.00897>
3. Ochasi, A., **Mahamadou, AJ.**, Altman, R., Nkwocha, LUC. (2025). Reframing Justice in Healthcare AI: An Ubuntu-Based Approach for Africa. *Developing World Bioethics*. <https://doi.org/10.1111/dewb.70007>.
4. Rodrigues, EA.*, **Mahamadou, AJ***, A., Moreno, S. (2025). The impact of lifestyle factors on trajectories of cognitive subtypes in the older adult population. *Sci Rep* 15, 31744. <https://doi.org/10.1038/s41598-025-91171-0>
5. **Mahamadou, AJ.** & Trotsyuk, AA. (2025). Revisiting technical bias mitigation strategies. *Annual Review of Biomedical Data Science*, 8. <https://doi.org/10.1146/annurev-biodatasci-103123-095737>
6. **Mahamadou, AJ***, Rodrigues, EA.*, Vakorin, V., Antoine, V., & Moreno, S. (2025). Interpretable machine learning for precision cognitive aging. *Frontiers in Computational Neuroscience*, 19, 1560064. <https://doi.org/10.3389/fncom.2025.1560064>
7. Kerckhove, N., et al. (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. <https://doi.org/10.2196/30052>

Reports

1. **Mahamadou, A. J. D.**, Chaudhury, M. A. T., Truong, S., Ng, M., Koyejo, S., Magnus, D. (2026). Ethical Considerations, in the Medicine chapter of the Stanford HAI AI Index Report, 284-288. 2.
2. **Mahamadou, A. J. D.***, Trotsyuk, A. A.*, Waeiss, Q.*, Magnus, D. 2025. Ethical Considerations, in the Science and Medicine chapter of the Stanford HAI AI Index Report, 319-321.

Research publications in peer-reviewed computer science conferences

1. **Mahamadou AJ**, Gichoya JW, Trotsyuk AA. (2025). Algorithmic Fairness Beyond Legally Protected Groups and When Group Labels Are Unknown. In *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society*, 8 (1), 692-704. <https://doi.org/10.1609/aies.v8i1.36582>
2. Bibinbe AM, **Mahamadou AJ**, Mbouopda MF, Nguifo EM. (2022). DragStream: an anomaly and concept drift detector in univariate data streams. In *IEEE International Conference on Data Mining Workshops (ICDMW)*, 842-851. <https://doi.org/10.1109/ICDMW58026.2022.00113>
3. **Mahamadou AJ**, Antoine V, Nguifo EM, Moreno S. (2020). Categorical fuzzy entropy c-means. In *IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, 1-6. <https://doi.org/10.1109/10.1109/FUZZ48607.2020.9177666>

4. **Mahamadou AJ**, Antoine V, Christie GJ, Moreno S. (2019). Evidential clustering for categorical data. In IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), 1-6.
<https://doi.org/10.1109/10.1109/FUZZ-IEEE.2019.8858972>

Preprints

1. **Mahamadou AJ**, Ochasi A, Altman RB. (2024). Data Ethics in the Era of Healthcare Artificial Intelligence in Africa: An Ubuntu Philosophy Perspective. arXiv preprint arXiv:2406.10121.
2. **Mahamadou AJ**, Goetz L, Altman R. (2024). Individual fairness through reweighting and tuning. arXiv preprint arXiv:2405.01711.

Scientific presentations in bioethics conferences

1. **Mahamadou, A. J. D.**, Chaudhury, M. A. T., Truong, S., Ng, M., Koyejo, S., & Magnus, D. (2026). Navigating open science and biosecurity concerns in AI for healthcare and precision medicine. Paper presentation at the Ethical, Legal, and Social Implications of Genomic Research 7th Congress, Chapel Hill, NC, United States. Paper.
2. **Mahamadou AJ**. (2025). On Defining 'Vulnerable Groups' In AI Bias Mitigation Solutions. American Society for Bioethics and Humanities Annual Meeting. Portland, OR, USA.
3. **Mahamadou AJ***, Trotsyuk AA*. (2025). Staying One Step Ahead: Emerging AI, Eroding Ethical Principles, and the Impact on Clinical AI Deployment. American Society for Bioethics and Humanities Annual Meeting. Portland, OR, USA.
4. **Mahamadou AJ**. (2024). Revisiting Technical Algorithmic Fairness. American Society for Bioethics and Humanities. St. Louis, MO, USA.
5. **Mahamadou AJ***, Federico C*, Kostick-Quenet K*. (2024). 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.

Posters

1. **Mahamadou AJ**. (2024). 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.
2. **Mahamadou AJ**, Rodrigues EA, Vakorin V., Moreno S. (2023). Lifestyle Factors and Cognitive Aging: A Personalized Approach. Organization for Human Brain Mapping Annual Meeting. Montreal, QC.
3. Rodrigues EA., **Mahamadou AJ**, Antoine V., Moreno S. (2022). Profiling the Healthy Aging Population: A Machine Learning Approach. Cognitive Neuroscience Society Annual Meeting. San Francisco, CA.
4. **Mahamadou AJ**, Antoine V, Nguifo EM, Moreno S. (2021). Contribution of entropy for fuzzy c-means on categorical data. In EGC (pp. 519-520).

Invited talks

1. An invitational online conference organized by AI-Huda Huda Niger on the ethics of AI in the military field in May 2025. Title of the presentation: Artificial Intelligence and Technological Catch-Up: The Imperative of Integrating Ethics and Responsibility.
2. An invitational webinar by the University of Arizona's Collaboratory Monday Meetings group in February 2025. Presentation title: An introduction to artificial intelligence fairness.
3. An invitational seminar in London by GSK's responsible AI team in December 2023. Presentation title: Fairness in Cross-Domain Adaptation.
4. An invitational seminar by the Stanford Genetics Seminars group in October 2023. Presentation title: Algorithmic Fairness in Changing Environments.

5. An invitational seminar in Bangladesh by the Khulna University of Engineering and Technology in October 2023. Presentation title: AI Ethics in Changing Environments.
6. Invitational conference on digital technology in Niger by AINSI in August 2022. Title of the presentation: Artificial Intelligence for Decision-Making in Niger.

VIII. Personal projects

- **LLM Water Tracker:** A Google Chrome extension developed with Cursor.ai, which calculates the water consumption equivalence of user interactions with generative AI platforms such as OpenAI, Claude, and Gemini. Stack: JavaScript, CSS, and HTML. [Code](#) on my GitHub.
- **My Safety Distance:** A mobile application developed during the COVID-19 pandemic, allowing users to track their safety distance in real time. Stack: Python, CSS, JavaScript, and HTML. [Code](#) on my GitHub.
- **Electoral Corruption in Africa:** Application of supervised learning models for the study of electoral corruption in Africa. Stack: Python, Scikit-Learn, Jupyter Notebook. [Code](#) on my GitHub.
- **Co-founder of PhiField:** A start-up using AI to predict plant water needs. Winner of the Public Award of the Nigerien e-Takara Entrepreneurial Competition and the [Smart Economic Grants program of the Islamic Bank](#). Stack: Python, Scikit-learn, TensorFlow, Azure, AWS, React Native.

IX. Community involvement and Volunteering

2024/06 to 2024/07	Project Consultant, AI For Good Institute Advised entrepreneurs on the ethical, legal, and social issues of AI in health.
2024/02 to 2024/12	Member of the Justice, Equity, Diversity and Inclusion (JEDI) Committee, Stanford University Contributed to the promotion of JEDI at Stanford through regular committee meetings.
2024/01 to 2024/06	Mentor, Stanford Black Community Services Center Mentored four Black students in the Ernest Houston Johnson Scholars Program on Academic Career Success.
2023/08 to 2024/05	Postdoctoral Representative on the Senate Committee C-ACIS, Stanford Represented Stanford postdoctoral fellows on the Senate Committee C-ACIS.
2023/07 to present	Consultant on Research Ethics and the Journal of Ethics and Society, Stanford University Advised researchers at Stanford and external institutions on ethical issues raised by laboratory research, clinical research, and emerging technologies such as AI (Stanford Research Ethics Consultation Service and Ethics and Society Review).
2022/11 to 2023/05	Member of the Scientific Council and Advisor of the AI Programme, African Development University Participated in meetings of the scientific council and served as an advisor for the improvement of the bachelor's degree course in AI.
2021/10 to 2022/09	Educational Programs Coordinator, The Africa I Know Coordinated the launch of the first cohort of The Africa I Know Scholars
2018/10 to present	Journal and Conference Peer Committees Wellcome Open Research Pacific Symposium on Biocomputing 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

X. Media appearances

- **ProPublica:** [Article](#) about the data privacy concerns arising from the US State Department's financial aid to African countries, 2026.
- **Sahel Dimanche:** [Article](#) about the publication of my work at the AAAI/ACM Conference on AI, Ethics, and Society, 2025.
- **BioSpace:** [Article](#) on the diversity of data in AI for drug development, 2023.
- **Sahel Dimanche:** [Article](#) on my academic career and my research work at Stanford, 2023.

XI. References

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