Boahemaa Adu-Oppong, PhD

Director of Data Science & Data Engineering

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SUMMARY

Transformational AI/ML, data science & engineering leader with 10+ years delivering enterprise-wide data strategy, scalable ML infrastructure, and digital transformation across life sciences. Proven track record in converting advanced analytics into growth opportunities, enabling compliant innovation, and guiding C-suite decisions. Combines deep technical expertise (Python, AWS, GenAI) with business acumen to deliver measurable outcomes in speed, efficiency, and regulatory readiness.

LEADERSHIP HIGHLIGHTS

- **AI/ML Transformation** –Pioneered GenAI-driven discovery of novel RNA at Terrana Biosciences, creating new product opportunities and strengthening the company's competitive moat.
- **Enterprise Data Strategy** – Directed company-wide governance & SOP alignment at Terrana and Pluton, ensuring GxP compliance and adoption.
- **Cloud Infrastructure at Scale** – Architected AWS-based ML platforms integrating genomic and phenotypic data, reducing audit risk and enabling scalability.
- **Business Impact** – Drove Bayer projects that reduced gene discovery cost by 50% and enhanced reproducibility across global R&D.
- **Executive Influence** – Partnered with C-suite to position organizations as data-driven leaders, shaping investment and regulatory readiness.

PROFESSIONAL EXPERIENCE

Director of Data Science, Data Engineering & Computational Biology
Terrana Biosciences
📅 Jan 2024 - Present   📍 Remote

- Defined enterprise-wide data governance strategy across R&D and operations.
- Architected scalable metadata traceability systems with Benchling, SharePoint, Monday and Smartsheet.
- Directed AWS-based cloud architecture leveraging containerized microservices for scalable, compliant scientific workflows.
- Introduced GenAI (LLMs) to optimize experiment planning, enhancing research throughput and data-driven insights.
- Influenced senior leadership through cross-functional roadmaps.
- Built & mentored a high-performing data science and engineering team.

Director of Data Science & Data Engineering
Pluton Biosciences
📅 Dec 2021 – Jan 2024   📍 Remote

- Directed enterprise-wide data strategy, aligning product, biology, and operations functions under a unified governance framework.
- Oversaw development of AWS-based data integration pipelines for genomic and phenotypic datasets, strengthening audit readiness and regulatory compliance.
- Established enterprise standards for ML pipelines and executive dashboards (Monday), creating a single source of truth for decision-making.
- Instituted controlled vocabularies and standardized data models, ensuring consistency and enabling successful regulatory filings.
- Advised C-suite and external partners on AI strategy, framing technical advances into business value propositions that guided investment and product decisions.

TECH LEADERSHIP

Programming & ML Frameworks		
Python	SQL	MLflow
Cloud & Infrastructure		
AWS	Docker	dbt
REST APIs	RDS	ECS
Data Visualization & BI		
Power BI	Tableau	Lucid
Life Sciences Systems		
Benchling (LIMS)	SAP	

CORE COMPETENCIES

- AI/ML Strategy & Innovation
- Data Governance & Compliance
- Enterprise Data Strategy
- Executive Leadership & Influence
- Organizational Development

EDUCATION

Ph.D., Biology and Biomedical Sciences
Washington University in St. Louis
- Edward A. Bouchet Fellow
- NSF Graduate Fellowship
- Distinguished Individual Leader Award
- Gerry & Bob Virgil Ethic of Service

B.S., Ecology and Evolutionary Biology
Rice University
- Julian Huxley Award (top research)
- Mellon Mays Fellow

COMMUNITY LEADERSHIP

Board President & Co-Founder
Show Me The World Project
📅 2019 – Present

Sent 100+ high school students abroad for biology research and STEM immersion.

Science Friday Podcast
The Microscopic World Beneath Our Feet
📅 2016 🔗 Link

Featured guest on Science Friday discussing the soil microbiome and microbial ecology.

Field Bioinformatic Scientist
Thermo Fisher Scientific
📅 Apr 2020 – Aug 2021   📍 Remote
- Delivered customized bioinformatics pipelines across North America.
- Awarded West Region 4i Award for service excellence.

Data Scientist – Genomics & Data Science
Bayer Crop Science
📅 Oct 2017 – Apr 2020   📍 St. Louis, MO
- Spearheaded AWS-based infrastructure reducing gene discovery costs by 50%.
- Initiated Biotech Data Fluency Program, training 30+ staff in reproducibility practices.
- Led adoption of Python/ML training across cross-functional teams.
- Co-lead the first Chem-Bioinformatic session at the Bayer Data Science Summit.

Adjunct Instructor & Senior Tutor
Washington University in St. Louis
📅 Jan 2020 – Apr 2020   📍 St. Louis, MO
- Delivered 240+ hours of instruction in ML, Python, statistics.
- Maintained 4.9/5 student rating.

SELECTED PUBLICATIONS

Prairie plants harbor distinct and beneficial root-endophytic bacterial communities
PLOS ONE | 🔗 Link

Chryseobacterium insect inhibitory microbial compositions and methods of making and using
PATENT | 🔗 Link

Substantial overlap between symptomatic and asymptomatic genitourinary microbiota states
MICROBIOME | 🔗 Link

The gut microbiome defines social group membership in honey bee colonies
Science Advances | 🔗 Link