Nic Moe

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Data scientist with 10 years of experience building analytics and visualization tools in health tech and public health. Looking to advance scientific research workflows through statistical modeling, machine learning, and data analytics within life science. Holds a Master of Public Health (MPH) in Biostatistics and Epidemiology.

Relevant Experience

Global Healthcare Exchange (GHX)

Five years of progressive roles building analytics software to reduce unwarranted variation in hospitals' medical device usage. Began this journey with Lumere, a health tech startup acquired in 2020 by GHX.

Engineering Manager - Data Science, GHX (2022 - 2023)

First led a software team, then Lumere's data engineering team. Drove key initiatives in data operations, data security and governance, machine learning, and recruitment and onboarding.

- Built up a distributed team from 3 to 7 engineers who handle end-to-end data pipeline development, including ETL, analysis, visualization, and software, to support the team's client portfolio expanding from 5 to 50+ healthcare systems. Established a successful tech internship program.
- Translated business and client needs into a single technical roadmap for all Lumere data, previously under the purview of 3 separate teams, leading to enhanced data scalability and automation.
- Enhanced team resilience by initiating cross-training to ensure skill overlap, working with the team to identify 17 key data processes, and achieving our desired milestone where each process became manageable by at least 3 team members within 1 quarter.
- Launched and ran an internal clinical data forum to streamline collaboration across half a dozen disparate teams working with clinical, perioperative, and patient data, in response to multiple acquisitions that resulted in complementary team functions.
- Steered the migration and overhaul of a critical medical device ML classification model, to align it architecturally with the company's other classification models. This achieved more accurate results and greater maintainability, and built the team's understanding and confidence in model outputs.
- Negotiated staffing for multiple products and unified a cross-functional team through a scrum-based agile workflow, driving tech and product goals. Established a scalable tech solution policy for client feature requests, ensuring that development benefits all customers.

Software Engineer - Data Visualization, GHX (2018 - 2022)

Lead engineer on an analytics product from prototype to active use for 37 hospital facilities, using EMR data from >1 million patient encounters to align supply chain management and clinical teams.

- Owned and enhanced a data visualization microservice built with Django, PostgreSQL, and Vue.js to serve 50+ user-facing, scaled analytics dashboards across multiple Lumere products used by both technical and non-technical users.
- Implemented ongoing performance monitoring and anomaly detection in user-facing dashboards and client surgical data. These scaled validation initiatives identified upstream bugs, informed model classification criteria, and uncovered opportunities to improve product feature development.
- Developed and implemented automated data analyses with Pandas and SciPy to find variation in patient outcomes associated with medical device attributes, surfacing statistically and clinically significant comparisons used to prioritize clinical initiatives based on impact and cost-effectiveness.

- Designed and built a software feature to group and compare surgical case cohorts by factors such as medical implant utilization, procedure type, patient diagnoses, and primary physician. To do so, restructured data schema and invented new data filtering UI's and comparison visualizations.
- Ramped up Javascript skills to contribute new data visualization components that leverage open source libraries like d3.js, Vega, and ag-grid. Built comprehensive dashboard filter user interfaces.
- Authored GHX's data visualization style guide, establishing guidelines for accessibility and clarity. Implemented methods to communicate data-driven insights in plain language to end users.
- Applied UX research to test product hypotheses: when to use A/B testing vs. qualitative methods; how to apply boolean logic within filter UI's; how to scale chart items for accurate interpretation, etc.
- Established standard QA play testing protocols and conducted for ~10 major feature releases. This helped lead the team to having the lowest bug-to-feature ratio of engineering teams.
- Collaborated with colleagues to champion the establishment of a dedicated diversity, equity, and inclusion (DEI) team and the appointment of the company's first C-level DEI executive.

Additional Experience

Graduate Researcher, Dell Center for Healthy Living (2017)

- CARDIA Sleep Ancillary Study: Analyzed accelerometry data in R from a pilot sleep quality study, and defined processes for scaling methods to >3,000 participants, aligned with broader study objectives.
- Outdoor Learning Environment (OLE!) Assessment: Developed and conducted a study exploring preschool directors' beliefs on child physical behavior and nutrition. Used stratified sampling to diversify participant recruitment. Built out a REDCap database for data entry and management.

Founding Board Chair, Vision Zero ATX (2016 - 2017)

- Launched a nonprofit to eliminate traffic fatalities and serious injuries in Austin. Led volunteer efforts to reform policies and campaign for resources, supporting $15 million in bond funding for safer infrastructure.

Operations Manager → BI Analyst, Children's Optimal Health (2013 - 2016)

- Implemented the organization's first interactive data projects using ArcGIS Online and Tableau to optimize service at child-serving institutions. Managed financial reporting, HIPAA and FERPA compliance documentation, and conference logistics. Leveraged government data for analysis.

Education

MPH in **Biostatistics and Epidemiology,** University of Texas Health Science Center at Houston (2018)

BA in **Urban Studies, Planning, and Architecture,** University of Wisconsin - Milwaukee (2012)

Continuing education courses: Machine Learning Data Lifecycle in Production, Introduction to Machine Learning in Production, Crossfilter for Data Science Essential Training, Evaluating Social Programs, Matrix Algebra and Linear Models, Statistics and R for the Life Sciences

Tools and technical skills

Analytics: Python (*Pandas, NumPy, SciPy, Scikit-learn, Matplotlib, Jupyter; Django, Flask*), R (*tidyverse, shiny*), SAS, SQL (*PostgreSQL, Snowflake, Mode Analytics, Sisense, REDCap*), Stata, SPSS.
Engineering: Alteryx, AWS, Kubernetes, Docker, Git, GitLab CI/CD, Datadog, Sentry, JWT, Vercel.
Visualization: JavaScript (*d3.js, Vega, Leaflet, Vue.js, React, Next.js*), Tableau, ArcGIS, QGIS.