

MARK OLESON

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SUMMARY

Data scientist and applied researcher specializing in labor market and workforce analysis for state government. Four years at the Ohio Education Research Center building statewide supply-demand assessments, job postings research, and public dashboards for Ohio agencies, following two years supporting FOMC and Beige Book briefings at the Federal Reserve Bank of Cleveland. Combines econometrics, machine learning, and data visualization (R, SQL, Python, Tableau) with direct experience translating administrative data into policy-relevant findings for agency leadership.

EXPERIENCE

Data Science Analyst November 2022 – Present

Ohio Education Research Center / CHRR, The Ohio State University Columbus, Ohio

Promoted Data Analytics Science Analyst 1 → Analyst 2, 2026

- Co-authored a statewide workforce supply-demand assessment for the Ohio Department of Higher Education spanning 14 career clusters and 77 sub-clusters, quantifying an annual shortfall of ~78,000 credentialed positions against ~171,500 openings; wrote the majority of the report narrative and analysis
- Built the analysis pipeline in R integrating IPEDS completions from every Ohio IPEDS-reporting institution (~177,000 annual completions), Census PSEO employed-in-state rates, Ohio LMI projections, O*NET education requirements, and CIP-SOC crosswalks; delivered intermediate interactive Tableau and Excel tools for stakeholder drill-down and migrated reporting to a reproducible Quarto workflow
- Designed an NLP pipeline matching millions of job posting sentences to O*NET's ~19,000-statement task taxonomy using sentence-transformer embeddings (all-MiniLM-L6-v2) and Gaussian Mixture Model thresholding, testing whether employer language leads formal taxonomy updates across 17 quarters of postings data
- Served as one of two analysts behind the public Ohio Broadband & 5G Workforce Asset Map (asset-mapping.chrr.ohio-state.edu) with ODJFS, BroadbandOhio, and the Governor's Office of Workforce Transformation; built the the Tableau layer covering job postings demand and graduate trends across all six JobsOhio regions
- Built the Adult Protective Services Tableau dashboard on the ODJFS server covering all APS claims statewide, replacing manual spreadsheet reporting; used by state program staff for caseload oversight and county accountability
- Led migration of production dashboards from Impala to Snowflake on the state edge node, resolving driver configuration, OAuth, and service-account key-pair authentication within a restricted virtual environment; administer the OLDA workspace on the DAS Tableau server, managing permissions and troubleshooting for agency users
- Produced IMPLAN economic impact analyses of data center development and healthcare workforce; contributed R visualization pipelines comparing AI-active and non-AI employers for JobsOhio, with process documentation and onboarding guides
- Supported grant-funded research development, including an Arnold Ventures planning grant on criminal justice and employment/education data linkages (interagency data scoping, IRB submission) and literature review for a Sloan Foundation proposal; mentored two interns on text analysis and embedding methods

Research Analyst May 2020 – July 2022

Federal Reserve Bank of Cleveland, Regional Analysis Group Cleveland, Ohio

- Monitored national and regional economic conditions using conventional and high-frequency data and insights from business leaders; assembled presentations and drafted summaries for Federal Open Market Committee (FOMC) and Board of Directors meetings, and contributed to Beige Book reporting
- Oversaw 1,200+ charts and 300+ datasets in the Regional Analysis Data Repository, automating extraction and reporting workflows in R and Stata
- Independently implemented a text analysis protocol for the Regional Analysis Group in Python; built automated data pulls from the NAEP and CDC pandemic tracking APIs
- Co-authored two published district data briefs analyzing COVID-19 across demographic groups and predicting death rates from hospitalization data; supported economists' internal and external publications through data analysis and directed research

EDUCATION

Specialized Master in Business – Analytics (SMB-A) August 2026

Fisher College of Business, The Ohio State University – completed part-time while working full time

- **Capstone:** *Conflict Spillover Prediction in Africa and Latin America* — early-warning models of conflict severity in R on 23,159 SCAD events (1990–2017), defining spillover via Haversine distance (250 km / 90 days); Random Forest classifier achieved 0.937 AUC and Negative Binomial GLM exceeded pseudo-R² targets using only pre-event information

B.A., Economics and Political Science

PRESENTATIONS

- **Federal Reserve System Digital Access Research Forum** (Kansas City) — poster: skillshed analysis identifying transition pathways from declining occupations into broadband/5G roles using Ward's clustering and O*NET skill distance measures
- **Fisher College of Business Inaugural AI Retreat** (April 2026) — one of two master's students selected to present alongside faculty research; *Job Postings and Tasks: Emerging Labor Demand with Semantic Matching Using O*NET*
- **Ohio Broadband & 5G sector partner briefings** — presented initial supply-demand gap analysis to sector partners across all six JobsOhio regions; findings informed program need and became the basis for the public BB5G Asset Map

SKILLS

Programming & analysis: R (tidyverse, R Markdown, Quarto), SQL, Python, Stata

Visualization: Tableau (development and server administration), interactive dashboard design

Data platforms: Snowflake, Impala, Tableau Server, ADRF (Administrative Data Research Facility)

Methods: Regression and count models, classification and ensemble methods, NLP and sentence embeddings, clustering, time series, survey weighting and imputation, input-output modeling (IMPLAN)

Data sources: IPEDS, Census PSEO, O*NET, BLS/Ohio LMI, College Scorecard, job postings data (TalentNeuron/NLX), state administrative UI and program data