Owen Boberg, Ph.D

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MODELING • DATA PIPELINES • SOFTWARE DEVELOPMENT • CIVIC TECH

EXPERIENCE

MANDOLIN SOFTWARE INC.
Principal Data Engineer
August 2021 - Present | ⚲ Indianapolis, IN

- Leading the design and maintenance of Snowflake data and machine learning pipelines to surface near real-time data for customer facing applications and internal business intelligence reports/dashboards in both Looker and Salesforce.
- Producing data-driven recommendations to the leadership team on how to capture customer adoption and retention of new products/features through Looker reports and detailed analysis performed with SQL and Python.
- Developing novel/intelligent customer segmentation using machine learning and statistical techniques written in Python and SQL to understand customer purchase and music artist interactions in order to drive impactful marketing campaigns and grow artist fanbases.
- Performing customer entity resolution (record linkage) by writing Python, Javascript, and SQL stored procedures and user defined functions to dynamically process e-commerce, marketing, and general ticketing/audience data files from diverse external sources.
- Working daily with front/back end engineers to create data models that support data intensive applications.
- Supporting General Data Protection Regulation (GDPR) and California Consumer Privacy Act (CCPA) requests to help ensure company compliance and maintain customer privacy.
- Solely responsible for Snowflake database model designs, warehouse resource allocation and monitoring, user access, and role creation.
- Facilitating monthly meetings of an internal data guild to enable and educate people across the company on how to use data effectively in dashboards.
- Reduced Snowflake credit usage/cost by a factor of four by optimizing database design, SQL efficiency, and resource management to increase performance while meeting budget constraints.

STATE OF INDIANA, MANAGEMENT PERFORMANCE HUB
Data Scientist, Technical Product Lead
Oct 2018 – August 2021 | ⚲ Indianapolis, IN

- Led data science initiatives across state agencies including: Teacher compensation, Management of the opioid crisis, School corporation spending and fund allocation, the analysis of the State's education and workforce development efforts to understand program efficacy in order to improve outcomes for Hoosiers.
- Led the design and operations of the data system components in the State of Indiana's Enhanced Research Environment (ERE), which was awarded an Emerging and Innovative Technologies award from the National Association of State Chief Information Officers.
- Supported data pipeline and architecture development and management for statewide data science projects, interfaced with external agencies (customers) to support their work, including, e.g., analysis of Covid-19 data for development of the state's pandemic response efforts.
- Developed custom longitudinal datasets with SQL to fulfill data requests from outside researchers (customers) and other agencies to complete analysis on behalf of the state.
- Wrote and maintained code (R, Python, SQL) and development standards for agency employees and outside vendors collaborating on projects using Azure DevOps and GitHub repositories.
- Managed one direct report data scientist while being fully remote and co-led the cross functional data product team comprised of data management, business intelligence and data science.

DATA INTENSIVE RESEARCH IN ASTROPHYSICS AND COSMOLOGY (DIRAC) INSTITUTE, UNIVERSITY OF WASHINGTON
Postdoctoral researcher, Simulations Team, Vera Rubin Observatory
Jun 2017 – Oct 2018 | ⚲ Seattle, WA

- Developed open source software to visualize and optimize telescope observing strategies over 10 years of simulations.
- Containerized software in Docker to increase the accessibility of a large, collaborative code base for a globally distributed scientific community.
- Acted as technical liaison to the astronomical community to distribute results of simulations and coordinate feedback to further improve large scale surveys.
- Led multi-day Python-based workshops to train the community on how to use simulation software and contribute their ideas to the project through code.

INDIANA UNIVERSITY, DEPT OF ASTRONOMY

Graduate Research Assistant (National Science Foundation Graduate Research Fellow)

Aug 2012 – Aug 2017 | ♦ Bloomington, IN

- Co-developed an open source astronomical image processing pipeline in Python: https://github.com/oboberg/odi-tools.
- Co-developed a novel parallelizable and scalable k-means machine learning algorithm used for classification of stars.
- Applied machine learning and modeling (e.g Gaussian Mixture Models) techniques to analyze stellar cluster characteristics.

EDUCATION

INDIANA UNIVERSITY | PhD, Astronomy, Graduate minor in Scientific Computing

Aug 2017 | ♦ Bloomington, IN

NEW MEXICO STATE UNIVERSITY | BS, Physics, with Honors, Minors in Mathematics & Chemistry

May 2010 | ♦ Las Cruces, NM

SKILLS

PROGRAMMING

SQL • Python: pandas, Jupyter, requests, great_expectations, sqlalchemy, sklearn, pymc, seaborn, plotly, matplotlib
R • HTML/CSS • Hugo • Shell scripting

TECHNOLOGIES

Linux • macOS • Docker • Azure Data Factory
Snowflake • GitHub • Anaconda virtual environments
JupyterLab • Tableau Desktop/Prep • Looker • Stitch

HONORS AND AWARDS

Indiana TechPoint Tech 25 Class of 2021	2021
State Health Commissioner Award for Excellence in Public Health	2020
Distinguished Service Award, Department of Astronomy, Indiana University	2017
Hollis and Grete Johnson Graduate Research Prize, Indiana University	2017
Joseph and Frances Morgan Swain Fellowship, Indiana University	2016
National Science Foundation Graduate Research Fellowship	2013–2016
Fulbright Fellowship to Chile (CTIO)	2011

EXTRACURRICULAR AND VOLUNTEER EXPERIENCE

Public observing nights at the Kirkwood Observatory, Indiana University	2012 - 2017
Physics and Astronomy Open House volunteer, Indiana University	2012 - 2017
Invited public lectures at the Missouri Scholar Academy	2013, 2014, 2015, 2016
Distance runner - Chicago marathon, 5 half marathons, and various shorter distances	
Avid blues guitarist, snow boarder, and cook	