Richard Diaz-Cool

Analytics Engineer

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PhD & MS - Astronomy / University of Arizona
Sept 2003 - July 2008, Tucson AZ

BS - Math & Physics / University of Wyoming
Summa Cum Laude
Sept 2000 - May 2003, Laramie, WY

Statistical Analysis, Machine Learning, Python, Typescript, SQL, React.js, Node.js, D3.js, Spark/PySpark

Work Experience

Netflix / Senior Analytics Engineer
May 2016 - PRESENT, Los Gatos, CA

- **Architected end-to-end analytics solutions** using Spark/PySpark for data processing and React for interactive visualizations, enabling stakeholders to explore complex, high-dimensional data
- **Designed and deployed machine learning models** with intuitive visualizations to provide predictive insights for engineering teams and executive decision-making
- **Created JavaScript dashboards** integrated with Druid datastore, leveraging tDigest, HyperLogLog, and arithmetic aggregations to analyze high cardinality datasets spanning years of streaming history
- **Developed predictive models** to pre-tag device quality alerts, reducing false positives and saving approximately 0.5 FTE person-hours annually in alert triage
- **Built alerting framework** to monitor partner firmware rollouts, identifying critical issues in early deployment stages that could have impacted millions of customers
- **Created forecasting models** to project device ecosystem evolution 2-3 years into the future

MMT Observatory / Staff Scientist
Sept 2012 - May 2016, Tucson, AZ

- **Created automated process** to analyze 10-100 gigabytes of imaging data nightly and log data quality metrics
- **Implemented k-means clustering analysis** to monitor system performance, avoiding 4+ critical failures due to failing equipment
- **Developed logistic regression model** to inform night-time operator procedures, resulting in 20% reduction in overheads between observations
- **Created queue scheduling system** to maximize time efficiency of night-time observations
- **Applied logistic regression techniques** to identify most important features contributing to atmospheric turbulence
- **Maintained and upgraded observatory software** to provide more efficient user experience
- **Trained astronomers** in proper observing procedures and supervised queue observers

Community Impact

Helpline Coordinator & Membership Survey Analytics
Jan 2025 - PRESENT

- **Coordinated** scheduling and onboarding for operators for a 24/7 recovery helpline. Build monthly engagement reporting and training materials to improve service coverage and caller impact.
- **Lead** survey design and data processing for fellowship survey to analyze trends and inform program priorities while preserving participant anonymity.