Ryan Liao

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Portfolio: https://ryansliao.github.io/portfolio/
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Experience

Instantour
June 2024 - Current
Full Stack Developer

Database Development & Cloud Management:
- Designed and managed Azure SQL Server databases for the web application, hosted on the Azure Cloud platform.
- Performed routine maintenance, schema updates, and performance tuning to ensure data integrity and app stability.

Web Application Development:
- Developed, tested, and deployed web application features using C# ASP.NET Core within the Azure ecosystem.
- Conducted comprehensive software testing and debugging across multiple site components to improve reliability and user experience.

API Integration & Feature Expansion:
- Integrated third-party authentication systems including Google, Facebook, Microsoft, X (formerly Twitter), and Spotify.
- Implemented Spotify playback and dynamic playlist selection for use within personalized tour experiences.
- Migrated AI-powered features from Google Gemini to DeepSeek AI, and integrated new DeepSeek functionalities for enhanced user interaction.

U.S. Bureau of Fiscal Service - Office of the Chief Data Officer
June 2023 – March 2024
Data Governance / Management / Engineering Intern

TreasuryDirect Savings Bond Documentation Transfer Automation:
- Fully automated the Treasury savings bond transfer documentation process. This involved cleaning raw text data, transferring and uploaded it to an Access database on a schedule, saving ~3 hours of daily manual work.
- Generated weekly/monthly metadata report cycles which highlighted demographic and buy/sell trends.

Data Exchange Metadata Analysis Working Group:
- Spearheaded comprehensive metadata analyses on the Bureau's data exchange infrastructure and patterns using Dash & Power BI dashboards, Salesforce databases, and advanced KPI, ROI, & opportunity cost metrics.
- Participated in the Bureau's data exchange working group and advocated for the modernization and automation of data strategy through seminars and presentations.

Salesforce CRM Ticketing Management:
- Developed a system blending automated categorization and human intervention to sort ticket requests efficiently.
- Utilized machine learning NLP vectorization methods such as Doc2Vec and TF-IDF.
- Harnessed sentiment analysis techniques to effectively categorize topic, satisfaction, and urgency.

Projects

Fantasy Disc Golf Web Application:
May 2025 – Current
- C# ASP.NET Core MVC web app that uses PDGA API requests to fetch professional tournament player statistics.
- Users can login via third-party authentication, create their own league/team, invite other users, add players onto their team, customize league settings, and compete against each other.
- Users, leagues, teams, and players are stored in a database with Entity Framework Core.
- Razor views use JavaScript and CSS to show interactive tables, toggle/change settings, and navigate the site.

San Diego Association of Governments Activity Based Travel Model:
September 2023 – March 2024
- Predicted vehicle choice with the 2017 National Household Travel Survey by using decision tree, random forest, and regression models to predict each vehicle's type, fuel type, and age.
- Predicted trip destination using SANDAG's synthetic population and census data using a parameter-tuned decision tree classifier with an accuracy and F1 of ~72% predicting over 240 classes while decreasing runtime by ~90%.

Rent the Runway Clothing Size Recommender System:
September 2022 – December 2022
- Fitted an unsupervised learning algorithm to predict a user's most comfortable size based on their clothing reviews.
- XGBoost regressor model producing a mean-squared error of 17.91.

Education & Certifications

University of California San Diego
- Data Science Master's Online (Graduating March 2026) | GPA: 3.85
- Data Science B.S. | Political Science Data Analytics Minor (Graduated 2024)

Relevant Courses: Data Structures & Algorithms, Theoretical Foundations for Data Science, Systems for Scalable Analytics, Recommender Systems & Web Mining, Representation Learning, Probabilistic Modeling & Machine Learning, Data Visualization

AWS Certified Machine Learning Engineer – Associate   October 28, 2024 – October 28, 2027

Skills

Programming Languages: Python, SQL, R, C#, Razor, HTML/CSS, JavaScript, VBA

Software: Visual Studio, Spark, Stata, PostgreSQL, LaTeX, Excel, Jira, Power BI

Platforms: GitHub, Amazon Web Services, Google Cloud, Microsoft Azure, Salesforce

Frameworks/Libraries: TensorFlow, PyTorch, SciPy, Scikit-Learn, Dask, PySpark, ASP.NET Core, Entity Framework Core

Domains: ETL, Cloud Computing, Data & Task Parallelism, Feature Engineering, Relational DBMS, Model-Controller-View, Object-Oriented Programming, Agile, Version Control, Pivot Tables, CRM