Ryan Liao

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Versatile data professional and backend-focused developer with experience building web applications and data-driven systems. Skilled in SQL, Python, and ASP.NET Core, with a strong foundation in cloud infrastructure, ETL pipelines, and database optimization. Proven ability to modernize legacy systems, automate workflows, and integrate APIs to enhance performance and user experience. Excels at bridging the gap between data and software engineering to deliver robust, maintainable solutions.

Experience

Instantour
Full Stack Developer | Remote | June 2024 – Present

Project Migration:
- Led the full stack migration of the C# web application from ASP.NET 5 MVC to ASP.NET Core 9, modernizing the codebase for performance, security, and maintainability.
- Refactored identity authentication, redesigned controller and view architecture, and resolved breaking changes across Entity Framework Core, models, routing, and Razor Pages.

Database & Cloud Management:
- Consolidated multi-context database structure, resolved model compatibility issues, and wrote SQL migration scripts to preserve existing data across schemas.
- Deployed and managed updated web application on Azure Cloud and Azure SQL Server – improving startup time, deployment reliability, and long-term support.

API Integration & Feature Expansion:
- Integrated third-party OAuth systems and incorporated Spotify playback and dynamic playlist selection for more personalized tour experiences, enhanced user convenience, and security.

U.S. Bureau of Fiscal Service - Office of the Chief Data Officer
Data Intern | Remote | June 2023 – March 2024

TreasuryDirect Savings Bond Documentation Transfer Automation:
- Fully automated the Treasury savings bond transfer documentation process using Python/SQL scripts – which fetched the documentation, cleaned the raw data, categorized it into tables, and uploaded to an Access database, saving ~3 hours of daily manual work.

Data Exchange Metadata Analysis Working Group:
- Helped found the Bureau's data exchange working group to modernize our data exchange infrastructure, using Power BI dashboards to present Salesforce metadata to our data professionals via presentations and seminars.

Salesforce CRM Ticketing Management:
- Developed a system blending NLP vectorization methods such as Doc2Vec and TF-IDF, as well as some human intervention to classify ticket requests more accurately and efficiently based on topic, satisfaction, and urgency.

Projects

Fantasy Disc Golf Web Application
May 2025 – Present
- Developed a C# ASP.NET Core MVC web app that uses PDGA API requests to fetch professional player statistics so that users can draft those players and compete against other users in their league.
- Implemented extensive league customization features, including configurable scoring systems and tournament weight settings, enabling tailored fantasy gameplay experiences.
- Enabled dynamic interaction with team and player data using custom JavaScript functions for enhanced user engagement and responsiveness.

San Diego Association of Governments – Activity-Based Travel Model
September 2023 – March 2024
- Trained various decision tree, random forest, and regression models to predict vehicle choice as an effective proof-of-concept for a machine learning approach for other components of the overall travel model.
- Trained a trip destination model using 240 features from SANDAG's synthetic population and a hyperparameter tuned decision tree classifier, performing with an accuracy and F1 of ~72% and decreasing runtime by ~90%.

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, Representation Learning, Probabilistic Modeling & Machine Learning, Data Visualization

AWS Certified Machine Learning Engineer – Associate

Skills

Cloud & DevOps: Microsoft Azure, AWS, GCP, GitHub Actions, CI/CD Pipelines, OAuth Integration, API Development
Software & Data Tools: PostgreSQL, Access, Salesforce, Power BI, Excel, Visual Studio, Jupyter, LaTeX
Data Engineering: ETL, Data Wrangling, Relational Databases, Metadata Management, Task/Data Parallelism, Data Migration
Machine Learning: Supervised/Unsupervised Learning, Feature Engineering, Recommender Systems, NLP, Sentiment Analysis
Programming Languages: Python, SQL, R, C#, Razor, HTML, CSS, JavaScript, VBA
Frameworks & Libraries: ASP.NET Core, Entity Framework Core, Pandas, Scikit-Learn, TensorFlow, PyTorch, PySpark, Dask