AI-Driven Travel Planner with Visa & Safety Intelligence

(Sep 2025 – Nov 2025) Northwestern University | Full-stack project | Ruby on Rails, LLMs, JSON parsing, Data Integration

- Architected an AI-powered travel recommendation platform integrating large language models with Global Peace Index data and visa requirement checks to produce personalized, safety-verified trip plans aligned with user risk tolerance.
- Engineered robust prompt design and JSON response parsing to generate detailed multi-day itineraries with budget breakdowns, seasonal recommendations, and destination-specific guidance.
- Optimized the backend and deployed the full-stack Rails application to Heroku for reliable recommendation delivery and scalable operation.

Ensemble Learning for Explainable Heart Disease Prediction

(Sep 2024 – Dec 2024) Northwestern University | In-campus Project | Python, JavaScript, HTML/CSS, Flask, XAI

- Designed and developed a responsive UI for a heart disease prediction system using Flask, integrating an ensemble of models (SVM, XGBoost, LightGBM, Random Forest) to provide real-time risk analysis and actionable lifestyle recommendations.
- Implemented visual explanations (XAI) to surface model reasoning and increase interpretability for end users.
- Optimized frontend performance by improving page rendering and form handling, reducing user input processing time by ~30%.

Age Prediction Based on Deep Learning Network

(Sep 2022 – Dec 2022) Beijing Normal University | In-campus Project | Python, PyTorch, OpenCV, NumPy

- Built an optimized age prediction pipeline using MobileNetV3, with preprocessing, augmentation, and 5-fold cross-validation on a 19K+ image dataset to improve robustness and accuracy.
- Employed cyclical learning rates and model compression techniques to reduce model footprint by ~86% while maintaining high accuracy (~95%), enabling efficient real-world deployment.

Exploring Augmentation on Audio Classification

(Jun 2022 – Aug 2022) Chinese Academy of Science | Research Assistant | Python, PyTorch, NumPy, MATLAB, Linux

- Developed a spectrogram-based audio classification pipeline with audio preprocessing, augmentation (time/frequency masking), and Mel-spectrogram conversion (Librosa), achieving high reliability for music identification tasks.
- Standardized input formats and optimized training pipelines to increase model stability and generalization (achieved ≈97% accuracy on held-out test sets).