Adam Prpick

Petroleum Engineer in Training (EIT) with APEGA

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About Me

I'm a Petroleum Engineer-in-Training (EIT) with APEGA, with growing experience in machine learning, web development, and cloud deployment. I've developed and deployed multiple ML-powered applications using tools like Flask, TensorFlow, and SHAP, hosted on platforms such as Azure and Heroku. My work focuses on building practical, user-focused solutions from complex data.

Skills

- **Languages & Frameworks:** Python (Pandas, NumPy, Scikit-learn, TensorFlow/Keras, SHAP, Joblib, Flask), HTML, CSS, JavaScript, Lua, VBA
- **Machine Learning & AI:** Model training, interpretability (SHAP), neural networks, deployment pipelines
- **Web Development:** Flask web apps, Heroku deployment, interactive frontends
- **Cloud & DevOps:** Azure ML SDK, Docker, Azure Container Apps
- **Visualization & Analysis:** Matplotlib, Seaborn

Education

Petroleum Systems Engineering

University of Regina | 2023

Projects

View details, live demos, and source code at adamprpick.com

Insurance Cost Prediction App

A Flask-based web app that predicts U.S. health insurance costs using a linear regression model trained with Azure Machine Learning ($R^2 = 0.95$). Built with data from a public dataset and deployed on Heroku.

Loan Approval Prediction App

A Flask-based app that predicts SBA loan outcomes based on user-provided business details. Trained using Azure Machine Learning with a neural network model on a public dataset. Deployed on Heroku.

Capstone Design Project: Design and Optimization of a Greenhouse Gas Mitigation Approach - From Capture to Utilization in Northminster Field

A petroleum engineering capstone project completed at the University of Regina, in collaboration with Abdulqadir Abdi. This project addressed Canada's initiative to mitigate greenhouse gas emissions by integrating CO_2 capture from industrial sources with Enhanced Oil Recovery (EOR) and sequestration in the depleted Northminster Field, Saskatchewan.

Methods: The workflow included: (1) Sourcing historical data via AccuMap, (2) Constructing a geological reservoir model, and (3) Utilizing CMG-GEM and CMOST for fluid modeling, history matching, and optimizing three CO_2 injection schemes to balance oil recovery and carbon storage.

Results: The optimal scheme (Case 2) achieved 156,129 tons of CO_2 sequestration and 52,302 barrels of oil production over the well's life, with an injection rate of 82 tons/day. The net present value reached $57,000 with a $85/ton CO_2 credit, underscoring the economic viability post-1995 with carbon tax incentives. Comparative trials showed varying oil output and CO_2 injection efficiency.

Impact: This project demonstrated a sustainable approach to oil recovery while mitigating environmental impact, with potential applications in carbon credit markets.

Tools: AccuMap, CMG-GEM, CMOST, economic modeling
Authors: Adam Prpick, Abdulqadir Abdi
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Contact

Email: aprpick@gmail.com

LinkedIn: linkedin.com/in/a-p-0b319520b

GitHub: github.com/aprpick