GEORGE FELOBES

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EDUCATION

- MSc. Computer Science | Georgia Tech
  Computational Perception and Robotics | Expected in May 2025 | 4.0 GPA
- BSc. in Mechanical (Biomedical) Engineering | University of Alberta
  Mathematics Minor | COOP| May 2021| 3.9 cGPA

SKILLS

- Data Science and Machine Learning: Scikit-learn, TensorFlow, PyTorch, natural language processing using LLMs, PCA, t-SNE, regressions, neural networks, and statistical analysis (SPSS/JMP)
- Programming and Scripting: Python, R, MATLAB, and VBA; experienced in Python Dash for web application development
- Big Data and Cloud Technologies: Databricks and PySpark and utilizing AWS Sagemaker for running large models
- Data Visualization and Management: Plotly Dash, Power BI, TIBCO Spotfire, and managing data historians (PI systems)
- Numerical Simulation and Analysis: numerical physics simulations statistical analysis using R programming

WORK EXPERIENCE

Research Assistant, Smart Infrastructure Technologies (SITE) Research Group
November 2022 – Current | University of Alberta, Remote

- Working under Dr. Gavin Mei with publication in progress
- Employed Large Language Models (LLMs) for data extraction from engineering codes and standards and utilized natural language processing for generative structural engineering design using Python frameworks (Lang chains),and HuggingFace models
- Developed Python scripts for data automation and machine learning, creating training datasets, fine-tuning language models for parametric design, and optimizing Grasshopper parametric environments using reinforcement learning algorithms.

Advanced Process Control and Optimization EIT
June 2023 – Current |Cenovus Energy Inc., Calgary

- Led the development of soft sensors (physics informed machine learning), achieving $6 million in savings by predicting reservoir pressure; managed process trials for data collection and validation
- Implemented advanced algorithms for data mining in high-cost data sets, using statistical techniques for data similarity and variability, and conducted big data analytics using Databricks and PySpark.
- Developed a Python Dash-based dashboard for efficient database management in SAGD facilities and automated economic models, enhancing process control applications.

Operations Production and Process Contact EIT
July 2022 - June 2023 |Cenovus Energy Inc., Calgary

- Developed data exploration methods for identifying inconsistencies in complex time series data within physics equations, managing data historians with millions of data points.
- Led projects in Operations and Production Engineering, focusing on process simulations and equipment designs, achieving $500K in EB spending savings, $700K annually from reduced Dilburn loss, and a 1.42% decrease in fuel consumption leading to about $2 million annual savings.

Software EIT
May 2021 - June 2022 |Cenovus Energy Inc., Calgary

- Developed front-end Dash web applications, connecting data sources via PI-web-API, and creating analytics dashboards using Python Dash, Power BI, and TIBCO Spotfire
- Successfully refactored and tested 10,000 lines of VBA code into Python, achieving a six-fold increase in execution speed
- Implemented machine learning algorithms like PCA, t-SNE, regressions, and neural networks using open-source libraries, and running large models on AWS Sagemaker notebook instances.

UNIVERSITY PROJECTS

- Built a multiagent reinforcement learning algorithm to solve various layouts of overcooked AI
- Optimization of Covid-19 vaccine supply distribution using linear programming
- Design a vessel inspection and repair robot crawl ferromagnetic vessel walls
- Mathematical and numerical modelling of a crankshaft using APDL programming
- Internship, technology development, Cenovus Energy, 2020, NPV $5MM in savings
- Internship, reliability engineering, Cenovus Energy, 2019, > $100K in savings