MARKO VUKOVIC

mvk.vc | github.com/mvkvc | mail@mvk.vc

SKILLS

Languages: Elixir, Python, JavaScript, SQL
Frameworks: Phoenix LiveView, FastAPI, Vue
Libraries and Tools: Spark, Airflow, dbt, LangChain, PyTorch, Transformers, XGBoost, Postgres

EDUCATION

DockYard Academy   **Remote**
Full Stack Development with Elixir   *Completed May 2023*

Hands-on full-time course developing the skills needed to create highly scalable and interactive full-stack web applications using Elixir and Phoenix LiveView.

Toronto Metropolitan University   **Toronto, Canada**
Bachelor of Science (Honours) – Financial Mathematics, Economics Minor   *Graduated May 2019*

Undergraduate thesis supervised by Dr. Foivos Xanthos regarding the application of sublattice theory to outline a static hedging algorithm for exotic options using MATLAB.

EXPERIENCE

Admintel   **Remote**
Software Developer   *Aug 2023 – Present*

- Developed an AI-based study tool for law students, leveraging FastAPI and LangChain with custom tools and data sources. Worked on user facing application using Elixir and Phoenix LiveView including a dynamic chat interface and document upload features. Deployed and monitored applications in production on Fly.io and AWS.
- Currently developing additional products, including customizable case management software for law firms leveraging Elixir and Phoenix LiveView. Focused on replacing legacy systems and building features for the product launch beyond the initial partner firm.
- Consistently communicated with non-technical stakeholders for project updates, strategic discussions on product direction and feature development, and milestone planning, ensuring alignment and clarity between teams.

Royal Bank of Canada   Toronto, Canada
Data Scientist, Global Technology Risk   *July 2019 – September 2021*

- Improved data quality and reporting accuracy by removing over 200 duplicate IT risk issues utilizing pre-trained language models with Python and TensorFlow to embed IT risk issues and flag likely duplicates.
- Enabled reporting on over 18,000 previously unlabeled IT risk issues by developing an XGBoost model for multi-class label prediction trained on issue text and metadata using Python running on the Dataiku platform.
- Improved efficiency of processing impact and likelihood assessments for over 300 IT risk issues per month by developing CatBoost models for regression prediction of impact and likelihood scores using Python in the Dataiku platform. Contributed to the standardization of future assessments by providing feature importance using SHAP analysis.
- Improved management's visibility into the bank's risk profile by applying text clustering and topic modelling techniques using Python and Gensim to identify trends and distribution of risk areas within unstructured IT risk issue text data.
- Provided evidence-based recommendations for improving IT risk assessment workflows by utilizing statistical techniques such as factor analysis in R to maximize actionable insights.

Ontario Ministry of Energy   **Toronto, Canada**
Data Analyst, Economics and Systems Planning Group   *May 2017 – August 2017*

- Researched and developed additional Ontario Energy Market model capabilities using PLEXOS simulation software, including generator efficiency modelling and inter-jurisdictional trade, improving simulation realism and accuracy.
- Enabled management to make evidence-based policy recommendations by conducting market simulations for policy initiatives, including the 2.4 TWh/year Electricity Trade Agreement between Quebec and Ontario.
- Reconciled billions of dollars in simulation systems cost analysis by rewriting the legacy cost calculation tool in R and VBA, bringing accuracy to valuable levels for cost projection.