Johannes Mäkinen

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Education

M.Sc. (Tech.) Mathematics and Operations Research • Aalto University Sep. 2020 – May 2023

- Minor in Machine Learning & Data Science
- Emphasis on optimization, statistical inference and decision analysis

B.Sc. (Tech.) Mathematics and Systems Sciences • Aalto University Sep. 2017 – May 2020

- Minor in Computer Science

Experience

Analyst • Terveystalo April 2020 –

- Identified and analyzed customer steering opportunities. Provided solutions that would create more efficient self-service processes that lead to increased revenue.
- Created and maintained weekly and monthly customer traffic reports using Excel, Powerpoint, Qlikview & Piwik. The whole organization used these to find inefficiencies and targets to improve on.
- Performed K-means clustering and time series analyses to compute the rules for our new customer steering rule-based engine.
- Created a way to compute the revenue and profit of clinical care paths for customer segments. This helped to maximize profits during peak demand.
- Performed customer analysis for marketing to find most profitable campaigns to run.
- Determined corporate customers that had low self-service levels. This helped us target them and in the end reduced cost inefficiencies.

Research Assistant • Aalto University, Systems Analysis laboratory Jun. 2019 – Sep. 2019

- Did my B.Sc. thesis during this time My thesis was involved in a larger study on enhancing combat simulation models with adversarial risk analysis.

Projects

Automatic portfolio optimization | *Python, Flask, Docker, HTML, Javascript, GCP*

- A tool to fetch given assets' adjusted closing prices from Yahoo Finance.
- Using the historical prices, optimize a portfolio with the assets weighted using the *Markowitz model*.
- Dockerized the tool, served it with Gunicorn and deployed with the Google Cloud Platfrom (GCP).

House price data scraper | *Python, Selenium, SQLite*

- A Python application using Object-Oriented Programming style that would scrape data on houses being sold on a large nationwide internet service for housing and real estate.
- Cleaned and processed the data using regex. The data was then stored in a SQLite database.

Finnish house & apartment prices EDA and prediction | *Python, Scikit-Learn, SQLite, Seaborn*

- Exploratory Data Analysis (EDA) on the scraped house data. Implemented a model to predict the price of a house given its several features like size and location.
- The EDA showed interesting insights on the underlying structure of the data; such as how houses near the center of Helsinki are older than houses far away.
- The prediction was done using a Extreme Gradient Boosting Regression model. The model performed quite well given the noisy data.

Skills

- Portfolio optimization
- Decision Analysis
- Statistical Inference
- Times Series Analysis
- Optimization
- Information Visualization
- Clustering
- Regression techniques

Technical Summary

Languages: Python, R, SQL, C, STAN, Scala
Technologies: RStudio, VS Code, Git, Jupyter, Docker, MS Office
Data Science: Pandas, Numpy, Scikit-learn, MatplotLib, Seaborn, Selenium, Tidyverse, ggplot2, RShiny, Flask, Cython