

MINGKUN(KEVIN) WANG

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EDUCATION

University of Toronto

Bachelor of Industrial Engineering

Focus in Applied Artificial Intelligence, Operations Research and Engineering Business

Pursuing Minor in Artificial Intelligence Engineering Minor and Engineering Business Minor

September 2017 - Present

CGPA: 3.85, SGPA: 3.9

RELEVANT EXPERIENCE

Intern - Data Scientist

June 2020 - Apr 2021, Unity Health Toronto

- Analyzed & proposed new medical resident schedule to reduce staff utilization by 10%
- Developed core functions & data pipelines for patient arrival forecasting dashboards
- Developed test scripts & reports for forecasting model/optimization model validation
- Deployed simulation model web app to optimize outpatient process at Providence Healthcare
- Paper *Analyzing Supply and Demand on a General Internal Medicine Ward: A Cross-Sectional Study* to be published on CMAJ Open

Financial Modelling - Projects

Jan 2020 - Present, University of Toronto

- Performed Data Cleaning and Modifying for real US stock data for stock analysis & comparison
- Implemented FamaFrench three-factor model and 3-dimensional PCA model to analyze the returns of stocks with 0.417 and 0.66 R-squared values respectively
- Implemented Online Portfolio Selection (OLPS) algorithms in Python

Algorithms - Artificial Intelligence

Jan 2020 - May 2020, University of Toronto

- Worked and implemented several famous artificial intelligence algorithms in different settings
- Designed & implemented DFS, BFS, Heuristic search in the game Sokoban
- Designed & implemented Constraint Satisfaction algorithms in the game Futoshiki
- Designed & implemented Game Tree algorithms in the game Reversi
- Designed & implemented BayesNet for probabilistic inference predictions
- Implemented & improved Rectangle, Supernal method for multiobjective knapsack optimization problem

Recognet - Computer Vision

Jan 2020 - May 2020, University of Toronto

- Aim to develop household safety system using camera and computer vision
- Designed and helped implement a VGG-16 autoencoder with binary classifier model
- Researched and implemented a PCA + SVM model as the baseline model
- Current model prediction accuracy reaches around 88%
- Looking to link models with camera to finish up the pipeline

SNACKKR Health App - Web Application *Sept 2019 - Dec 2019, University of Toronto*

- Built a personal health management application with basic health info, food tracking, and automated personalized food recommendation using Java and HTML
- Worked as project manager and chief Back-End developer to lead the team at all perspectives
- Modified and implemented information retrieval system and simple recommender system
- Utilized Github to coordinate & combine partial work all into a single project

Option Pricing Project - Machine Learning *May 2019 - Dec 2019, University of Toronto*

- Helped build deep regression neural network model to price American options
- Collected, cleaned and modified data(2 million) obtained from Wharton Research Data Services
- Performed data visualization (histogram, scatter plot, etc) using Matplotlib and Seaborn
- Performed Model Tuning for the best structure with 0.997 R-square and 0.81 Mean Absolute Error
- Tried Bayesian Inference learning to improve performance

Crime Rate Analysis - Statistical ML model *Sept 2019 - Dec 2019, University of Toronto*

- Collect 10 datasets from Kaggle, US Census Bureau, and National Center of Education Statistics
- Modify and merge datasets using Excel, SQL, and Python(NumPy, Pandas)
- Build regularized regression models to analyze the impacts of features on crime rate
- Use features from statistical models to build optimization model for resources allocation

Relational Database Project - SQL *Jan, 2019 - May, 2019 University of Toronto*

- Used MS Access(SQL DDL) and open datasets to construct a complex database
- Drew ER Diagram to visualize & analyze the structure of database with MS Visio
- Performed Normalization to decompose the database into simpler forms

Finance Integrative Project - Financial Analysis *April 2019, University of Toronto*

- Retrieved financial data from database and financial reports of focused company
- Calculated financial ratios and perform detailed current/future financial positions
- Predicted the trend of stock prices of focused company correctly before the next quarterly report

Marketing Plan - Competitive Strategy Analysis *November 2018, University of Toronto*

- Performed external analysis on smartphone sector of Apple on its relative position with competitors
- Performed internal analysis based on key success factors, Five-forces model, value-chain analysis, etc
- Analyzed and proposed the target market segment based on its products its properties
- Provided competitive strategy and potential risks based on analysis

TECHNICAL STRENGTHS

Modeling & Software

Python, R, SQL, Java, VBA, HTML, MATLAB (basics)

Analysis & Tools

GitHub, Latex, MS Office, Visual Studio, RStudio, Eclipse

ACADEMIC ACHIEVEMENTS

- MIE Undergraduate Summer Research Award (\$5700)
- University of Toronto Entrance Scholarship (\$5000)
- Engineering Economics Accounting 97 (A+)
- Fundamentals of Object-Oriented Programming (Java) 95 (A+)
- Probability 90 (A+)
- Design and Analysis of Information System 85(A)
- Statistics & Design of Experiments 88 (A)
- Data Modelling 87 (A)