Mehmet Erdem Coskun, M.A.Sc.

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PROFESSIONAL SKILLS

SQL, R, Python, SPSS, KNIME, Tableau, Power BI, Cognos, Qlik, CPLEX, GAMS, MATLAB, MS Access, MS Excel, Data Architecture, Data Engineering, Data Analytics, Data Modeling, Data Mining, Machine Learning, Predictive Analytics, Mathematical Modeling, Operations Research, Optimization, Supply Chain Management/Optimization, Inventory Optimization, Assortment Planning, Forecasting Demand, Linear and Nonlinear Programming, Algorithm Design, Solution Architecture/Engineering.

PROFESSIONAL EXPERIENCE

Senior Data Scientist   **11/2017 - Present**
Advanced Analytics and AI, Manulife / John Hancock

- **Fixed-Annuity Benefits, Quote Automation**: Designed an automated quote generation system for John Hancock Fixed-Annuity Business to generate daily quotes for their annuity participants based on their contract rules and retirement options. Available quote generation system used to generate a quote in one hour per participant. With the new automation, quotes can be generated for all the participants under all contract at the same time within seconds which saves more than $2M USD in 5 years in terms of quote generation time.
- **Life Insurance Claims Interest Prioritization Model**: Designed and productionized a workflow system to process high interest life insurance policies in a high-value-at-risk order instead of processing them with a first-in-first-out order. Using the new high-value-at-risk processing workflow system, John Hancock is saving $10M USD in interest. This project involved data extraction from different server\databases, pre-processing logic that would generate a work-in-progress list and a logic that would rank most important life insurance claims with a high-value-at-risk by applying all the Contract and State rules to the policies.
- **Suspense Accounts Transactions Matching:** Designed a logic that would match unmatched transactions within suspense accounts to balance them for Financial Control team. This project was to clear/balance the unmatched transactions within the Suspense Accounts as much as possible so that the manually matching of those in suspense would be minimal. This project involved identifying the possible issues for unmatched transactions and then designing a complex matching algorithm using important data fields within the dataset.
- **Annuities eDelivery:** Segmented John Hancock's annuitant customer base depending on their web registration/activity to the JH Annuities website and signing up for the e-Delivery options of the different paper statements/confirms for marketing e-Delivery purposes. This project involved high volumes of data extraction, complex logic building using web activity of those customers and customer segmentation.
- **Annuities Reclaim:** Investigated and identified the main reasons for overpayments to deceased customers after the company receives the death notification. This involved data deep dive into the workflow process of the annuity associates and their processing times of the policy items within the workflow (AWD) system.
- **Structured Settlements, Customer Segmentation:** Investigated and segmented customers who have sold part of their contracts to third party companies to identify the potential to sell their current contracts and\or remaining parts of their contracts. This involved a data deep dive into the structured payout schema.
- **Group Annuity Disbursement:** Segmented John Hancock's Group Annuity customer base for marketing EFT payments instead of Check payments. This project involved high volumes of data extraction and customer segmentation based on payment frequency and web registration\activity.
- **Inforce Life Policy Holders and Beneficiary identification:** Investigated and identified unique policies and their beneficiary registrations from raw data to decide which policy holders and beneficiaries have a consistent level of related individual level personal data. This involved detailed data cleaning and structuring based on raw semi-structured text data.

Data Scientist / Modeler   05/2013 – 10/2017

Modeling and Analytics, Assortment Planning, Canadian Tire Corporation

- Designed a supply chain optimization model for Reverse Flow (of products) process that is used for recycling the unproductive inventory in order to minimize all the costs related to recalling the products from individual stores and routing the unproductive inventory to relevant sources. Responsibilities included developing a mathematical optimization model, mathematical coding in IBM ILOG CPLEX Optimization Studio programming language, testing the model for small and large data sets, verification and implementation for production.
- Designed Store (both for Canadian Tire and Part Source Stores) Market Area Decision Process based on transaction data and thus applied data mining and data analytics techniques to manual postal code entry data by store cashiers. This project involved high level data collecting, cleaning, manipulating, mining, clustering and implementation of pre-defined business rules processes.
- Designed machine learning and predictive models to test and verify the store market area definitions to the rolling-12 month collected data. This project involved data modeling and machine learning algorithm (training, testing and scoring) implementation using various predictive algorithms such as decision trees, random forest, etc.
- Implemented Clustering algorithms to cluster similar behaving stores in terms of Vehicle Make-Model-Year visits using CoStar (store manual entry data collecting system especially using in service bays) data. This project involved implementing clustering algorithms and visualization on Google Maps API.
- Built a complex APAP Wave Performance Scorecard that reflects every aspect of the Forward Flow and Reverse Flow wave performance measures, Productive and Unproductive relations using detailed clusters, time periods and metrics using SPSS and Excel VBA. This project leaded to the highest level of reporting and Scorecard is currently being delivered to Managers, AVP and VP in a monthly basis.
- Developed a VBA in Excel to help the category business managers to choose the right parameters to assort the desired SKUs within their product category in Business Validation Tool (BVT). This project involved high level data transformation, data modeling using analytical tools and visual design skills.
- Implemented text mining and data analytics among several unrelated data sources using KNIME Text Mining Analytics Platform (e.g. text mining and text matching customer transaction data to industry vehicle data such as Stats Canada, Polk, Experian, etc.)
- Built a time-series model for a seasonal product category to test, compare and validate supply chain team's predictions.
- Designed "Good-Better-Best" product assortment logic and data model for forward flow recommendation process for Brake Pads and Rotors Businesses.
- Prepared structural databases to build complex data frames for team usage and provided complex business analytics, measures, visuals and insights from raw data for assortment planning management to make knowledgeable and data-driven decisions.
- Provided multi-set Venn diagram visualizations which points out the complex interactions among several labor service categories at service bays.
- Provided forecasts of "Unproductive vs. Productive Inventory" and "forward flow recommendations" (based on the lifecycle stage and sell-through of SKUs) every month for dealing with financial consequences of unproductive inventory and forward pushed SKUs against available budgets wisely.
- Built strong relationships with academia and prepared complex projects and related datasets every semester for McMaster University's MBA level Operations and Supply Chain Management Courses in order to solve Canadian Tire's complex supply chain problems.

Above mentioned projects are developed using a combination of complex machine learning, predictive analytics, data mining/analytics and optimization tools such as CPLEX Optimization Studio, SPSS, R, SQL, Python, KNIME Analytics, MS Access, Excel, Tableau, SQL Server Management Studio, DBVisualizer, DBeaver, etc.

EDUCATION

Doctor of Philosophy, Computational Engineering and Science   **2014 – Present**
McMaster University, Hamilton, ON / Canada

Majoring in Machine Learning, Predictive Analytics, Optimization and Operations Research Techniques and their application to real world problems.

Master of Applied Science, Computational Engineering and Science   **2010 – 2012**
McMaster University, Hamilton, ON / Canada

Merit Scholarship of the Turkish Ministry of National Education **Dissertation:** *Retailing Shelf Space Allocation Optimization: A Critical Review and a Model with Price Changes and Adjustable Shelf Heights*

Bachelor of Engineering, Industrial Engineering   **2002 – 2006**
Yildiz Technical University, Istanbul / Turkey