Desta A. Hailemariam, Ph.D.
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EDUCATION

PhD, Industrial and Systems Engineering, Binghamton University, State University of New York. May 2016
M.Sc., Industrial Engineering and Management, Production and Logistics Management track Aug. 2010
B.Sc., Industrial Engineering, Mekelle University, Ethiopia July 2006

COMPUTER/ SKILLS

Data Science and Programming Tools: R, Python, SQL, Java, VBA, Tableau, Spark, Hadoop Framework, Microsoft Azure, Matlab, SAS, Weka, HTML5, CSS, Minitab, Excel Pivot Table
Certificate: Lean Six Sigma Green Belt and other honor certificate
Methodology: Machine Learning (supervised and unsupervised learning), Text Mining and Social Media Analysis, Time-series and Forecasting, Data visualization, Simulation, Operations Research, Optimization, Process Improvement
Engineering Applications: Simio Simulation, ARENA Simulation, Expertfit, Quality Improvement, Process Improvement

EXPERIENCE

Data Scientist, IT-Informatics Development, Houston Methodist May 16 – Present

- Work closely with physicians, administrators, and other hospital staff to implement projects of clinical and business interests.
- Apply advanced predictive analytics on projects that focus on outcome measures, quality improvement, cost reduction, etc.
- Explore data from multiple sources of the hospital warehouse to conduct the analytics projects
- Projects involved:
    - Developing a model to predict whether a patient develops infection after surgery (R and Python)
    - Developing a system that predicts patient deterioration (R Shiny)
    - Analysis of HCAHP data – analysis of patient satisfaction survey (using R and Tableau)
    - Streamlining tumor registry processes
    - Pulling data from different EMRs to our central database

Project Lead/Contractor, VA Boston Healthcare Systems, Jan. 15 – Feb. 16

- Led a project that aimed in determine optimal staff mix for the New England VA anticoagulation clinics (ACCs).
- Used **R Shiny**, **HTML5**, and **CSS** semi-automated tool that calculates the optimal full-time equivalents of pharmacist and pharmacist technician required to run an ACC.
- Completed several side projects using **SQL, Python, and R**.
- Have taken several data science related courses edX and Coursera and completed projects using **R** and **Python**
- Developed a **Simio** simulation model to compare several staffing scenarios.

UHS Hospitals, Graduate Research Associate Jun. 14 – Dec. 14

1. *Hospital readmission prediction models*

- Applied various machine learning techniques (logistic regression, support vector machine, KNN) to develop hospital readmission risk prediction models to UHS patients using **R**.
- Published finding in a journal and a conference

2. *Productivity Improvement for UHS Urology*

- Conducted time study to collect data on patient waiting times and service times
- Developed a simulation model using **Simio** to analyze the wait time of patients and the staff productivity

Binghamton University, State University of New York, Teaching Assistant Aug. 12 – May. 14

- Assisted courses including Statistics, Multi-variate Data Analysis, Applied Soft Computing

Mekelle University, Ethiopia, Lecturer Sept. 10-Jul. 12

- Taught undergraduate courses including Operations Research and Quality Facility Management

Moxba Metrex bv, Netherlands, Intern Researcher Oct. 09-Aug. 10

- Applied pair-wise exchange improvement algorithm to solve the layout and dynamic programming based graph portioning algorithm to design the material flow network
- Designed the layout of the existing and new production facilities,
- Assessed the inefficiencies in the existing internal logistic processes
- Optimize the material flow network which resulted in 25% reduction of internal transportation costs.

Messebo Cement Factory, Ethiopia, Intern Researcher Oct. 05 – Aug. 06

- Assessed the quality system of the company
- Developing statistical control
- Using ARIMA models to forecast annual and monthly demands

Dissertation

Developed dynamic admission control protocols for hospital inpatient admission and for inter-hospital patient transfers

- Formulated Markov decision process based admission control model
- Solved the model in Matlab to obtain the optimal admission control threshold values
- Developed a fuzzy rule based patient transfer system that can help healthcare manager to make decision when to transfer patients to other hospitals.

HONORS AND AWARDS

- Certificate of appreciation in recognition of valuable contribution to New England VERC Feb. 2016
- Certificate of appreciation for participating in the System Science and Industrial Engineering Ambassadors Program 2014
- Activity and Society: Alpha Pi Mu Industrial Engineering Honor Society and Institute of Industrial Engineers 2013
- Prize for good research, Moxba-Metrex, Netherlands Aug. 10
- University of Twente Scholarship Program (UTSP) Jan. 08
- Distinction in Industrial Engineering, Mekelle University Jul. 06

Selected Graduate Level Courses

Coursera, edx, Edemy Courses

- Introduction to R Programming
- Introduction to Computer Science and Programming Using Python
- Practical Machine Learning
- Supervised Learning with Scikit-learn
- Tableau 9 for Data Science: Real-Life Data Science
- Text Mining, Scaping, and Sentiment Analysis with R
- Managing Big Data with MySQL
- Data Science and Machine Learning Essentials
- Querying with Transact-SQL

Binghamton University

- Multivariate Data Analysis
- Applied Soft Computing
- Fuzzy Sets, Fuzzy Logic, and Fuzzy Systems
- Industrial & Systems Engineering in Healthcare
- Advanced Issues in Quality
- Modeling and Simulation
- Processes for Electronics Manufacturing

University of Twente

- Statistics and Probability
- Empirical Research and Data Analysis
- Operation Research Methods
- Optimization of Healthcare Processes 2
- Discrete Optimization of Business Processes
- Supply Chain and Transportation Management
- Purchasing Management