Kim Eng Ky

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EDUCATION

Bachelor of Arts, Macalester College, Saint Paul, Minnesota — Sep 2012 – May 2016

- Majors/Minor: Applied Math & Statistics and Economics/Computer Science
- Cumulative GPA: 3.78 / 4.0
- Honors Thesis: How do changes in gasoline prices affect transit ridership in the twin cities?
- Relevant Coursework: Survival Analysis, Generalized Linear Mixed Models, Bayesian Statistics, Probability, Mathematical Modeling, Computational Linear Algebra, Collective Intelligence, Econometrics

AWARDS

- Metro Transit's Employee Recognition — Jul 2018
  For superior service to Metro Transit and its customers
- John M. Dozier Prizes in Economics — Apr 2016
  For demonstrated academic excellence.
- Omicron Delta Epsilon International Honor Society for Economics — 2015 – 2016
  For outstanding achievements in economics.

PUBLICATIONS

CONFERENCES

[1] Huting, J., Reid, J., Nwoke, U., Bacarella, E., and Ky, K.E. (2016). Identifying Factors That Increase Bus Accident Risk by Using Random Forests and Trip-Level Data. *Transportation Research Record: Journal of the Transportation Research Board*, (2539), 149-158.

PRESENTATIONS

POSTER PRESENTATIONS

[1] Huting, J., Ky, K. E., Lind, E., Freese, R., and Pansch, J. (2018). Understanding Public Transit Rider Satisfaction Using Clustering and Bayesian Regression Methods. *Transportation Research Board 97th Annual Meeting*, (No. 18-05209).

INVITED TALKS

[1] *MinneFRAMA*: Understanding public transit rider satisfaction using clustering and Bayesian methods — Dec 2018

[2] *Twin Cities R User Group*: Visualizing Transit Behavior Inventory Onboard Survey with R Shiny — Oct 2018

[3] *R Ladies Twin Cities Chapter*: Introduction to data.table — Oct 2018

[4] *Applied Probability and Statistics Seminar Series at University of St. Thomas*: Metro Transit Customer Satisfaction Survey - from data to conference poster — Mar 2018

[5] *R Ladies Twin Cities Chapter*: Introduction to R Shiny — Nov 2017

[6] *Beyond Mac Seminar Series at Macalester College*: Data Analysis at Metro Transit — Oct 2017

WORK EXPERIENCE

Senior Data Scientist, UnitedHealth Group, Minnetonka, MN — Aug 2018 – Present

- Introduce Git/Github to the team and manage the team's Github organization
- Collect and clean data using SAS, Hive and R
- Implement advanced statistical and machine learning methods including multilevel models, factor analysis, and principal component analysis to answer key business questions and make recommendations for improving UnitedHealthcare member experience

Data Scientist, Metro Transit, Minneapolis, MN — Feb 2017 – Aug 2018

- Received employee recognition award at the Transportation Committee meeting for superior service to Metro Transit and its customers
- Contributed to an internal R package including designing R Shiny application template, Shiny gadget for filtering spatial data, and functions to pull data from relational databases
- Designed, developed and maintained R Shiny applications to visualize spatial data, time series, regression analysis output, and survey data

- Performed monthly transit ridership forecasts at route-level and mode-level using Auto-Regressive Integrated Moving Average Model, Exponential Smoothing State Space Model, and Seasonal Decomposition of Time Series using Loess
- Developed and maintained internal weekly performance reports for bus routes affected by the construction on I-35W highway
- Analyzed survey data (e.g. Customer Satisfaction survey and Employee Engagement survey) using Partition Around Medoid clustering method and Bayesian logistic regression
- Estimated bus time budget (in-motion time, passenger dwell, and other delays) and reliability metrics (e.g. speed and travel time) using automatic vehicle location records

Research Analyst, The Brattle Group, Washington, DC Jul 2016 – Feb 2017

- Designed and ran Monte Carlo simulations on historical stock and bond returns to estimate expected returns for portfolios with different stock-to-bond ratios using Oracle Crystal Ball and visualize the results by making plots in R using *ggplot2*
- Reviewed and summarized legal documents, literature, and analyst reports
- Estimated quantity demanded based on price and price elasticity of demand derived from literature
- Audited spreadsheets, regression and data manipulation in R, and economic expert reports

Research Analyst Intern, Metro Transit, Minneapolis, MN May 2014 – May 2016

- Designed models and R Shiny apps to analyze transit ridership trends and forecasting which are used by analysts and schedulers across Metro Transit
- Presented the R Shiny apps to agency-wide audience
- Conducted intensive literature review and statistical analysis on bus accidents, on-time performance, and cross-price elasticities of transit ridership with respect to gasoline prices
- Identified and solved problems with missing values in the data
- Analyzed survey data, visualized the output, and wrote the summary and findings
- Developed models and visualization to explore bus speed at every hundredth of a mile

Survival Analysis Teaching Assistant, Macalester College, Saint Paul, MN Fall 2015

- Held weekly help sessions to assist students with understanding class materials
- Graded homework and lab assignments

Data Science TRAIn Lab Member, Macalester College, Saint Paul, MN Jan 2015 – Dec 2015

- Read, discussed and analyzed Machine Learning papers weekly
- Used spectral clustering to group S&P500 stocks based on their historical prices

Python Teaching Assistant, Macalester College, Saint Paul, MN Spring 2014

- Graded homework and lab assignments
- Assisted professor in answering students' questions during class time for three hours a week

Research Assistant, Economics Department, Macalester College, St. Paul, MN Sep 2012 – Oct 2014

- Researched using various databases to produce annotated bibliography for various topics
- Collected, compiled and cleaned data on real exchange rates for 25 different countries over a decade, U.S.-Mexico Imports and Exports, and U.S. Inputs-Outputs

COMPUTER SKILLS

Proficient: R, R Shiny, R Markdown, Microsoft Excel, LaTex, SQL, Git
Familiar: Python, Hive, SAS