Ankur Mathur
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Objective

To work as an analyst in finance, risk analysis, failure methods and probabilistic modeling, traffic forecasting, spatial analysis, and public transport for all clients in an organization that allows me to leverage my skills and education, and contribute effectively to its growth while providing opportunities for self-development.

Education

MS (Civil Engineering) | Cornell University, Ithaca, NY | GPA: 3.84/4
focusing on Transportation Systems and Mathematical Programming

B. Tech. (Civil Engineering) | Visvesvaraya National Institute of Technology, Nagpur, India | GPA: 9.47/10

Skills

Spatial Analysis: ArcGIS, QGIS | *Data Analysis:* Advanced MS Excel, R Studio, C++, SQL

Data Sources: US Census, Google Database | *Data Visualization* – Tableau, R Studio, Power BI, Kibana

Others – IMPLAN (public policy analysis), @RISK (Risk Assessment), NetLogo (Agent Based Modeling)

Employment

Cintra US – Traffic & Revenue Analyst (Austin, TX) **November 2017 – *present***

Below is a brief of a few projects I worked at Cintra:

January 2019 – present

Analysis of Project Robustness in Dallas and Toronto Managed Lanes

- Collected, analyzed, and visualized traffic and socio-economic data from US Census, Statistics Canada, TxDOT, TTC to simulate a future economic crisis
- Calculated financial robustness of managed lanes using cross-elasticities and lag-regression

Skills Used: Tableau, @RISK, Excel

January 2018 – present

Leveraging Connectivity to Increase Revenue on I-66 in Virginia

- Automate the data collation, variable reduction, and visualization processes. Designed and implemented a metric for flagging data quality issues.
- Calculated the feasibility of new access potentially increasing revenue by 30%

Skills Used: Tableau, SQL, QGIS, Excel, R Studio

May 2018 – January 2019

Increasing Highway Safety through Innovative Tolling along I-81, Virginia

- Analyzed traffic patterns along all entry and exit ramps along I-81 to measure vehicle type interference.
- Generated a discrete choice model from first principles. Innovative tolling strategy for heavy vehicles along road to reduce interference while also generating $3 billion over the concession period.

Skills Used: PowerBI, QGIS, Excel, MS Publisher

March 2018 – June 2018

Assessment of Road Safety as a Function of Traffic Control Designs Along Managed Lanes

- Researched the lane encroachment limits of different lane separation types
- Using Monte Carlo simulation, calculated the impact of three different alternatives – continuous barrier, flexible pylons, and free access, and presented a report on cost worthiness of pylons.

Skills Used: @RISK, Excel, R Studio

February 2018 – May 2018 **Predictive Modeling of Road Traffic Incidents along the Silver Metro Route in Los Angeles, CA**

- Studied, analyzed, and mapped road traffic incidents along I-10 and I-110 in Los Angeles, CA from Caltrans data. Created risk profiles for various intersections. Created risk models using traffic and speed data from field sensors along the route.

Skills Used: Tableau, QGIS, Excel

November 2017 – March 2018 **OD Analysis and Induced Demand Modelling for WestConnex Toll Road, Sydney, Australia**

- Created synergy between maps – transit modes, pedestrian usage, and road traffic. Performed origin-destination studies to study traffic patterns. Calculated induced demand to increase the revenue by 5%.

Skills Used: PowerBI, QGIS, Excel, R Studio

Below is a selection of some of the projects I worked in as a graduate student:

- **Predicting Demand of Bikes in London** using R-based ARMA Model. Collected, cleaned, partitioned and analyzed six years of data. ARMA model, coded in R, and tested. Prediction accuracy was 95%.
- **Input-Output Analysis for the Taxation of Transit Oriented Planning** using IMPLAN. Calculated the macroeconomic impact of taxing Hudson Valley counties in NY to pay for new transit facilities.
- **Modeling Segregation in Housing.** Performed detailed literature survey for establishing, and NetLogo code for validating the emergence principle in housing segregation using an agent-based model.

Previous Experience

June 2017 – August 2017 **Cornell University College of Human Ecology –** Designed data visualizations, made a Tableau dashboard using several data sources. Verified outputs from SAS models and performed parametric hypothesis tests.

July 2013 – July 2015 **Black & Veatch Pvt. Ltd**. – Designed steel structures for projects across different geographies in the field of power, oil & gas, and telecommunications.

June 2012 – July 2012 **Rail India Techno Economic Services** – (Intern) – Worked in a team to design horizontal alignment of an elevated rail corridor. Performed highway survey for the said alignment and produced drawing therefore.

Leadership

- **Graduate Teaching Assistant in Cornell University** for two courses – *Uncertainty Analysis*, and *Risk Analysis and Management*
- **Secretary**, Civil and Environment Engineering Graduate Student Association for 2016 - 2017
- **Magazine and Literary Affairs Secretary**, VNIT Students' Council 2012 – 2013

Certificates

Six Sigma (Green Belt) - Cornell University Systems Engineering Program, May 2016

Competent Leadership - Toastmasters International, October 2014

Competent Communicator - Toastmasters International, August 2014

MS Thesis

Quantifying Public Inconvenience in Incomplete Street Networks *(June 2017)* – Quantifying risk to urban street networks by studying the different centralities of various typologies. Then, to develop a risk profile based on RAND Corporation data. Further, developing an algorithm and program in R for the urban road networks to find

the excess travel distance under incomplete network condition and their link with topology. Produced several metrics based on travel distance, network inequity and carbon footprint.