Patricio F. Vicuna
Email: pv165@scarletmail.rutgers.edu

EDUCATION

City University of New York – City College
Ph.D. (C) in Civil Engineering in Transportation
Doctoral Dissertation by Fall 2021.
City University of New York – City College
Master in Philosophy in Civil Engineering in Transportation 2018
New York University
Advanced Diploma in Project Management, fall 2015.
Escuela Politécnica Del Litoral– Ecuador
Diploma in Data Mining - 2008
Escuela Politécnica Nacional – Ecuador
Master of Science in Operation Research, System Modeling of Logistic and Transportation – 2004
Escuela Politécnica Del Litoral - Ecuador
B.Sc. Statistics and Computer Science- 2000

SKILLS

- Vissim, Visum, Vistro, Spss, Excel, Sql Server, R, Stata, Eviews, Arcgis Esri, c++, Visual Basic .Net, Analysis Services Olap, Sql Server, Matlab, Mathematica, Octave, Php, Html, Syncro, Hcm Software, Microsoft Office, @risk, Power Bi, Python, R, Rtudio, Alteryx, PowerBI, Tableau.
- Completed courses in Traffic Engineering, Advanced traffic control devices, Urban Transportation Planning, Transportation Economics, for-hire transportation, Transportation Assets Management, Operation Research.

TRAINER EXPERIENCE

- **Instructor of Professional Practice at Rutgers University,** fall 2018 – present
  - Data Warehousing and Data Mining: spring 2019, spring 2020, fall 2020
  - Production Operation Management: fall 2018, spring 2019, spring 2020, fall 2020
- **Part Time Lecturer at Rutgers University,** fall 2016 – spring 2018
  - Data Warehousing and Data Mining, spring 2017, spring 2018
  - Production Operation Management, spring 2017, summer 2017, fall 2017, summer 2018, spring 2018
  - Management Information Systems, fall 2016
- **Trainer at City College Of New York -** 2015
  - Workshop in Microsimulation, Macro-simulation and Mesoscopic Simulation, Universal Transportation Model Simulation Center, Institute for Transportation Systems
- Development of Data Warehouse for Business Intelligence in Different Markets
  - Swissgas (Ecuador) (Airgas Company), sales data mart, Olap Cube from June 2012- December 2012.
- Developed the data warehouse and OLAP Cube for more than 20 companies in Ecuador; most of which are in the retail area. The most commons cubes developed were Sales, Finance, and Inventory: from 2004 until 2012
- Cartimex (Hardware and Software Company), financial data mart, Olap cube - 2009.
- Trainer At Universidad Estatal De Milagro– Ecuador
  - Data Warehousing and Business Intelligence, 2007-2008, Graduate Program of Management Information Systems.
  - Web development
- Trainer At Escuela Politécnica Nacional – Ecuador
  - Econometric, Multivariate Data analysis and Stochastic process, 2003

AWARDS

- NYMTC September 11 Memorial Program for Regional Transportation Planning, from **September 2016 to August 2017.**
  - NYC DOT Freight mobility - Alternative units:
  - To understand how the AVL works (Hunts Point Program), and WIM Database; and how the AVL devices and the WIM operate in the field, what kind of reports are needed for the Freight Mobility in decision making.
  - In parallel, also working on geospatial data analysis with the AVL&WIM raw datasets; Creation of a data warehouse in SQL Server 2016 and Visualization regarding the AVL & WIM data sets. Also collaborating in the data analysis for the Fast Lane grant proposal.

RESEARCH PAPER

- Transportation Research Board, Non-Stationary Time Series Model for Station Based Subway Ridership During Covid-19 Pandemic (Case Study: New York City), 12/2020.
- An estimation of the effects of social distancing measures on transit vehicle capacity and operations (submitted to the International Journal of Transportation Science and Technology) waiting for approval, 09/2020.

REPORTS

- University Transportation Research Center, Mobility Trends in New York City During COVID-19 Pandemic: Analyses of transportation modes throughout June 2020
- University Transportation Research Center, Mobility Trends in New York City During COVID-19 Pandemic: Analyses of transportation modes throughout May 2020
- University Transportation Research Center, Mobility Trends in New York City During COVID-19 Pandemic: Analyses of transportation modes throughout April 2020
- University Transportation Research Center, Mobility Trends in New York City During COVID-19 Pandemic: Analyses of transportation modes throughout March 2020

CONFERENCE PAPER

- A Generic and Flexible Geospatial Data Warehousing and Analysis Framework for Transportation Performance Measurement in Smart Connected Cities, Patricio Vicuna, S. Mudigonda, C. Kamga, K. Mouskos, C. Ukegbu, The 16th International Conference on Mobile Systems and Pervasive Computing (MobiSPC) August 19-21, 2019, Halifax, Canada, Elsevier, Computer Procedia.
-

PRESENTATIONS

- **"Hunts Point Clean Truck Program: Automatic Vehicle Location Data Visualization"**, NYMTC September 11 Memorial Program for Regional Transportation Planning and NYC DOT – Hunts Point Clean Truck Program, September, 24, 2017.
- **"Big data: Public Transportation and Bus Terminals"**, 1st International Forum, Fundación Terminal Terrestre De Guayaquil, Ecuador, September, 20, 2017.
- **"Transportation Data Analysis and Visualization Using Inrix Data for NYC DOT",** Institute of Transport Engineering (ITE) annual meeting August 20-23, 2018.
- **"Mobility Trends in New York City During COVID-19 Pandemic: Analyses of Transportation Modes Throughout June 2020",** Escuela Politécnica Del Litoral– Ecuador, November 27, 2020.

PROFESSIONAL DEVELOPMENT ACTIVITIES

Massachusetts Institute of Technology

- APPLIED DEEP LEARNING BOOT CAMP, January 2020
- Certification: Machine Learning: Implementation in Business, Issued Date 12/04/2019

Coursera - Google

- End-to-End Machine Learning with TensorFlow on GCP, 3 weeks of study, 8 - 10 hours per week, 12/31/2019
- How Google does Machine Learning, 1 week of study, 8-10 hours/week, 01/14/2020

Microsoft Professional Program, Data Science Certificate, 01/18/January 2019

1. (Microsoft Professional Orientation : Data Science , 06/30/2017
2. Querying with Transact-SQL, *06/29/2017*
3. Principles of Machine Learning, 09/30/2017
4. Analyzing and Visualizing Data with Power BI, *12/31/2017*
5. Analyzing Big Data with Microsoft R Server, 12/*31/2017*
6. Applied Machine Learning, *03/30/2018*
7. Data Science Essentials, *03/30/2018*
8. *Ethics and Law in Data and Analytics, 12/30/2018*
9. Analytics Storytelling for Impact, *12/30/2018*
10. Essential Math for Machine Learning: Python Edition, *12/30/2018*
11. *Professional Capstone: Data Science, 12/30/2018*

CONFERENCE ATTENDANCE

- Transportation Research Board 2016, January, 2016.
- Transportation Research Board 2017, January, 2017.
- Transportation Research Board 2018, January, 2018.
- Future of the Taxi Medallion System & For-hire Services in a Disruptive Technology World, June 27, 2017
- MSIS Department Seminar: Learning and Planning in the Data-to-Deployment Pipeline, Thursday, November 19, 2020

EXPERIENCE

2017-2019

- Epsilon 05/16/2021-Current
  - *Director of Data Science (Contractor)*
- GAF Corporation, 05/06/2019 – 05/15/2021
  Lead Data Scientist
  - Main activities: Data Science, Geospatial Data Analysis, data modeling, Big Data Analysis, construction of machine learning and ensemble models.
- Transportation Specialist, New York City Department of Transportation, 10/01/2017- 05/03/2019.
  Highway Transportation Specialist
  - Main activities: Transportation Data Science, Geospatial Data Analysis, Traffic Engineering, Transportation modeling, Streetlight analysis, Big Data Analysis.

2005-2017

- Traffic Study in Wolf Road Corridor (Troy, Albany, NY) under UTRC (CUNY and RPI University) research Project
- Lane Closure Model for New Jersey State under UTRC - NJIT/CUNY with the supervision of NJDOT
- Traffic Studies and Highway Study for the New International Airport at Daular, Guayaquil, Ecuador. Worked on the new Highway to the New International Airport of Guayaquil (NAIG) project at Daular Guayaquil-Ecuador.
- Developed a Regional Transportation Model for Guayas area in Ecuador, which includes the deep-water port area.

- Carried out Mobility and Accessibility transportation planning for the New International Airport of Guayaquil, Guayas-Ecuador. Used the 4-step model. (trip generation, trip distribution, modal split, and traffic assignment) to forecast and estimate the cost benefit of the project.
- Study for Regional Planning for the construction of a new Bus Terminal in the *North* of Guayaquil. This bus terminal will receive at least 10 thousand passengers per day in average.
- Study for Regional Planning for the construction of a new Bus Terminal in the *West* of Guayaquil, for the regional model, I used VISUM the 4-step model. (trip generation, trip distribution, modal split, and traffic assignment), this bus terminal will receive an average of 10 thousand passengers per day.
- Partner Sales of PTV for Ecuador: collaborated with PTV America Latina in the Simulation model for 5 main corridors in Quito, Ecuador.
- Access Management for the new deep water Port in Posorja, Ecuador under Consulting Group CVA to DPWorld from Dubai, U.A.E. Ground transportation analysis, accessibility, and mobility to the project location.
- Access Management Study for the new international airport Daular, Ecuador under Consulting Group CVA to Leigh Fisher of USA.
- Ground Transportation Analysis accessibility and mobility to the project location. Transportation planning for the new international airport Daular, Ecuador under Consulting Group CVA to Maser Consulting group from USA.
- Director of Transportation Planning of Guayaquil Ecuador: Guayaquil is a city with a population of 3.5 million habitants with half a million vehicles. As Director of Transportation, I executed the following task with a team of collaborators:
- Traffic planning, traffic calming projects for the CBD and neighborhoods / Traffic signal optimization projects in the main corridors of the city / Traffic simulation using Vissim/ Synchro/ Vistro.
- Technical part for the municipal ordinance for freight mobility in the City
- Supervise and monitor the Transportation Master Plan of Guayaquil / Cost benefit analysis to allocate funds for new transportation projects.
- Traffic and Transit study in the Bus terminal of Guayaquil. (The bus terminal of Guayaquil receives 60 thousand passengers per day in average).
- Traffic and transit safety study for the construction of a new fly-over road in the main freight corridor (Av. Perimetral and Casuarina) of Guayaquil, Ecuador.
- Traffic Safety and Work Zone Study for the construction of the Bus Rapid Transit corridor / Trunk 4 and 5 in Guayaquil, Ecuador.
- Travel demand Study for 15 cities in Ecuador, under the supervision of the National Transportation Agency of Ecuador (ANT). The goal of this study was to estimate the number of taxis that each city needs.
- Master Plan for the Urban development of Guayaquil, topic: Mobility and accessibility.
- Traffic Study for the main access corridors for the Bus Terminal of Guayaquil
- President of the Ecuadorian Statistical Association; Promoting the practice and profession of Statistics in the Country