

Lokesh Kumar Kalahasthi, Ph.D.

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Education

- Ph.D. Transportation Engineering, Rensselaer Polytechnic Institute, Troy, NY, USA.
Dissertation Title: Freight Demand Synthesis with Mode Choice-A Combined Estimation Procedure 2018
Advisor: Prof. José Holguín-Veras
- Integrated, Bachelor and Master of Technology in Civil Engineering, IIT Madras, India.
Dissertation Title: An Analysis of Effect of Migration on Infrastructure 2010
Advisor: Prof. Umakant Dash

Research Interests

Transportation Planning: Developing mathematical models for trip generation, distribution, origin-destination synthesis, network assignment, to assist the public/private agencies in planning infrastructure investments.

Transportation Economics: Data analysis, estimation and forecasting of various transportation phenomena (flows, costs, travel times, etc.) using advanced statistical and econometric models, discrete choice modeling, game theory.

Freight Transportation: Freight demand management, freight generation and trip generation, freight mode choice, estimation of costs, freight demand synthesis.

Mathematical Optimization: Application of linear, non-linear, integer, and combinatorial programming techniques in solving transportation problems.

Publications

Journal Articles

- Holguín-Veras, J., S. Campbell, **L. Kalahasthi**, and C. Wang. Role and Potential of a Trusted Vendor Certification Program to Foster Adoption of Unassisted Off-Hour Deliveries. *Transportation Research Part A: Policy and Practice*, Vol. 102, No. 2017, pp. 157-171.
- Holguín-Veras, J., T. Encarnación, C.A. González-Calderón, J. Winebrake, C. Wang, S. Kyle, N. Herazo-Padilla, **L. Kalahasthi**, W. Adarme, V. Cantillo, H. Yoshizaki, and R. Garrido. Direct Impacts of Off-hour Deliveries on Urban Freight Emissions. *Transportation Research Part D: Transport and Environment*, Vol. 61, No. 2018, pp. 84-103.
- Holguín-Veras, J., S. Campbell, C.A. Gonzalez-Calderon, D. Ramirez-Rios, **L. Kalahasthi**, F. Aros-Vera, M. Browne, and Sanchez-Diaz. Importance and Potential Applications of Freight and Service Activity Models. *City Logistics I: New Opportunities and Challenges*, E. Taniguchi and R.G. Thompson, Editors. 2018, ISTE Ltd and John Wiley & Sons, Inc. p. 45-63.
- Holguín-Veras, J., S. Hodge, J. Wojtowicz, C. Singh, C. Wang, M. Jaller, F. Aros-Vera, K. Ozbay, M. Marsico, A. Weeks, M. Replogle, C. Ukegbu, J. Ban, M. Brom, S. Campbell, I. Sánchez-Díaz, C.A. González-Calderón, A. Kornhauser, M. Simon, S. McSherry, A. Rahman, T. Encarnación, X. Yang, D. Ramirez-Rios, **L. Kalahasthi**, J. Amaya-Leal, M. Silas, B. Allen, and B. Cruz. The New York City Off-Hour Deliveries Program: A Business and Community-Friendly Sustainability Program. *Interfaces*, Vol. 48, No. 1, 2018, pp. 70-86.
- Campbell, S., J. Holguín-Veras, D.G. Ramirez-Rios, C.A. González-Calderón, **L. Kalahasthi**, and J. Wojtowicz. Freight and service parking needs and the role of demand management. *European Transport Research Review*, Vol. 10, No. 2, 2018, pp. 47.
- Holguín-Veras, J., T. Encarnación, D. Ramirez-Rios, S. Perez-Guzan, **L. Kalahasthi**, I. Sánchez-Díaz, C. González, and X. He. A Multi-Class Tour-Flow-Model and its Role in Multi-Class Freight Tour Synthesis, *Transportation Science*, 2019 (in print)
- Holguín-Veras, J., **L. Kalahasthi**, S. Campbell, and C. Gonzalez-Calderon (2019). Freight Mode Choice: Results from a Nationwide Qualitative and Quantitative Research Effort. *Transportation Research Part A: Policy and Practice* (Submitted)

Book Sections

- Holguín-Veras, J., S. Campbell, C.A. Gonzalez-Calderon, D. Ramirez-Rios, **L. Kalahasthi**, F. Aros-Vera, M. Browne, and Sanchez-Diaz. Importance and Potential Applications of Freight and Service Activity Models, *City Logistics I: New Opportunities and Challenges*, E. Taniguchi and R.G. Thompson, Editors. 2018, ISTE Ltd and John Wiley & Sons, Inc. p. 45-63.

Working Papers

1. **Kalahasthi L.**, J. Holguín-Veras, J. Mitchell, S. He, W. Yushimito (2019). Freight Demand Synthesis with Mode Choice: A Combined Estimation Procedure (writing in progress).
2. Holguín-Veras J., **L. Kalahasthi**, D. Ramirez-Rios, S. Campbell (2019). Service Trip Attraction in Commercial Establishments (submitted).
3. Holguín-Veras J., **L. Kalahasthi**, D. Ramirez-Rios, S. Campbell (2019). Parking simulation for Service Trip Attractions using Duration Models (writing in progress).
4. Holguín-Veras J., **L. Kalahasthi** (2019). Spatial and Temporal Patterns of Freight Productions using the Confidential Commodity Flow Survey Micro-Data (writing in progress).
5. Holguín-Veras J., **L. Kalahasthi**, A. Ismael, W. Yushimito (2019). An Investigation of Freight Generation and Freight Trip Generation Patterns in Bangladesh (writing in progress).
6. Holguín-Veras J., **L. Kalahasthi**, A. Ismael, W. Yushimito (2019). An Application of Multi-commodity Freight Demand Synthesis to Analyze Freight Movements in Bangladesh (writing in progress).

Project Reports

1. Holguín-Veras J, T. Encarnacion, C.A. Gonzalez-Calderon, V. Cantillo, H. Yoshizaki, R. Garrido, **L. Kalahasthi**, S. Kyle. *Methodology to Analyze and Quantify the Impacts of Congestion on Supply Chains in Latin-American Cities*. pp. 1-76: Inter-American Development Bank, Infrastructure and Environment Sector, Transportation Division; 2016:1-76.
2. Holguín-Veras J, Wang C, **L. Kalahasthi**, C.A. Gonzalez-Calderon, Z. Wei. *Strategic Highway Research Program (SHRP2) Implementation Assistance Program: Innovative Local Freight Data*. Capital District Transportation Committee; 2016:1-56.
3. Holguín-Veras J, C. Lawson, C. Wang, M. Jaller, C.A. González-Calderón, S. Campbell, **L. Kalahasthi**, J. Wojtowicz, D. Ramirez-Rios. *NCFRP Report 37: Using Commodity Flow Survey Microdata to Estimate the Generation of Freight, Freight Trip Generation, and Service Trips: Guidebook*. NCHRP/NCFRP. Washington, D.C. Transportation Research Board; 2017.
4. Holguín-Veras J, S. Campbell, **L. Kalahasthi**, 2017. "Use of Freight Production Functions to Identify Outliers in the Commodity Flow Survey Data" CES Technical Notes Series 17-08, Center for Economic Studies, U.S. Census Bureau.
5. Holguín-Veras, J, C. Wang, **L. Kalahasthi**, S. Campbell, M. Lawrence, J. Skolnik, I. Silvergleit, C.A. Gonzalez-Calderon, J. Wojtowicz, D. Ramirez-Rios, M. Arrieta-Prieto, O. Calderon-Quevedo, and S. Perez-Guzman. *NCFRP 44 Final Report: Impacts of Policy-Induced Freight Modal Shifts*. NCHRP/NCFRP, Transportation Research Board, 2018 (in review).
6. Holguin-Veras, J., **L. Kalahasthi**, W. Yushimito, A. Ismael, J. Ng and C. Rivera-Gonzalez (2018). *Bangladesh Freight Study*. The World Bank: 1-151 (in review).

Presentations

1. **Kalahasthi L.**, Holguín-Veras J, Mitchell J, Encarnacion T: *Optimization of Rail/Road Intermodal Transportation Systems*. INFORMS Annual Meeting, Philadelphia, PA, November 2015.
2. **Kalahasthi L.**, Holguín-Veras J, Campbell S, González-Calderón CA: *Key Factors Influencing Freight Mode Choice: Insights from In-Depth Interviews*. Transportation Research Board Annual Meeting, Washington DC, January 2016.
3. **Kalahasthi L.**, Holguín-Veras J, Mitchell J: *A Multi-Commodity Intermodal Traffic Assignment between Rail and Truck*. INFORMS Annual Meeting, Nashville, TN, November 2016.
4. **Kalahasthi L.**, Holguín-Veras J, Mitchell J: *Freight Demand Synthesis (FDS) including Modal Split-A Combined Estimation Procedure*. 21st Conference of the International Federation of Operational Research Societies, Quebec City, Canada, July 2017.
5. **Kalahasthi L.**, Holguín-Veras J, Campbell S, González-Calderón CA: *Freight Mode Choice Modeling using the Commodity Flow Survey (CFS) and Longitudinal Business Data (LBD)*. Annual Conference of the Federal Statistical Research DATA CENTERS (FSRDC) on "BIG DATA". UCLA, CA, September 2017.
6. **Kalahasthi L.**, Holguín-Veras J, Campbell S, González-Calderón CA: *Factors Influencing Freight Mode Choice: Insights from In-Depth Interviews*. 7th METRANS International Urban Freight Conference, Los Angeles CA, October 2017.
7. **Kalahasthi L.**, Holguín-Veras J, Mitchell J: *Freight Demand Synthesis (FDS) including Modal Split-A Combined Estimation Procedure*. 7th METRANS International Urban Freight Conference, Los Angeles CA, October 2017.
8. **Kalahasthi L.**, Holguín-Veras J, Mitchell J: *Freight Demand Synthesis (FDS) including Modal Split: A Combined Estimation Procedure*. INFORMS Annual Meeting, Houston, TX, November 2017.
9. **Kalahasthi L.**, Holguín-Veras J, Campbell S, González-Calderón CA, Ramirez-Rios DG, Lawson CT, Wojtowicz J: *Freight and Service Parking Needs and the Role of Demand Management*. Transportation Research

Board Annual Meeting, Washington DC, January 2017.

10. **Kalahasthi L.**, Holguín-Veras J, Encarnación T, González-Calderón CA, Winebrake J, Kyle S, Herazo-Padilla N, Adarme W, Cantillo V, Yoshizaki H, Garrido RA: *Direct Impacts of Off-Hour Deliveries on Urban Freight Emissions*. Transportation Research Board Annual Meeting, Washington DC, January 2017.
11. **Kalahasthi L.**, Holguín-Veras J, Ramirez-Rios DG, Campbell S, González-Calderón CA, Wojtowicz J: *Quantification of Freight and Service Activity Trends in the Cities*. Transportation Research Board Annual Meeting, Washington DC, January 2018.
12. **Kalahasthi L.**, Holguín-Veras J, Campbell S, González-Calderón CA: *Freight Mode Choice Modeling using the 2012 Commodity Flow Survey (CFS) And Longitudinal Business Data (LBD)*. 5th Biennial Marine Transportation System Research and Technology Conference. Washington DC, May 2018.
13. **Kalahasthi L.**, Holguín-Veras J, Mitchell J: *Freight Demand Synthesis (FDS) including Modal Split: A Combined Estimation Procedure*. VREF PhD and Younger Researchers Workshop, Dar Es Salaam, Tanzania, June 2018.
14. **Kalahasthi L.**, Holguín-Veras J, Yushimito W, Ismael A, Ng J, Rivera-Gonzalez C: *Bangladesh Freight Study*. Volvo Research and Educational Foundations Advanced Studies Institute on Sustainable Urban Freight Systems, Troy, NY, August 2018.
15. **Kalahasthi L.**, Holguín-Veras J, Mitchell J: *Freight Demand Synthesis (FDS) including Modal Split: A Combined Estimation Procedure*. INFORMS Annual Meeting, Phoenix, AZ, November 2018.
16. **Kalahasthi L.**, Holguín-Veras J, Yushimito W, Ismael A: *A Combined Data Collection, Modelling Approach to Estimate Freight Generation in Bangladesh*. Transportation Research Board Annual Meeting, Washington DC, January 2019.

Research Projects (completed)

1. Strategic Highway Research Program (SHRP2-C20). Freight Demand Modeling, Data Improvement, and Preparation of Dynamic Freight Data
 - Collected and combined freight data from various sources (CFS, FAF, Truck counts, E-ZPass, Weight-in-Motion) to prepare a dynamic freight database for the Capital District Transportation Committee (CDTC).
2. Inter-American Development Bank. Methodology to Analyze and Quantify the Impacts of Congestion on Logistics Costs in Latin-American Cities
 - Prepared a software that inputs the GPS data to estimate the emissions (CO, CO₂, NO_x, etc.) for different truck types, models, year of make, and speeds.
 - Prepared technical report on survey methodology and cost estimation procedures.
 - This research is the part of finalist in the 2017 INFORMS Franz Edelman Competition.
3. NCFRP. Project 25: Freight Trip Generation and Land Use
 - Estimated freight trip generation, freight generation, and service trip attraction models.
 - Estimated freight production models using commodity flow survey microdata 2007.
 - Prepared the final report.
4. The US Census Bureau. Use of Freight Production Functions to Identify Outliers in the Commodity Flow Survey Data
 - Processed the CFS, and LBD microdata for four years (1993, 97, 2002, and 2007).
 - Identified the outliers in the CFS data, prepare the data ready for freight modeling purposes.
 - Provided guidelines to the Census Bureau to improve the freight data collection process.
5. The World Bank Group. Bangladesh Freight Study
 - Designed a survey and sampling procedure to collect freight data in Bangladesh.
 - Estimated freight generation, freight trip generation and freight origin destination synthesis models (single and multi-commodity) for regional freight movement in Bangladesh.
 - Performed economic evaluation of various infrastructure projects.
6. NCFRP. Project 44: Impacts of Policy-Induced Freight Modal Shifts
 - Conducted and analyzed the in-depth interviews with shippers, carriers and receivers on factors influencing freight mode choice decisions.
 - Estimated freight mode choice models using truck, rail modal attribute data, and Confidential 2012 Commodity Flow Survey (CFS) Micro-data for the first time in the US.
 - Performed Numerical experiments using 2012 CFS public-use microdata.
7. Spatial and Temporal Freight Production Models
 - Estimate econometric models to analyze the spatial and temporal changes in the freight production patterns of various industry sectors (NAICS) using the Confidential Commodity Flow Micro-data for years 1993, 1997, 2002, 2007 and 2012.

Computer Skills

Programming Languages/Solvers: MATLAB, Visual Studio, AMPL, GAMS, IBM-Ilog, Cplex, Knitro.

Software Packages/CMS: STATA, N-Logit, Trans-CAD, HDM-4, AutoCAD, Civil 3D, Microsoft Project, Microsoft Office, Wordpress, and Joomla.

Teaching Experience

1. Teaching Assistant, *Strength of Materials*, Rensselaer Polytechnic Institute, Spring 2015
2. Teaching Assistant, *Strength of Materials*, Rensselaer Polytechnic Institute, Fall 2015
3. Teaching Assistant, *Capstone Design*, Rensselaer Polytechnic Institute, Spring 2016
4. Invited Lecturer, *Transportation Economics*, Rensselaer Polytechnic Institute, Spring 2016
5. Teaching Assistant, *Transportation Systems Planning*, Rensselaer Polytechnic Institute, Fall 2016
6. Teaching Assistant, *Strength of Materials*, Rensselaer Polytechnic Institute, Fall 2017
7. Teaching Assistant, *Transportation Systems Planning*, Rensselaer Polytechnic Institute, Fall 2017

Industrial Experience

Assistant Manager in Jindal Power Limited, Raigarh, CG, India (July 2010-May 2012)

- Worked in planning and monitoring division of the construction of a power plant of capacity 4x600MW

Junior Implementer at Realization Technologies, Mumbai, India (May 2012-May 2013)

- Implementation of infrastructure projects using critical chain project management techniques.

Societies and Affiliations

1. Member, Transportation Research Board
2. Member, Federal Highway Administration: Freight Planning Committee
3. Member, The Institute of Operations Research and the Management Sciences
4. Member, Women in the Transportation, NY Chapter.
5. Reviewer, Networks and Spatial Economics
6. Reviewer, Transportation Research Record
7. Reviewer, Transport Problems
8. Reviewer, Transportation Research Part E: Logistics and Transportation Review

Sports and Other Activities

Isshinryu Karate, RPI, Troy (Aug-13 to Present)

Black Belt (Sho-Dan)

- Pursuing the training to become a certified teacher (Sensei)

Cricket Club, RPI, Troy (2014 to 2019)

Other sports/games: Racquetball, Marathons, Swimming, Chess

Languages

Spoken: English, Hindi, Telugu and Tamil.

Written: English, Hindi, and Telugu.

Fellowships, Awards and Distinctions

1. Selected for TRB Freight Systems and Marine Young Members Council (YMC-FM) Freight and Marine “Work-in-Progress” Lightning Talks and Poster Session Washington DC, January 2019.
2. Selected for the Student Honor Panel for the fifth Biennial Marine Transportation System Conference at National Academy of Sciences, Washington DC, January 2018.
3. The INFORMS Franz Edelman Finalist Award (2017) for Achievement in Operations Research and the Management Sciences for Off-Hour Delivery Project in New York City.