

# Kitae Jang

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## EDUCATION

Ph.D. Candidate, Civil and Environmental Engineering, University of California, Berkeley *Aug 2006 – Present*  
- Minors: Economics and Public Health  
M.S. Civil and Environmental Engineering, University of California, Berkeley *May 2005*  
B.S. Civil Engineering, Hanyang University, Seoul, Korea *Aug 2004*  
- Exchange Program, University of New South Wales, Sydney, Australia *Aug 2003 – Aug 2004*

## RESEARCH INTERESTS

- Traffic Flow Theory
- Transportation Operations and Control
- Transportation for Healthy/Safe Communities
- Sustainable Transportation
- Congestion Pricing (HOV/HOT Lane)
- Travelers' Behavior

## RESEARCH EXPERIENCE

*Graduate Student Researcher*, California Partners for Advances Transit and Highway (PATH) *Richmond, CA*  
- Project: Augmented Speed Enforcement *May 2010 – Present*  
- Project: High-Occupancy Vehicle (HOV) System Analysis Tools: Statewide HOV Facility Performance Analysis  
- Project: Strategies for Deploying Commercial Vehicle Weigh Stations to Enhance Enforcement Efficiency and Improve Highway Safety

*Graduate Student Researcher*, University of California Transportation Center (UCTC) *Berkeley, CA*  
- Project: Evaluation of Traffic Safety in Sprawl and Urban Growth in California Metropolitan Areas *Sep 2009 – Present*

*Graduate Student Researcher*, University of California Transportation Center (UCTC) *Berkeley, CA*  
- Project: Experiments to Improve the Benefits of Freeway Carpool Lanes *Sep 2008 – May 2010*

*Graduate Student Researcher*, California Partners for Advances Transit and Highway (PATH) *Richmond, CA*  
- Project: California-PATH Networked Traveler Project *Jul 2008 – Aug 2008*

*Graduate Student Researcher*, University of California Berkeley Traffic Safety Center *Berkeley, CA*  
- Project: A Comparative Safety Study of Limited versus Continuous Access High-Occupancy Vehicle (HOV) Facilities *May 2006 – Present*  
- Project: Reducing Accidents Involving Driver Fatigue *Sep 2007 – Aug 2008*  
- Project: Evaluation of Wet Weather Accident Causation Criteria *Sep 2006 – Aug 2007*  
- Project: Quantifying the Performance of Countermeasures for Collision Concentrations Related to Ramp/Freeway Mainline Junctions *Jan 2006 – Aug 2007*

*Research Assistant*, Hanyang University *Seoul, Korea*  
- Project: High Performance/Strength Concrete Quality Control System *Sep 2004 – Jul 2005*

## ACHIEVED JOURNAL PUBLICATION

1. Chung, K., Jang, K., Madanat, S. and Washington, S., Proactive Detection of High Collision Concentration Locations, Submitted for *19<sup>th</sup> International Symposium of Transportation and Traffic Theory*, Berkeley, CA. **(Accepted, Also accepted for *Transportation Research Part A*)**
2. Cassidy, M.J., Jang, K. and Daganzo, C.F., Macroscopic Fundamental Diagrams for Freeway Networks: Theory and Observation, Submitted for *Transportation Research Record: Journal of the Transportation Research Board*. **(Accepted)**
3. Wu, G., Du, Y., Jang, K., Chan, C. and Boriboonsomsin, K., Comparison of Operational Performance between Different Types of HOV Facilities in California: Continuous-Access vs. Limited-Access, Submitted for *Transportation Research Record: Journal of the Transportation Research Board*. **(Accepted)**
4. Cassidy, M.J., Jang, K. and Daganzo, C.F. (2010) The Smoothing Effect of Carpool Lanes on Freeway Bottlenecks, *Transportation Research Part A*, Vol. 44 (2), pp. 65-75.
5. Cassidy, M.J., Daganzo, C.F., Jang, K. and Chung, K. (2009) Spatiotemporal Effects of Segregating Different Vehicle Classes on Separate Lanes, *18<sup>th</sup> International Symposium of Transportation and Traffic Theory*, Hong Kong.
6. Jang, K., Chung, K., Ragland, D.R. and Chan, C. (2009) Safety Performance of High-Occupancy Vehicle Facilities: Evaluation of HOV Lane Configurations in California, *Transportation Research Record: Journal of the Transportation Research Board*, Vol. 2099, pp.132-140.

## PUBLICATION UNDER REVIEW

1. Jang, K. and Chan, C., Traffic Congestion and Collision Concentration – A Case Study of California Freeways, Submitted for *Journal of Intelligent Transportation Systems*.
2. Chung, S., Yu, J., Song, K. and Jang, K., A Monte Carlo Simulation-Based Approach for Modeling Stochastic Road Traffic Demand, Submitted for *Korean Society of Civil Engineers (KSCE) Journal of Civil Engineering*.
3. Jang, K., Kang, S., Seo, J. and Chan, C., Cross-Section Designs for the Safety Performance of Buffer-Separated High-Occupancy Vehicle (HOV) Lanes, Submitted for *Journal of Transportation Engineering*.
4. Jang, K., Kim, D., Chung, S. and Song, K., Heterogeneous Travelers' Perception in Green House Gas (GHG) Tax, Submitted for *International Journal of Sustainable Transportation*.

## REFEREED CONFERENCE PROCEEDINGS

1. Jang, K., Kang, S., Seo, J. and Chan, C. (2011) Cross-Section Designs for the Safety Performance of Buffer-Separated High-Occupancy Vehicle (HOV) Lanes, *90<sup>th</sup> Annual Meeting of Transportation Research Board, Washington D.C.*
2. Cassidy, M.J., Jang, K. and Daganzo, C.F. (2011) Macroscopic Fundamental Diagrams for Freeway Networks: Theory and Observation, *90<sup>th</sup> Annual Meeting of Transportation Research Board, Washington D.C.*
3. Du, Y., Jang, K. and Chan, C. (2011) Demand Shifts and Their Effects on Traffic Congestion due to Toll Changes on Bridges in San Francisco Area, *90<sup>th</sup> Annual Meeting of Transportation Research Board, Washington D.C.*
4. Wang, H., Jang, K., Chan, C. and Shi, Z. (2011) Multi-level Mixed-effects Regression Model for Truck Collisions, *90<sup>th</sup> Annual Meeting of Transportation Research Board, Washington D.C.*
5. Chung, K., Jang, K., Oum, S., Kim, Y. and Song, K. (2011) Investigation of Attributes of Kinematic Waves Preceding Traffic Collisions, *90<sup>th</sup> Annual Meeting of Transportation Research Board, Washington D.C.*
6. Wu, G., Du, Y., Jang, K., Chan, C. and Boriboonsomsin, K. (2011) Comparison of Operational Performance

- between Different Types of HOV Facilities in California: Continuous-Access vs. Limited-Access, *90<sup>th</sup> Annual Meeting of Transportation Research Board, Washington D.C.*
7. Kang, S., Jang, K. and Bigham, J.M. (2011) Integration of California's SWITRS and TASAS Databases using Geographic Information Systems for the Analysis of Intersection-Related Collisions, *52<sup>nd</sup> Transportation Research Forum, Long Beach, CA.*
  8. Kim, D., Jang, K., Chon, K. and Lee, S. (2010) Impacts of Green House Gas (GHG) Tax on Reducing Green House Gas Emissions: A Case Study in Seoul, Korea, *19<sup>th</sup> Intelligent Transportation Systems (ITS) World Congress, Busan, Korea.*
  9. Wang, H., Jang, K. and Chan, C. (2010) Analysis and Multi-Level Modeling of Truck Freight Demand, *Strategic Highway Research Program 2 (SHRP2) Freight Modeling and Data Symposium, Washington D.C.*
  10. Jang, K. and Chung, K. (2010) A Dynamic Congestion Pricing Strategy for High-Occupancy Toll Lanes, *89<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*
  11. Jang, K., Park, S., Chung, S. and Song, K. (2010) Influential Factors on Level of Injury in Pedestrian Crashes: Applications of Ordered Probit Model with Robust Standard Errors, *89<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*
  12. Yeo, H., Jang, K. and Skabardonis, A. (2010) Impact of Traffic States on Freeway Collision Frequency, *89<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*
  13. Bigham, J.M., Jang, K., Song, K., Park, S. and Ragland, D.R. (2009) Evaluation of Traffic Safety in Sprawl and Urban Growth in California Metropolitan Areas, *137<sup>th</sup> American Public Health Association Annual Meeting & Exposition, Philadelphia, PA.*
  14. Yeo, H., Jang, K. and Skabardonis, A. (2009) Impact of Traffic States on Freeway Collision Probabilities, *2<sup>nd</sup> International Symposium on Freeway and Tollway Operations, Honolulu, Hawaii.*
  15. Cassidy, M.J., Jang, K. and Daganzo, C.F. (2009) Smoothing Effect on Freeway Bottlenecks: Experimental Verification and Theoretical Implications, *88<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*
  16. Jang, K., Chung, K., Ragland, D.R. and Chan, C. (2009) Safety Performance of High-Occupancy Vehicle Facilities: Evaluation of HOV Lane Configurations in California, *88<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*
  17. Jang, K. and Chan, C. (2009) High-Occupancy Vehicle Lane Configurations and Safety Performance of California Freeways: Investigation of Differential Distributions and Statistical Analysis, *88<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*
  18. Jang, K., Chung, K., Ragland, D.R. and Chan, C. (2008) Comparison of Collisions on HOV Facilities with Limited and Continuous Access during Peak Hours, *87<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*
  19. Chung, K., Chan, C., Jang, K., Ragland, D.R. and Kim, Y. (2007) HOV Lane Configuration and Collision Distribution on Freeway Lanes – an Investigation of Historical Collision Data in California, *86<sup>th</sup> Annual Meeting Transportation Research Board, Washington D.C.*

## TECHNICAL REPORTS

1. Jang, K., Ragland, D. and Chan, C. (2008) A Comparative Safety Study of Limited versus Continuous Access High-Occupancy Vehicle (HOV) Facilities, Institute of Transportation Studies, University of California, Berkeley, CA, Submitted to *California Department of Transportation.*

2. Lee, J., Jang, K., Ragland, D.R. and Chan, C. (2008) Quantifying the Performance of Countermeasures for Collision Concentrations Related to Ramp/Freeway Mainline Junctions, Institute of Transportation Studies, University of California, Berkeley, CA, Submitted to *California Department of Transportation*.
3. Banerjee, I., Lee, J., Jang, K., Pande, S. and Ragland, D.R. (2008) Rest Areas, Reducing Accidents Involving Driver Fatigue, Institute of Transportation Studies, University of California, Berkeley, CA, Submitted to *California Department of Transportation*.
4. Cassidy, M.J., Daganzo, C.F., Jang, K. and Chung, K. (2006) Empirical Reassessment of Traffic Operations: Freeway Bottlenecks and the Case for HOV Lanes, *UCB-ITS-RR2006-6*, Institute of Transportation Studies, University of California, Berkeley, CA.

## WORKING PAPER

1. Jang, K. and Chung, K., A Pricing Scheme for High-Occupancy Toll (HOT) Lanes: Converting High-Occupancy Vehicle (HOV) Lanes to High-Occupancy Toll (HOT) Lanes.
2. Jang, K., Griswold, J., and Bigham, J.M., Evaluation of Traffic Safety in Sprawl and Urban Growth in California Metropolitan Areas.
3. Jang, K. and Cassidy, M., Why High-Occupancy Vehicles Slow Down?: Evaluation of Synchronized Speed Drop in Carpool Lanes.
4. Park, S., Jang, K., Kang, S., Comprehensive Severity Index for Evaluating Crash Outcomes. (*Invited to submit a full manuscript for 3rd International Conference on Road Safety and Simulation*).
5. Jang, K. and Grembek, O., Traffic Congestion as an Indirect Cause for Asthma: Regional Level Analysis.
6. Ko, Y. and Jang, K., Solar Sprawl versus Transit-oriented Compact Neighborhood: Which is Greener? – an Approach to Assessing an Optimal Urban Density for Sustainability.

## OTHER PRESENTATIONS

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|---|------------------------------------|
| 1. Traffic Control Strategies to Induce the Smoothing Effect on Freeway Bottlenecks<br>- Poster Presentation, 2010 University of California Transportation Center (UCTC) Student Conference   | Irvine, CA<br><i>April 2010</i>    |
| 2. Influences of Sprawling Development Patterns on Traffic Safety<br>- Poster Presentation, 2010 University of California Transportation Center (UCTC) Student Conference   | Irvine, CA<br><i>April 2010</i>    |
| 3. Design for Safety – Buffer-Separated High-Occupancy/Toll Lanes<br>- Invited Presentation, Hanyang University   | Seoul, Korea<br><i>Feb 2010</i>    |
| 4. Mesoscopic Fundamental Diagram for Freeway<br>- Invited Presentation, Seoul National University  | Seoul, Korea<br><i>Feb 2010</i>    |
| 5. Heterogeneous Travelers' perception in Green House Gas Tax<br>- Invited Presentation, Korea Advanced Institute of Science and Technology (KAIST)   | Daejeon, Korea<br><i>Feb 2010</i>  |
| 6. A Comparative Safety Study of Limited versus Continuous Access High-Occupancy Vehicle (HOV) Facilities<br>- Invited Presentation, High-Occupancy Vehicle (HOV) Systems Subcommittee Meeting  | Washington D.C.<br><i>Jan 2009</i> |
| 7. Dynamic Congestion Pricing for High-Occupancy Toll (HOT) Lanes based on Heterogeneous Travelers' Value of Time<br>- Poster Presentation, 2008 California University Transportation Centers (UTC) - Partners for Advances Transit and Highway (PATH) Conference | Los Angeles, CA<br><i>Nov 2008</i> |

8. Comparison of Collisions on HOV Facilities with Limited and Continuous Access during Peak Hours Berkeley, CA  
Aug 2008  
 - Poster Presentation, American Association of State Highway and Transportation Officials (AASHTO) Subcommittee on Systems Operations and Management

## RESEARCH/PAPER AWARD

- 50<sup>th</sup> Transportation Research Forum Graduate Student Best Paper Award Mar 2009  
 - *A Dynamic Congestion Pricing Strategy for High-Occupancy Toll (HOT) Lanes*
- Transportation Research Board Committee on High-Occupancy Vehicle (HOV) Systems Excellence in Applied HOV Research: Presented at the 13<sup>th</sup> International HOV/HOT Conference Sep 2008
- Institute of Transportation Engineers Student Paper Award (Grand Prize) Apr 2008  
 - *Suburban Living: Public Transportation for Environmentally Sustainable and Healthy Communities*
- Korean Transportation Association in America Travel Grant Award Jan 2007, Jan 2008,  
Jan 2009

## PROFESSIONAL ACTIVITIES

### Journal Referee

- Transportation Research Record: Journal of the Transportation Research Board Statistical Methodology and Statistical Computer Software Committee 2009 – Present
- Energies 2010 – Present
- 19<sup>th</sup> International Symposium of Transportation and Traffic Theory 2010 – Present

### Committee Member

- Transportation Research Board: High-Occupancy Vehicle (HOV), High-Occupancy Toll (HOT), and Managed Lanes Research Subcommittee 2008

## INDUSTRIAL EXPERIENCE

- Part-time Student Engineer and Intern, Petra Company Pty. Ltd* Sydney, Australia  
Dec 2003 – Jun 2004  
 - Process Schedule and Quality Control
- Secretary and Warehouse Managing Assistant, Korean Army* Incheon, Korea  
Apr 1999 – Jun 2001  
 - Training Program Coordination and Operation Advice  
 - Warehouse Facility Management