

# Eleni Christofa

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## EDUCATION

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- MAY 2012 **University of California, Berkeley**  
*Doctor of Philosophy in Civil and Environmental Engineering*  
Thesis: '**Traffic Signal Optimization with Transit Priority: A Person-based Approach**'  
Minors: City and Regional Planning, Industrial Engineering and Operations Research  
Advisor: Prof. A. Skabardonis
- MAY 2008 **University of California, Berkeley**  
*Master of Science in Civil and Environmental Engineering*  
Program: Transportation Engineering
- JULY 2007 **National Technical University of Athens (NTUA), Greece**  
*Diploma in Civil Engineering with specialization in Transportation Eng. (5-year degree)*  
Thesis: '**Travel Time Estimation in Signalized Arterials Under Incident Conditions**'  
Advisor: Prof. M.G. Karlaftis

## RESEARCH INTERESTS

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Traffic Operations and Control  
Sustainable Traffic Management  
Public Transportation Systems  
Intelligent Transportation Systems  
Transportation Safety

## RESEARCH AND WORK EXPERIENCE

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### University of Massachusetts Amherst

2012–PRESENT *Assistant Professor*, Department of Civil and Environmental Engineering

### University of California, Berkeley

2007–2012 *Graduate Student Researcher*

2010–2012 **Advanced Signal Control Algorithms** (US DOT Exploratory Advanced Research)  
*Partners for Advanced Transportation Technology (PATH)*  
Developing Connected Vehicle-based traffic signal control algorithms

2009–2010 **Traffic Signal Optimization with Transit Priority**  
*U.C. Berkeley Center for Future Urban Transport, A Volvo Center of Excellence*  
Development of signal control systems with transit priority for conflicting transit routes

2008–2009 **Integrated Corridor Management (ICM)**  
*Partners for Advanced Transportation Technology (PATH)*  
Modeling and simulation methods for Integrated Corridor Management

2008 **Effectiveness of Adaptive Traffic Control for Arterial Signal Management**  
*Partners for Advanced Transportation Technology (PATH)*  
Development of signal control strategies that mitigate vehicle delays and emissions

- 2007 **Traffic Data Collection Technologies for Travel Time Estimation**  
*California Center for Innovative Transportation (CCIT)*  
 Feasibility study on innovative ways of estimating travel times (e.g., cell phones)

**Cambridge Systematics, Inc., Oakland, CA**

- 2008 *Summer Intern*  
 Modeling traffic conditions on California corridors using simulation packages

**Technical Office of S. Prokopiou, Mytilene, Greece**

- 2005 *Summer Intern*  
 Supervision of pavement construction and maintenance of roads in Lesvos, Greece

**HONORS & AWARDS**

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- 2017 Outstanding Young Member Award, Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine  
 2017 Student-Centered Teaching & Learning Fellow, University of Massachusetts Amherst  
 2016 Innovation Fellow, University of Massachusetts Amherst  
 2015 Certificate of Outstanding Contribution in Reviewing, Transportation Research Part C: Emerging Technologies  
 2014 Open Education Initiative Grant, University of Massachusetts Amherst  
 2014 Sustainability Curriculum Initiative Grant, University of Massachusetts Amherst  
 2014 ASCE ExCEEEd Fellowship, American Society of Civil Engineers  
 2013 Travel Scholarship for the Bicycle and Pedestrian Curriculum Workshop, Portland State University  
 2011 University of California Transportation Center Award  
 2009–2011 Dwight David Eisenhower Transportation Fellowship  
 2007 Gordon F. Newell Memorial Fellowship (U.C. Berkeley)  
 2007 Eugenides Foundation Scholarship for Graduate Studies  
 2002, 2004, 2006 Nikolaos G. Papadimitriou Foundation Scholarship  
 2004 Scholarship from the Greek Institution of National Scholarships

**PROJECTS**

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**Awarded Projects**

- 2016–2017 Christofa, E. (co-PI) with M.A. Knodler and S. Samuel. Safety Research using Simulation (SAFER-Sim) University Transportation Center, University of Iowa for the U.S. Department of Transportation. \$285,000
- 2015–2018 Christofa, E. (co-PI) with M. Ben-Akiva, J. Trancik, E. Frazzoli, S. Gao, M., and L.S. Peh. Mobility Electronic Market for Optimized Travel. U.S. Department of Energy, Advanced Research Projects Agency-Energy (ARPA-E). \$3,990,128 (UMass portion: \$500,000)
- 2014–2016 Christofa, E. (PI) with M.A. Knodler. Operational and Emission Analyses of Roundabouts under Varied Vehicle and Pedestrian Demands. U.S. Department of Transportation through the New England University Transportation Center. \$164,503
- 2014–2016 Christofa, E. (co-PI) with M.A. Knodler, E.J. Gonzales, and S. Samuel. Safety Research using Simulation (SAFER-Sim) University Transportation Center, U.S. Department of Transportation. \$282,944

- 2014–2016 Christofa, E. (co-PI) with M.A. Knodler, D.L. Fisher, and D. Ni. Safety Research using Simulation (SAFER-Sim) University Transportation Center, U.S. Department of Transportation. \$284,750
- 2014–2016 Christofa, E. (PI) with M.A. Knodler. Impact of Deflection Angle on Roundabout Driver Behavior. U.S. Department of Transportation through the Safety Research using Simulation (SAFER-Sim) University Transportation Center. \$45,000
- 2014–2016 Christofa, E. (co-PI) with M.A. Knodler. Development and Evaluation of Infrastructure Strategies for Safer Cycling. U.S. Department of Transportation through the Safety Research using Simulation (SAFER-Sim) University Transportation Center. \$45,000
- 2013–2015 Christofa, E. (PI). Signal Timing Optimization for Improved Mobility and Air Quality. U.S. Department of Transportation through the New England University Transportation Center. \$99,975
- 2012–2015 Christofa, E. (PI) with J. Collura. A Person-based Comparison of Transit Preferential Treatments on Signalized Arterial Corridors. U.S. Department of Transportation through the New England University Transportation Center. \$60,068

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**PUBLICATIONS** (\* indicates student I advised; \*\* indicates student I supervised)

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**Refereed Journal Publications**

1. \*Fournier, N., **Christofa, E.**, and Knodler, M.A. 2017. A Sinusoidal Model for Seasonal Bicycle Demand Estimation. *Transportation Research Part D: Transport and the Environment*, 50:154–169.
2. Chavis, C., and **Christofa, E.**, 2016. A Real-Time Signal Control Strategy for Mitigating the Impact of Bus Stops at Urban Signalized Arterials. *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations*, doi:10.1080/15472450.2016.1194760. [in press]
3. \*Farid, Y.Z., **Christofa, E.**, and Paget-Seekins, L. 2016. Short-Term Bus Travel Time Estimation Using Low Resolution Automated Vehicle Location Data. *Transportation Research Record: Journal of the Transportation Research Board*, 2539:113–118.
4. \*\*Wolput, B., **Christofa, E.**, and Tampère, C.M.J. 2016. Optimal Cycle Length Formulas for Intersections With or Without Transit Signal Priority. *Transportation Research Record: Journal of the Transportation Research Board*, 2558:78–91.
5. **Christofa, E.**, Ampountolas, K., and Skabardonis, A. 2016. Arterial Traffic Signal Optimization: A Person-based Approach. *Transportation Research Part C: Emerging Technologies*, 66:27–47.
6. \*Roach, D., **Christofa, E.**, and Knodler Jr., M.A. 2016. Safety Assessment before and after Implementation of Roundabouts through Microsimulation. *Advances in Transportation Studies, an International Journal*, 2016 Special Issue, Vol.2.
7. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2015. Dedicated Bus and Queue Jumper Lanes at Signalized Intersections with Nearside Bus Stops: Person-Based Evaluation. *Transportation Research Record: Journal of the Transportation Research Board*, 2484:182–192.
8. \*Khalighi, F., and **Christofa, E.** 2015. Emission-based Signal Timing Optimization for Isolated Intersections. *Transportation Research Record: Journal of the Transportation Research Board*, 2487:1–14.
9. Argote-Cabañero, J., **Christofa, E.**, and Skabardonis, A. 2015. Connected Vehicle Penetration Rate for Estimation of Arterial Measures of Effectiveness. *Transportation Research Part C: Emerging Technologies*, 60:298–312.

10. Gonzales, E.J., and **Christofa, E.** 2014. Empirical Assessment of Bottleneck Congestion with a Constant and Peak Toll: San Francisco-Oakland Bay Bridge. *EURO Journal on Transport and Logistics*, 3(3&4):267–288.
11. **Christofa, E.**, Papamichail, I., and Skabardonis, A. 2013. Person-based Traffic Responsive Signal Control Optimization. *IEEE Transactions on Intelligent Transportation Systems*, 14(3):1278–1289.
12. **Christofa, E.**, Argote, J., and Skabardonis, A. 2013. Arterial Queue Spillback Detection and Signal Control based on Connected Vehicle Technology. *Transportation Research Record: Journal of the Transportation Research Board*, 2356:61–70.
13. Reger, D., **Christofa, E.**, Guler, I., and Madanat, S. 2013. Estimation of Pavement Crack Initiation Models by Combining Experimental and Field Data. *ASCE Journal of Infrastructure Systems*, 19(4):434–441.
14. Skabardonis, A., Geroliminis, N., and **Christofa, E.** 2013. Prediction of Vehicle Activity for Emissions Estimation Under Oversaturated Conditions Along Signalized Arterials. *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations*, 17(3):191-199.
15. **Christofa, E.**, and Skabardonis, A. 2011. Traffic Signal Optimization with Application of Transit Signal Priority to an Isolated Intersection. *Transportation Research Record: Journal of the Transportation Research Board*, 2259:192-201.

### Refereed Conference Publications

1. \*\*Yu, Z., Gayah, V.V., and **Christofa, E.** 2017. Person-based Signal Timing Optimization to Account for Flexible Cycle Lengths and Uncertain Transit Vehicle Arrivals. *Transportation Research Board 96<sup>th</sup> Annual Meeting*, 8–12 January, Washington, D.C., Paper No. 17-00983.
2. \*Fournier, N., **Christofa, E.**, and Knodler, M.A. 2017. Bicycle Infrastructure from the Driver’s Seat: Evaluating Bicycle Infrastructure Using a Driving Simulator. *Transportation Research Board 96<sup>th</sup> Annual Meeting*, 8–12 January, Washington, D.C., Paper No. 17-01981.
3. \*Farid, Y.Z., and **Christofa, E.** 2017. Real-time Signal Control with Transit Priority Window: A Person-based Approach. *Transportation Research Board 96<sup>th</sup> Annual Meeting*, 8–12 January, Washington, D.C., Paper No. 17-05493.
4. \*Farid, Y.Z., and **Christofa, E.** Short-Term Bus Travel Time Estimation Using Low Resolution Automated Vehicle Location Data. *Transportation Research Board 95<sup>th</sup> Annual Meeting*, 10–14 January, Washington, D.C., Paper No. 16-0166.
5. \*Fournier, N., **Christofa, E.**, and Knodler, M. The Bicycle Cycle: A Sinusoidal Model for Predicting Bicycle Demand. *Transportation Research Board 95<sup>th</sup> Annual Meeting*, 10–14 January, Washington, D.C., Paper No. 16-4182.
6. \*\*Wolput, B., **Christofa, E.**, and Tampère, C.M.J. Optimal Cycle Length Formulas for Intersections with or without Transit Signal Priority. *Transportation Research Board 95<sup>th</sup> Annual Meeting*, 10–14 January, Washington, D.C., Paper No. 16-1804.
7. \*Roach, D., **Christofa, E.**, and Knodler Jr., M.A. 2016. Roundabout Safety Assessment through Microsimulation. *2015 Road Safety & Simulation International Conference*, 6–8 October, Orlando, FL.
8. \*\*Tainter, F., Knodler, Jr., M.A., \*\*Fitzpatrick, C., and **Christofa, E.** 2015. Analysis of Driver Performance and Operations at Intersection Auxiliary Through Lanes. *2015 Road Safety & Simulation International Conference*, 6–8 October, Orlando, FL.
9. \*\*Wolput, B., Tampère, C.M.J., and **Christofa, E.** 2015. A New Stochastic Mesomodel for Optimizing Multi-Modal Signal Settings for Networks. *2015 IEEE 18<sup>th</sup> International Conference on Intelligent Transportation Systems*, 15–18 September, Canary Islands, Spain.
10. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2015. Person-Based Evaluation of Dedicated Bus Lanes and Queue Jumper Lanes at Signalized Intersections with Near-Side Bus Stops. *Transportation Research Board 94<sup>th</sup> Annual Meeting*, 11–15 January, Washington, D.C., Paper No. 15-1426.

11. \*Khalighi, F., and **Christofa, E.** 2015. Emission-based Signal Timing Optimization for Isolated Intersections. *Transportation Research Board 94<sup>th</sup> Annual Meeting*, 11–15 January, Washington, D.C., Paper No. 15-5871.
12. \*Roach, D., **Christofa, E.**, and Knodler Jr., M.A. 2015. Evaluating the Applicability of SSAM for Modeling the Safety of Roundabouts. *Transportation Research Board 94<sup>th</sup> Annual Meeting*, 11–15 January, Washington, D.C., Paper No. 15-5207.
13. \*\*Wolput, B., **Christofa, E.**, Carbonez, A., Skabardonis, A., and Tampère, C.M.J. 2015. Updating Webster Formula for Optimal Traffic Signal Settings with Transit Signal Priority. *Transportation Research Board 94<sup>th</sup> Annual Meeting*, 11–15 January, Washington, D.C., Paper No. 15-2658.
14. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2014. A Person-based Evaluation of Transit Preferential Treatments on Signalized Arterials. *Transportation Research Board 93<sup>rd</sup> Annual Meeting*, 12–16 January, Washington, D.C., Paper No. 14-2995.
15. \*\*McKinnon, I., Knodler, M., and **Christofa, E.** 2013. Operational and Safety-based Analyses of Varied Toll Plaza Configurations. *Road Safety and Simulation–International Conference*, 22–25 October, Rome, Italy.
16. **Christofa, E.** and Skabardonis, A., 2013. Robust Signal Timing Optimization vs. Adaptive Control on High Volume Arterials. *mobil.TUM 2013, International Scientific Conference on Mobility and Transport*, 18–19 June, Munch, Germany.
17. **Christofa, E.**, Aboudolas, K., and Skabardonis, A. 2013. Arterial Traffic Signal Optimization: A Person-based Approach. *Transportation Research Board 92<sup>nd</sup> Annual Meeting*, 13–17 January, Washington, D.C., Paper No. 13-3395.
18. **Christofa, E.**, Argote, J., and Skabardonis, A. 2013. Arterial Queue Spillback Detection and Signal Control based on Connected Vehicle Technology. *Transportation Research Board 92<sup>nd</sup> Annual Meeting*, 13–17 January, Washington, D.C., Paper No. 13-4903.
19. **Christofa, E.**, Papamichail, I., and Skabardonis, A. 2012. Person-based Traffic Signal Optimization for Real-Time Applications. *Transportation Research Board 91<sup>st</sup> Annual Meeting*, 22–26 January, Washington, D.C., Paper No. 12-2228.
20. Argote, J., **Christofa, E.**, Xuan, Y., and Skabardonis, A. 2012. Estimation of Arterial Measures of Effectiveness with Connected Vehicle Data. *Transportation Research Board 91<sup>st</sup> Annual Meeting*, 22–26 January, Washington, D.C., Paper No. 12-1493.
21. Skabardonis, A., Geroliminis, N., and **Christofa, E.** 2012. Vehicle Emissions Estimation Under Oversaturated Conditions along Signalized Arterials. *Transportation Research Board 91<sup>st</sup> Annual Meeting*, 22–26 January, Washington, D.C., Paper No. 12-3899.
22. Argote, J., **Christofa, E.**, Xuan, Y., and Skabardonis, A. 2011. Estimation of Measures of Effectiveness based on Connected Vehicle Data. *14<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, 5–7 October, Washington, D.C.
23. Skabardonis, A., and **Christofa, E.** 2011. Impact of Transit Signal Priority on Level of Service at Signalized Intersections. *6<sup>th</sup> International Symposium on Highway Capacity and Quality of Service World Congress*, June 28–July 1, Stockholm, Sweden.
24. Skabardonis, A., and **Christofa, E.** 2011. Evaluation of Methodologies for the Design and Analysis of Freeway Weaving Sections. *1<sup>st</sup> International Conference on Access Management*, 14–17 June, Athens, Greece.
25. **Christofa, E.**, and Skabardonis, A. 2011. Traffic Signal Optimization with Transit Signal Priority: Application to an Isolated Intersection. *Transportation Research Board 90<sup>th</sup> Annual Meeting*, 23–27 January, Washington, D.C., Paper No. 11-3092.
26. Skabardonis, A., Geroliminis, N., and **Christofa, E.** 2010. Improved Analysis Framework for Emissions Estimation Under Oversaturated Conditions Along Signalized Arterials. *5<sup>th</sup> International Congress on Transportation Research in Greece*, 27–28 September, Volos, Greece.

27. **Christofa, E.M.**, and Skabardonis, A. 2010. Traffic Signal Optimization with Conditional Transit Signal Priority for Conflicting Transit Routes. *12<sup>th</sup> World Conference on Transportation Research*, 11–15 July, Lisbon, Portugal.
28. **Christofa, E.M.**, and Madanat, S.M. 2010. Development of Pavement Crack Initiation Models by Combining Experimental and Field Data. *Transportation Research Board 89<sup>th</sup> Annual Meeting*, 10–14 January, Washington, D.C., Paper No. 10-1096.
29. **Christofa, E.M.**, and Vlahogianni, E.I. 2008. Incident Impacts on Travel Time on Urban Signalized Arterials. *10<sup>th</sup> ASCE International Conference on Application of Advanced Technologies in Transportation (AATT)*, 27–31 May, Athens, Greece.

#### Other Conference Proceedings

1. Chavis C., **Christofa, E.**, 2014. A Real-Time Signal Control Strategy for Mitigating the Impact of Bus Stops on Urban Arterials. *Symposium Celebrating 50 Years of Traffic Flow Theory*, 11–13 August, Portland, OR.
2. Kopelias, P., Papadimitriou, F., Skabardonis, A., and **Christofa, E.**, 2010. Applications of Advanced Analysis Tools for Freeway Performance Measurement. *12<sup>th</sup> World Conference on Transportation Research*, 11–15 July, Lisbon, Portugal.

#### Other Publications

1. Skabardonis, A., Shladover, S., **Christofa, E.**, et al. 2013. Advanced Traffic Control Signal Algorithms. Final Report for Interagency Agreement #65A0376, FHWA Exploratory Advanced Research Program Cooperative Agreement DTFH61-10-H-00002.
2. Campbell, R., **Christofa, E.**, Argote, J., Gayah, V., Guler, I., and Skabardonis, A. 2012. Operating a Diverging Diamond Interchange: A signal timing optimization strategy. Report submitted to the Transportation Research Board Traffic Signal Systems Committee.
3. **Christofa, E.** 2012. Traffic Signal Optimization with Transit Priority: A Person-based Approach. PhD Dissertation, University of California, Berkeley.
4. **Christofa, E.** 2007. Travel Time Estimation in Signalized Arterials Under Incident Conditions. Diploma Thesis, National Technical University of Athens [In Greek].

#### PRESENTATIONS

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##### Conference & Workshop Presentations

1. \*Khalighi, F., \*\*Hajiseyedjavadi, F., **Christofa, E.**, and Knodler, M.A., 2017. Emission Impact of Pedestrians at Roundabouts, *5<sup>th</sup> International Conference on Roundabouts*, 8–10 May, Green Bay, WI. [accepted]
2. \*\*Yu, Z., Gayah, V.V., and **Christofa, E.** 2016. Person-based Signal Timing Optimization to Account for Flexible Cycle Lengths and Uncertain Transit Vehicle Arrivals. *Transportation Engineering and Safety Conference*, 7–9 December, State College, PA.
3. \*Fournier, N., **Christofa, E.**, and Knodler, M.A., 2016. Evaluating Driver Behavior at Bicycle Infrastructure Using a Driving Simulator, *10<sup>th</sup> University Transportation Centers Spotlight Conference: Pedestrian and Bicycle Safety*, 1–2 December, Washington, DC.
4. \*Fournier, N., **Christofa, E.**, and Knodler, M.A., 2016. Development and Evaluation of Infrastructure Strategies for Safer Cycling, *SaferSim Webinar*, 13 September.
5. \*Fournier, N., **Christofa, E.**, and Knodler, M.A., 2016. Bicycle infrastructure at intersections: An evaluation of driver behavior, *2016 Northeast Transportation Safety Conference*, 7–8 June, Worcester, MA.

6. **Christofa, E.** and Gonzales, E.J., 2016. Reliability of Transit Vehicle Arrival Prediction Using Connected Vehicle Data, *1<sup>st</sup> Symposium on Management of Future Motorway and Urban traffic Systems*, 2–3 June, Chania, Crete. [by invitation only]
7. \*Fournier, N., **Christofa, E.**, and Knodler, M.A., 2016. Bicycle infrastructure at intersections: An evaluation of driver behavior, *4<sup>th</sup> SAFER-Sim Symposium*, 2–4 June, Madison, WI.
8. \*Fournier, N., **Christofa, E.**, and Knodler, M.A., 2016. Bicycle infrastructure at intersections: An evaluation of driver behavior, *2016 ITE Northeastern District Annual Meeting*, 11-13 May, Portsmouth, NH.
9. \*Fournier, N., **Christofa, E.**, and Knodler, M.A., 2016. Estimating Seasonal Bicycle Demand Using a Sinusoidal Model, *Data Science Research Symposium*, 22 April, Center for Data Science, University of Massachusetts, Amherst, MA.
10. \*Farid, Y.Z. and **Christofa, E.**, 2016. Bus Travel Time Prediction Using Low Resolution Automated Vehicle Location Data, *Data Science Research Symposium*, 22 April, Center for Data Science, University of Massachusetts, Amherst, MA.
11. Guler, S.I., and **Christofa, E.** 2015. Bus Lanes and Pre-signals with Transit Signal Priority: Domains of Application, *2015 MASITE Annual Meeting*, 4–5 October, King of Prussia, PA.
12. **Christofa, E.**, and Guler, S.I. 2015. Bus Lanes and Signal Priority, *2015 Northeastern District Annual Meeting*, 13-15 May, Albany, NY.
13. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2015. Tools to Assess the Impacts of Transit Preferential Treatments: Analytical Techniques and Simulation Model. *ITS Massachusetts 20<sup>th</sup> Annual Meeting*, 5–6 May, Boston, MA.
14. Rahimi, M., Gonzales, E.J., **Christofa, E.**, Knodler, M., Riessman, R., and Gazillo, J. 2015. Uses of Data for Transportation System Analysis, *Data Science Launch Symposium*, University of Massachusetts, Amherst, 9 April, Amherst, MA.
15. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2015. Person-Based Evaluation of Dedicated Bus Lanes and Queue Jumper Lanes at Signalized Intersections with Near-Side Bus Stops. *16<sup>th</sup> UMass Annual Technical Day and Student Research Symposium*, March 26, Amherst, MA.
16. \*Khalighi, F. and **Christofa, E.** 2015. A Real-Time Signal Control System to Minimize Emissions at Isolated Intersections. *16<sup>th</sup> UMass Annual Technical Day and Student Research Symposium*, March 26, Amherst, MA.
17. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2014. Person-Based Evaluation of Queue Jumper Lanes and Transit Signal Priority Strategies, *2014 Northeastern District Annual Meeting*, 14-16 May, Long Branch, NJ.
18. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2014. Evaluating the Impact of Transit Preferential Treatments on the Person Delay and Person Discharge Flow of Signalized Arterial Corridors. *10<sup>th</sup> Annual Transportation Student Research Symposium*, 2 April, University of Connecticut, Storrs, CT.
19. \*Khalighi, F., and **Christofa, E.** 2014. Real-Time Signal Control System to Minimize Person Delay and Emissions. *10<sup>th</sup> Annual Transportation Student Research Symposium*, 2 April, University of Connecticut, Storrs, CT.
20. \*Roach, D., **Christofa, E.**, and Knodler, M. 2014. Before and After Study of Double Roundabout: Queue Length, Gap Availability, and Gap Acceptance. *15<sup>th</sup> UMass Annual Technical Day*, March 27, Amherst, MA.
21. \*Khalighi, F., and **Christofa, E.** 2014. Real-Time Signal Control System to Minimize Person Delay and Emissions. *15<sup>th</sup> UMass Annual Technical Day*, March 27, Amherst, MA.
22. \*Farid, Y.Z., **Christofa, E.** and Collura, J. 2014. A Person-based Evaluation of Transit Preferential Treatments on Signalized Arterials. *15<sup>th</sup> UMass Annual Technical Day*, March 27, Amherst, MA.

23. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2014. Person-based Evaluation of Queue Jumper Lanes and Transit Signal Priority Strategies on Urban Arterials. *Institute of Transportation Engineers (ITE) 2014 Technical Conference and Exhibit*, 9-12 March, Miami, FL.
24. \*Farid, Y.Z., **Christofa, E.**, and Collura, J. 2013. Person-Based Transit Preferential Treatments on Signalized Arterials. *Institute of Transportation Engineers (ITE) Northeastern District Annual Meeting*, 22-24 May, Northampton, MA.
25. **Christofa, E.**, and Campbell, R.J. 2013. Impact of Bus Stops on the Capacity of Signalized Intersections. *Institute of Transportation Engineers (ITE) Northeastern District Annual Meeting*, 22-24 May, Northampton, MA.
26. Gonzales, E.J., and **Christofa, E.** 2012. Bottleneck Congestion with a Fixed and Peak Toll: San Francisco - Oakland Bay Bridge. *1<sup>st</sup> European Symposium on Quantitative Methods in Transportation Systems*, 4-7 September, Lausanne, Switzerland.
27. Campbell, R., **Christofa, E.**, Argote, J., Gayah, V., Guler, I., and Skabardonis, A. 2012. Contest: Can You Operate a Diverging Diamond? *Transportation Research Board Traffic Signal Systems Committee Midyear Meeting*, 23-24 July, Irvine, CA.
28. Campbell, R., **Christofa, E.**, and Skabardonis, A. 2012. Impact of Transit Operations on Intersection Capacity. *Innovations in Traffic Flow Theory and Characteristics, and Highway Capacity and Quality of Service Symposium*, 19-22 June, Fort Lauderdale, FL.
29. Argote, J., **Christofa, E.**, and Skabardonis, A. 2012. Minimum Connected Vehicle Penetration Rate for Accurate Arterial Measures of Effectiveness Estimation. *18<sup>th</sup> University of California Transportation Center Student Conference*, 20 April, Berkeley, CA.
30. **Christofa, E.** 2012. Traffic Signal Optimization with Transit Priority. *Institute of Transportation Studies Seminar Series*, University of California, Berkeley, 16 March, Berkeley, CA.
31. **Christofa, E.** 2012. Network Traffic Signal Optimization with Transit Priority. *Workshop for Doctoral Student Research in Transportation Operations and Traffic Control, Transportation Research Board 91<sup>st</sup> Annual Meeting*, 22-26 January, Washington, D.C.
32. **Christofa, E.** 2011. Advanced Traffic Signal Control Algorithms with Connected Vehicle. *U.C. Berkeley Transportation Engineering Open House*, 1 April, Berkeley, CA.
33. **Christofa, E.** 2011. Traffic Signal Optimization with Transit Signal Priority: Application to an Isolated Intersection. *17<sup>th</sup> University of California Transportation Center Student Conference*, 24-25 February, Berkeley, CA.
34. **Christofa, E.** 2011. Network Traffic Signal Control with Transit Priority. 2011 Eisenhower Research Showcase, *Transportation Research Board 90<sup>th</sup> Annual Meeting*, 23-27 January, Washington, D.C.
35. **Christofa, E.** 2010. Traffic Signal Control Optimization with Transit Priority for Conflicting Transit Routes. *16<sup>th</sup> University of California Transportation Center Student Conference*, 1-2 April, Irvine, CA.
36. **Christofa, E.M.**, and Skabardonis, A. 2009. System-wide Signal Timing Optimization with Transit Priority for Conflicting Bus Routes. *INFORMS Annual Meeting 2009*, 11-14 October, San Diego, CA.

#### Invited Talks

1. **Christofa, E.**, 2016. Advanced Signalization and Control Strategies for Multimodal Networks, *Seminar at the Department of Civil and Environmental Engineering, University of Cyprus*, 7 June, Nicosia, Cyprus.
2. **Christofa, E.**, Farid, Y.Z., and Khalighi, F. 2016. Sustainable Urban Traffic Management using Advanced Technologies, *T3e Webinar, ITS PCB Program, Volpe National Transportation Systems Center*, 26 May.
3. **Christofa, E.**, 2016. Real-time Signal Control for Sustainable Traffic Management, *Meet the Jury Seminar, University of Leuven*, 25 May, Leuven, Belgium.

4. **Christofa, E.**, 2016. My Academic Life: Lessons Leraned from GRad school and Tenure-Track Career, *UMass Women in Transportation Seminar Student Chapter*, 13 April, Amherst, MA.
5. **Christofa, E.**, 2015. Signal Control Strategies for Improved Person Mobility and Air Quality in Multimodal Transportation Systems, *Seminar at the Department of Transportation Planning and Engineering, School of Civil Engineering, National Technical University of Athens*, 16 December, Athens, Greece.
6. **Christofa, E.**, 2015. Assessing the Accuracy of SSAM for Modeling Roundabout Safety, *Research to Practice Safer-Symposium*, 25-27 February, San Juan, Puerto Rico.
7. **Christofa, E.**, 2014. Public Transportation Systems (Short Course), University of Santa Catarina, 4–8 August, Florianopolis, Brazil.
8. **Christofa, E.**, 2014. Transit Preferential Treatments: Person-based Evaluation and Control. *Penn State Transportation Seminar*, 1 May, State College, PA.
9. **Christofa, E.**, 2014. Transit Priority in Urban Traffic: Real-time Signal Control and Person-based Evaluation. SincroBUS International Project, Real-time Information and Control Systems for Buses, *ZAPTA*, 3 April, Florianopolis, Brazil
10. **Christofa, E.**, 2014. The Future of Transportation (Panel). *15<sup>th</sup> UMass Annual Technical Day*, March 27, Amherst, MA
11. **Christofa, E.**, 2014. Incorporating Pedestrian and Bicycle Transportation in a Transportation Sustainability Course. Pedestrian and Bicycle University Education Joint Subcommittee of Bicycle Transportation and Pedestrians Committees, *Transportation Research Board 93<sup>rd</sup> Annual Meeting*, 12–16 January, Washington, D.C.
12. **Christofa, E.**, 2013. Graduate School Academic Panel: I'm interested in pursuing a career in academics or research. What do I need to know and do? Engineering and Computer Science Women faculty Group, University of Massachusetts, Amherst, 9 October, Amherst, MA.
13. **Christofa, E.**, 2013. Sustainable Management of Multimodal Traffic. Landscape Architecture and Regional Planning Zube Seminar Series, University of Massachusetts, 14 February, Amherst, MA.
14. **Christofa, E.**, 2011. Network Traffic Signal Optimization with Transit Priority. Sensys Networks, 6 December, Berkeley, CA.
15. **Christofa, E.**, 2010. Transportation and Technology. General Meeting of Cal Institute of Transportation Engineers (ITE), 30 September, Berkeley, CA.

## TEACHING EXPERIENCE

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### University of Massachusetts Amherst

SPRING 2014 **Transportation (CEE 310)**

SPRING 2016 *Course Instructor*

This junior level course introduces students to transportation operations, planning, and design, traditionally with an emphasis on the highway mode, while drawing parallels on other modes. Topics include: vehicle, operator, and roadway characteristics, traffic control, capacity, geometric design, and demand forecasting.

INSTRUCTOR EVALUATION: 4.30/5.00 (SPRING 2014; 2016);

FALL 2013, 2016 **Transportation Sustainability (CEE 597S/697G)**

SPRING 2015 *Course Instructor*

This senior/graduate level course covers concepts of sustainable transportation management strategies and policies. Such topics include: life-cycle assessment for transportation infrastructure systems, vehicle emission estimation models, alternative fuel vehicles, non-motorized modes, and transit preferential treatments.

INSTRUCTOR EVALUATION: 4.83/5.00 (2013); 4.56/5.00 (2015)

- SPRING 2013 **Public Transportation Systems (CEE 410/510)**  
*Course Instructor*  
 This undergraduate/graduate level course covers the concepts of designing fixed-route transit systems, fleet and crew management methods and the evaluation and financing of transit projects.  
 INSTRUCTOR EVALUATION: 4.05/5.00
- FALL 2012, 2014 **Traffic Flow Theory and Simulation I (CEE 520/697E)**  
*Course Instructor*  
 This senior/graduate level course covers the fundamentals of traffic flow theory, macro and microscopic mathematical models, capacity analysis, and queueing.  
 INSTRUCTOR EVALUATION: 4.95/5.00 (2012); 4.30/5.00 (2014)

#### Federal University of Santa Catarina, Florianopolis, Brazil

- AUGUST 2014 **Public Transportation Systems (short course)**  
*Course Instructor*  
 Taught a 5-day course on public transportation systems to faculty and graduate students of the Department of Automation and Systems

#### University of California, Berkeley

- FALL 2010 **Intelligent Transportation Systems (CEE 253)**  
*Graduate Student Instructor; Prof. Skabardonis*  
 Developed course assignments; Taught lab section; Held office hours
- SPRING 2010, 2012 **Highway Traffic Operations (CEE 255)**  
*Graduate Student Instructor; Prof. Skabardonis*  
 Developed & graded course assignments; Taught discussion section; Held office hours

#### ADVISING

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##### PhD Students

- SEPT.2016–NOW Aikaterini Deliali  
*PhD Dissertation Topic:* Modeling mobility on-demand services  
  
*Awards:*  
 – UMass Graduate School Fellowship (2016)
- SEPT.2015–NOW Nicholas Fournier  
*PhD Dissertation Topic:* Mobility on-demand services: Safety and drop-off space issues  
  
*MS Thesis Title:* Evaluating Driver Behavior at Bicycle Infrastructure Treatments Using a Driving Simulator  
  
*Awards:*  
 – Safety Research using Simulation (SAFER-Sim) University Transportation Center Outstanding Student of the Year (2017)  
 – Institute of Transportation Engineers (ITE) Daniel B. Fambro Student Paper Award for paper titled: “A Seasonal Bicycle Demand Model Using A Sinusoidal Function” (2016)  
 – Best Student Research Paper, Institute of Transportation Engineers Northeastern District for paper titled: “A Seasonal Bicycle Demand Model Using A Sinusoidal Function” (2016)  
 – Dwight D. Eisenhower Graduate Fellowship (2015; 2016)  
 – People’s choice award for poster at the 16<sup>th</sup> UMass Annual Technical Day and Student Research Symposium (2015)

SEPT.2013–NOW Farnoush Khalighi  
*Dissertation Title:* Signal Control and Design for Improved Person Mobility and Air Quality in Urban Multimodal Transportation Systems  
*Awards:*  
 – WTS Boston Chapter Claire Barrett Memorial Graduate Scholarship (2016)  
 – 2<sup>nd</sup> position for best poster at the 16<sup>th</sup> UMass Annual Technical Day and Student Research Symposium (2015)

SEPT. 2016 Yashar Zeinyali Farid (now Research Associate, University of Wisconsin-Madison)  
*Dissertation Title:* Transit Preferential Treatments at Signalized Intersections: Person-based Evaluation and Real-Time Signal Control  
*Awards:*  
 – International Road Federation Road Scholar Fellowship (2013)

### MSc Students

SEPT.2016–NOW Joshua Wolfgram  
*Thesis Topic:* Safety and Emission Assessment of Alternative Intersection Designs  
*Awards:*  
 – Dwight D. Eisenhower Graduate Fellowship (2016)

SEPT.2015 Farnoush Khalighi (now PhD student at UMass)  
*Thesis Title:* A Real-Time Signal Control System to Minimize Emissions at Isolated Intersections

DECEMBER 2014 Derek Roach (now at Vanasse & Associates, Andover, MA)  
 MAY 2014 Ethan Minott

### Undergraduate Students

SUMMER 2015 Jin Rui Yap (Smith College; co-advised with Eric Gonzales)  
 SPRING 2015 Nathan Ziegler (UMass; now at Metro North Railroad, New York, NY)

### Committee Member

#### Undergraduate Students

SPRING 2016 Francis Tainter (Honors Thesis Committee Member, UMass; now MS student at UMass)

#### MSc Students

IN PROGRESS Chelsea Bouchard (UMass)  
 IN PROGRESS Balazs Martai (UMass)  
 OCTOBER 2016 Foroogh Hajiseyedjavadi (UMass)  
 JULY 2015 Jonathan Freeman (UMass)  
 DECEMBER 2014 Christina Dube (UMass)  
 AUGUST 2014 Ralph Burgener (École Polytechnique Fédérale de Lausanne)  
 MAY 2013 Ian McKinnon (UMass)

#### PhD Students

IN PROGRESS Mahour Rahimi (UMass)  
 IN PROGRESS Marie Louis (UMass)  
 DECEMBER 2016 Cole Fitzpatrick (UMass)  
 MAY 2016 Bart Wolput (Katholieke Universiteit Leuven, Belgium)  
 APRIL 2015 Rooholamin Shabihkhani (Rutgers University)  
 AUGUST 2014 Elizabeth Ebacher (UMass)

## UNIVERSITY & PROFESSIONAL SERVICE

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### Professional Service

- 2016–2017 Scientific committee for the 8<sup>th</sup> International Congress on Transportation Research (ICTR), 28–29 September, 2017, Thessaloniki, Greece
- 2017 Presiding officer for session titled: “Multimodal Operations at Signalized Intersections” at the Transportation Research Board 96<sup>th</sup> Annual Meeting
- 2016 Participant at the 4<sup>th</sup> ITS University Workshop organized by the USDOT and ITS America [invited]
- 2016 FHWA/U.S. DOT Work Zone Model expert panel member
- 2016 Co-organizer of a TRB call for papers on “Multimodal system analysis and modeling”
- 2016 Co-organizer of the 17<sup>th</sup> UMass Annual Technical Day, 24–25 March, Amherst, MA
- 2016 Presiding officer for session titled: “Signal Control with Priority for Multimodal Transportation Systems” at the Transportation Research Board 95<sup>th</sup> Annual Meeting
- 2015–2016 Scientific review committee for the 19<sup>th</sup> EURO Working Group on Transportation, (EWGT), 5–6 September, 2016, Istanbul, Turkey
- 2015–2018 Member of TADD55 Task Force on Arterials and Public Health
- 2013–PRESENT Paper Review Chair for the TRB AHB25 Traffic Signal Systems Committee
- 2015 Presiding officer for session titled: ‘Multimodal Traffic Control’ at the Transportation Research Board 94<sup>th</sup> Annual Meeting
- 2014 Chaired session titled: “What’s new in University ITS Research?” at the ITS Massachusetts/New England Meeting and Conference
- 2014 Presiding officer for session titled: “Traffic Signals for Multimodal Systems” at the Transportation Research Board 93<sup>rd</sup> Annual Meeting
- 2014 Participant at the 2<sup>nd</sup> ITS University Workshop organized by the USDOT and ITS America [invited]
- 2013–PRESENT Member of AHB25 Traffic Signal Systems Committee
- 2013–PRESENT Associate Editor for the International IEEE Annual Conference on Intelligent Transportation Systems

### University Service

- 2015 PhD Comprehensive Written Exam Coordinator
- 2014–2015 CEE Structural Engineering and Mechanics Faculty Search Committee
- 2014 CEE Scholarship Committee
- 2013–2015 CEE Faculty Meeting Secretary
- 2012–PRESENT Participant in Departmental & College Open Houses
- 2012–PRESENT Undergraduate Advising

### Journal Referee Work

Accident Analysis and Prevention  
 Advances in Mechanical Engineering  
 Applied Sciences  
 ASCE Journal of Infrastructure Systems  
 ASCE Journal of Transportation Engineering  
 ASCE Journal of Transportation Engineering: Part A  
 EURO Journal on Transport and Logistics  
 IATSS Research  
 IEEE Transactions on Intelligent Transportation Systems  
 IEEE Intelligent Transportation Systems Magazine  
 IET Intelligent Transport Systems  
 International Journal of Transportation  
 Journal of Intelligent Transportation Systems: Technology, Planning, and Operations  
 Journal of Professional Issues in Engineering Education and Practice  
 Transportation Letters

Transportation Research Record  
Transportation Science  
Transportmetrica B: Transport Dynamics  
Transportation Research Part C: Emerging Technologies  
Transportation Research Part D: Transport and Environment

### Conference Referee Work

European Symposium on Quantitative Methods in Transportation Systems  
19<sup>th</sup> EURO Working Group on Transportation  
International IEEE Annual Conference on Intelligent Transportation Systems  
International Symposium of Enhancing Highway Performance  
Road Safety & Simulation International Conference  
Transportation Research Board  
World Conference on Transport Research (WCTR)

### MEMBERSHIPS

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Transportation Research Board (Affiliate):

- TADD55 Task Force on Arterials and Public Health, member (2015–2018)
- AHB25 Traffic Signal Systems Committee, member (2013–2017)
- AHB40 Highway Capacity and Quality of Service Committee, friend
- AHB45 Committee on Traffic Flow Theory and Characteristics, friend

American Society of Civil Engineers  
Institute of Transportation Engineers  
Hellenic Institute of Transportation Engineers

### OUTREACH ACTIVITIES

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2016	Participant in the UMass Graduate Women in STEM (GWIS) Graduate Student/Faculty Luncheons
2016	UMass Summer Transportation Institute Co-organizer
2016	New England Future City Competition: Presentation Judge
2014	Participant at the Museum of Science Climate Education Symposium, Boston, MA
2014 & 2015	New England Future City Competition: Judge for the Best Transportation System
2013 & 2014	Lecturer at the Summer Engineering Institute (UMass Amherst)