Curriculum Vitae

1. Name and Address

Xianfeng Yang
Assistant Professor
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2. General Information

2.1 Education

Ph.D., Transportation Engineering, Department of Civil & Environmental Engineering, University of Maryland, College Park, MD, USA. June, 2015.

Dissertation: *Integrating of Arterial Signal and Freeway Off-ramp Controls for Commuting Corridors*; advised by Dr. Gang-Len Chang.

M.S., Transportation Engineering, Department of Civil & Environmental Engineering,

University of Maryland, College Park, MD, USA. December, 2011.

B.S., Civil Engineering, Department of Civil Engineering,

Tsinghua University, Beijing, China. June, 2009.

2.2 Academic and Professional Position Held

Assistant Professor, *Aug. 2015 – Present*
Department of Civil, Construction, and Environmental Engineering, San Diego State University.

Course Instructor, *Feb. 2014 – May, 2015*
Department of Civil & Environmental Engineering, University of Maryland, College Park.

Future Faculty Fellow, *Feb. 2013 – May, 2014*
Clark School of Engineering, University of Maryland, College Park, MD.

Research Assistant, *Aug. 2009 – July, 2015*
Department of Civil & Environmental Engineering, University of Maryland, College Park.

Research Assistant, *Feb. 2009 – Aug. 2009*
Department of Civil Engineering, Tsinghua University, Beijing, China.

2.3 Certificate

Engineering in Training (EIT), Civil Engineering, Maryland, obtained at 2012.

3. Research and Publications

3.1 Research Interests

- Traffic Control and Operations
  - Real-time Signal Control and Signal Optimization
  - Traffic Operation at Work Zones
  - Variable Speed Limit Control
  - Traffic Detection and Technology Development
  - Simulation of Large Scale Transportation Network
  - Intelligent Transportation Systems
- Evacuation System Design
  - Evacuation Plan Optimization
  - Freeway Control in Evacuation Systems
  - Local Traffic Control in Evacuation Systems
- Public Transportation
  - Transit Signal Priority Control
  - Bus Arrival Time Prediction
  - Flexible Transit System Design
- Operations Research and Logistic Modeling
  - Inventory Routing Problem
  - Vehicle Routing Problem
- Highway Designs
  - Unconventional Intersection
  - Unconventional Interchange Design

3.2 Journal Papers

Note: "*" indicates the corresponding author

[1] **Yang, X.***, Cheng, Y., Chang, G.L. (2015), "A Multi-path progression model for synchronization of arterial traffic signals", Transportation Research, Part C, vol.53 pp. 93-111.

[2] **Yang, X.***, Cheng, Y., Chang, G.L. (2015), "Integrating off-ramp spillback control with the decomposed arterial signal optimization model", Journal of Transportation Research Board: Transportation Research Record, No. 2487, pp. 112-121.

[3] Lin, Y., **Yang, X.**, Zou, N.* (2015), Franz, M., "Transit Signal Priority Control at Signalized Intersections: A Comprehensive Review", Transportation Letters: the International Journal of Transportation Research, in press. DOI: http://dx.doi.org/10.1179/1942787514Y.0000000044

[4] Lu, C.Y.*, **Yang, X.**, Chang, G.L. (2015), "A Detector-error Screening Algorithm based on Temporal and Spatial Information", Journal of Transportation Research Board: Transportation Research Record, vol. 2443, pp. 40-48.

[5] **Yang, X.***, Lu, C.Y., Chang, G.L., (2015), "A Dynamic Signal Priority Control Strategy to Mitigate the Off-ramp Queue Spillback to the Freeway Mainline Segment", Journal of Transportation Research Board: Transportation Research Record, vol. 2438, pp 1-11.

[6] **Yang, X.**, Lu, Y., Chang, G.L., (2015), "Exploratory Analysis of an Optimal Variable Speed Control System for a Recurrently Congested Freeway Bottleneck", Journal of Advanced Transportation, vol. 49(2), pp. 195-209.

[7] Lu, Y.*****, **Yang, X.**, (2014), "Estimating Dynamic Queue Distribution in a Signalized Network through a Probability Generating Model", IEEE Transactions on ITS, vol. 15(1), 334-344.

[8] **Yang, X.***, Chang, GL., Rahwanji, S., (2014), "Development of a Signal Optimization Model for Diverging Diamond Interchange", Journal of Transportation Engineering, vol. 140(5), 04014010.

[9] Pan, S., Yu, J.*, **Yang, X.**, Liu, Y., Zou, N., (2014), "Designing a Flexible Feeder Transit System Serving Irregularly Shaped and Gated Communities: Determining Service Area and Feeder Route Planning", Journal of Urban Planning and Development, ASCE, in press. DOI: 10.1061/ (ASCE) UP.1943-5444.0000224, 04014028.

[10] **Yang, X.***, Zhu, S., (2014), "Solution to the Multi-Depot Inventory Slack Routing Problem at the Planning Stage", Journal of Computing in Civil Engineering, ASCE, in press. DOI: 10.1061/ (ASCE) CP.1943-5487.0000449.

[11] **Yang, X.***, Feng, L., (2013), "Inventory Routing Problem: Routing and Scheduling Approach with the Objective of Slack Maximization", Journal of Transportation Research Board: Transportation Research Record, vol. 2378(1), pp. 32-42.

[12] Lin, Y.*****, **Yang, X.**, Chang, G.L., Zou, N., (2013), "Transit Priority Strategies for Multiple Routes under Headway-Based Operations", Journal of Transportation Research Board: Transportation Research Record, vol. 2356(1), pp. 34-43.

[13] Lin, Y., **Yang, X.**, Zou, N.*****, Jia, L., Shu, (2013), "A Passive Transit Signal Priority Control at Urban Arterials". Journal of Northeastern University: Natural Science, vol. 34(9), pp. 1227-1231.

[14] Lin, Y., **Yang, X.**, Zou, N.*****, Jia, L., (2013) "Real-Time Bus Arrival Time Prediction: A Case Study for Jinan, China", Journal of transportation engineering, vol. 139(11), pp. 1133–1140.

[15] **Yang, X.***, Chang, G.L., Rahwanji, S., Lu, Y., (2013), "Development of Planning-Stage Models for Analyzing Continuous Flow Intersections". Journal of Transportation Engineering, vol. 139(11), pp. 1124–1132.

[16] **Yang, X.***, Lu, Y., Lin, Y., (2015), "Interval Optimization for Signal Timings with Time-Dependent Uncertain Arrivals", Journal of Computing in Civil Engineering, ASCE, vol. 29(5), 04014057.

3.3 Journal Papers under-review

[17] Pan, S., Yu, J.*, **Yang, X.**, Zou, N., Franz, M. (2014), "Flexible Transit Route Design to Enhance System Accessibility in Urban Area", Journal of Advanced Transportation, under 3rd round of review.

[18] Lu, Y., **Yang, X.*** (2015), "Estimating the Stationary Queue Distribution at Intersections Experiencing Potential Downstream Queue Spillover", Transportmetrica Part B, submitted.

[19] **Yang, X.**, Lu, C.Y.* (2015), "Optimal Variable Speed Limit System for Freeway Work Zone Operations", Journal of Computing in Civil Engineering, submitted.

[20] Lin, Y.*, **Yang, X.**, Zou, N. (2015), "Real-time Signal Control Strategies for Bus Rapid Transit at Intersections with Nearside Median Station", Journal of Advanced Transportation, submitted.

[21] Lu, Y., **Yang, X.*** (2015), "Development of two O-D Estimation models using Probe Vehicle Trajectory and Link Counts", Journal of Computing in Civil Engineering, submitted.

[22] Cheng, Y., **Yang, X.*** (2015) "Development of a Signal Progression System for Local Arterial with Heavy Bus Flows", Journal of Transportation Engineering, submitted.

[23] **Yang, X.**, Cheng, Y.*, Chang, G.L. (2015) "Operational Analysis and Signal Design for Asymmetric Two-Leg Continuous Flow Intersections", Journal of Transportation Research Board: Transportation Research Record, submitted.

[24] Cheng, Y., **Yang, X.***, Chang, G.L. (2015) "DUALBAND: A Signal Progression Model to Synchronize both Through and Turning Traffic on Local Arterials", Journal of Transportation Research Board: Transportation Research Record, submitted.

[25] Lin, Y., **Yang, X.***, Dong, Z., Xing, J. (2015) "Passive Transit Signal Priority on Local Arterials: Model Formulation and Strategy Selection", Journal of Transportation Research Board: Transportation Research Record, submitted.

[26] Dong, Z., Wang, M., **Yang, X.*** (2015) "The Application of Public Private Partnerships in Public Transportation: Comparative Study between China and United States", Journal of Transportation Research Board: Transportation Research Record, submitted.

[27] Xu, L., **Yang, X.***, Chang, G.L., Rahwanji S. (2015) "Development of Interval-based Planning Models for Evaluating the Geometric Features of Signalized Superstreet", Journal of Transportation Research Board: Transportation Research Record, submitted.

[28] Qiao, W.*, Zhu, T., **Yang, X.**, Liu, J. (2015) "Transit Signal Priority Control Algorithm with Gaming Theory: An Application in Beijing, China", Journal of Transportation Research Board: Transportation Research Record, submitted.

[29] Lin, Y., **Yang, X.**, Zou, N.*, Lu, C.Y. (2015) "Variable Speed Limit Control for Delay and Crash Risk Reduction: Applications in Chinese Cities", Journal of Transportation Research Board: Transportation Research Record, submitted.

[30] **Yang, X.**, Cheng, Y.*, (2015) "Development of Signal Optimization Models for Asymmetric Two-leg Continuous Flow Intersection", Transportation Research Part C, submitted.

3.4 Conference Proceedings

[1] **Yang, X.**, Cheng, Y.*, Chang, G.L. (2015), "Integrating off-ramp spillback control with the decomposed arterial signal optimization model", 94th Transportation Research Board Annual Meeting, Washington D. C. #15-3565.

[2] Cheng, Y., **Yang, X.***, Chang, G.L. (2015), "A bus-based progression system for arterials with heavy transit flows", 94th Transportation Research Board Annual Meeting, Washington D. C. #15-0097.

[4] Lin, Y.*, **Yang, X.**, Zou, N., (2014), "Dynamic Controls for Bus Rapid Transit System at the Station-Neared Intersections", 93rd Transportation Research Board Annual Meeting, Washington D. C. #14-3557.

[5] Pan, S., **Yang, X.**, Zou, N.*, Franz, M., (2014), "Flexible Transit Designs to Enhance the Transport Accessibility of Disabled and Senior Passengers", 93rd Transportation Research Board Annual Meeting, Washington D. C. #14-3031.

[6] **Yang, X.***, Lu, C.Y, (2014), "Development of Optimal Variable Speed Limit Control System for Freeway Work Zone Operations", 93rd Transportation Research Board Annual Meeting, Washington D. C. #14-3591.

[7] **Yang, X.***, Lu, C.Y., Chang, G.L., (2014), "Dynamic Signal Priority Control Strategy to Mitigate Off-ramp Queue Spillback to Freeway Mainline Segment", 93rd Transportation Research Board Annual Meeting, Washington D. C. #14-0419.

[8] Pan, S., Yu, J.*, **Yang, X.,** Liu, Y., Zou, N., (2014), "Flexible Feeder Transit System for Chinese Cities: Service Area Determination and Feeder Route Planning", 93rd Transportation Research Board Annual Meeting, Washington D. C. #14-3043.

[9] Lu, C.Y.*, **Yang, X.**, Chang, G.L., (2014), "A Detector-Error Screening Algorithm Based on Temporal and Spatial Information", 93rd Transportation Research Board Annual Meeting, Washington D. C. #14-2214.

[13] **Yang, X.**, Cheng, Y. *, Chang, G.L., (2014) "Real-Time Traffic Queue Length Estimation at the Freeway Off-ramp Using Dual-Zone Detectors", ITS World Congress, Detroit, Michigan.

[14] **Yang, X.***, Lu, C.Y., Chang, G.L., (2014) "Integrated Control of an Urban Freeway Off-ramp and Neighboring Intersections", 20th Conference of the International Federation of Operational Research Societies (IFORS), Barcelona, Spain.

[15] **Yang, X.***, Lu, Y., Chang, GL., (2013), "Proactive Optimal Variable Speed Limit Control for Recurrent Congested Freeway Bottlenecks". 92nd Transportation Research Board Annual Meeting, Washington D. C. #13-3139.

[16] **Yang, X.**,* Chang, GL., Rahwanji, S., (2013), "Multistage System for Planning Analysis and Signal Design of Diverging Diamond Interchange". 92nd Transportation Research Board Annual Meeting, Washington D. C. #13-3245.

[17] **Yang, X.***, Chang, GL., Lu, Y., Rahwanji, S., (2013), "Development of Planning Framework for Geometric Design of Continuous-Flow Intersections". 92nd Transportation Research Board Annual Meeting, Washington D. C. #13-3809.

[18] **Yang, X.***, Feng, L., (2013), "Routing and Scheduling Approach for Urgent Material Distribution Problem". 92nd Transportation Research Board Annual Meeting, Washington D. C. #13-4343.

[19] Lin, Y.*, **Yang, X.**, Chang, GL., Zou, N., (2013), "Transit Priority Strategies for Multiple Routes under Headway-Based Operations". 92nd Transportation Research Board Annual Meeting, Washington D. C. #13-3190.

[20] Lin, Y.*, **Yang, X.**, Zou, N., Jia, L., (2013), "Real-Time Bus Arrival Time Prediction: Application to Case of Chinese Cities". 92nd Transportation Research Board Annual Meeting, Washington D. C. #13-3355.

[21] Lin, Y.*, **Yang, X.**, Pan, S., Zou, N., (2013), "Transit Signal Priority Control for Multi-conflicted Routes under Headway-based Service". The 2nd International Conference on Transportation Information and Safety (ICTIS), Wuhan China.

[22] Lin, Y.*, **Yang, X.**, Zou, N., Jia, L., (2013), "Development of model-based transit signal priority control for local arterials", 13th COTA International Conference of Transportation Professionals (CICTP), Shenzheng, China.

[23] **Yang, X.**, Lin, Y.*, Lu, Y., Zou, N., (2013), "Optimal Variable Speed Limit Control for Real-time Freeway Congestions", 13th COTA International Conference of Transportation Professionals (CICTP), Shenzheng, China.

3.5 Conference Presentations

[1] **Yang, X.***, (2015), "Integrated Corridor Signal Control of Freeway off-ramp and Local Arterial", 94th Transportation Research Board Annual Meeting, Washington D. C.

[2] **Yang, X.***, Song, X., Kim, H., Chang, G.L., Rahwanji, S., (2014), "Design and Performance Evaluation for Superstreet Intersections", Alternative Intersection & Interchange Symposium, Salt Lake City, Utah.

[3] Chang, G.L., **Yang, X.** *, Rahwanji, S., (2014), "Development of a Multi-stage Design System for Diverging Diamond Interchange", Alternative Intersection & Interchange Symposium, Salt Lake City, Utah.

[4] **Yang, X.**, Cheng, Y.*, Chang, G.L., Kim, M., Rahwanji, S., (2014), "Maryland Unconventional Intersection Design (MUID): A Useful Tool to Design and Evaluate Alternative Intersections", Alternative Intersection & Interchange Symposium, Salt Lake City, Utah.

3.5 Project Reports

[1]Chang, GL., Lu, Y., **Yang, X**. (2011), "An Integration Computer System for Analysis, Selection, and Evaluation of Unconventional Intersections", submitted to Maryland SHA, MD-11- SP909B4H.

[2] Chang, GL., **Yang, X.**, (2011-2015), Applied Technology and Traffic Analysis Program Quarter Year Report, submitted to Maryland SHA, four reports per year.

[3] Yang, X.*, Lin, B., **Yang, X.**, Xiong, C., Sun, Z., (2009), "Final Report: Routing Design of Transit System in Maoming", Submit to Maoming Department of Transportation.

3.6 Software Development

[1] Name: A Traffic Monitoring and Evacuation System in Baltimore Region.
Sponsored by: Maryland State Highway Administrator
Role: Assistant Programmer PI: Gang-Len Chang
Language: VB.NET and C#

[2] Name: Maryland Unconventional Intersection Design (MUID): A Planning Analysis and Signal Optimization Tool.
Sponsored by: Maryland State Highway Administrator
Role: Program Manager and Developer PI: Gang-Len Chang
Language: VB.NET

[3] Name: I-695 Baltimore Beltway: A Simulated Based Traffic Management System.
Sponsored by: Maryland State Highway Administrator

Role: Assistant Programmer PI: Gang-Len Chang
Language: Virtual Basics 6.0

4. Professional Activities

4.1 Research Projects

[1] An Integrated Multi-Modal Emergency Evacuation System for the Baltimore, $ 410,000
Role: Student Investigator
Source: US Department of Homeland Security
Time: Aug. 2009 – Feb. 2010 **PI**: Gang-Len Chang

[2] Applied Technology and Traffic Analysis Program ($ 1,005,000)
Role: Program Student Manager
Source: State Highway Administration of Maryland
Time: Feb. 2011 – Present **PI**: Gang-Len Chang

[3] Design of an Integrated UAID system for unconventional intersections, $ 99,570
Role: Project Group Leader
Source: State Highway Administration of Maryland
Time: Feb. 2010 – Dec. 2010 **PI**: Gang-Len Chang

[4] Development and test of an intelligent Dilemma Zones, $ 168,000
Role: Student Investigator
Source: State Highway Administration of Maryland
Time: Jan. 2010 – Dec. 2010 **PI**: Gang-Len Chang

[5] Integrated Control System to prevent off-ramp queue spillbacks at Highway # 1, $ 600,000
Role: Student Investigator
Source: Taiwan Department of Transportation
Time: Feb. 2013 – Dec, 2014 **PI**: Gang-Len Chang

[6] Development of I-695 Simulator for traffic Operations and Incident Management, $ 123,500
Role: Student Investigator
Source: State Highway Administration of Maryland
Time: Feb. 2010 – Aug. 2011 **PI**: Gang-Len Chang

[7] Traffic Monitoring System for the Ocean City Region-Phase I, $ 1,230,570
Role: Student Investigator
Source: FHWA / State Highway Administration of Maryland
Time: Aug. 2009 – May. 2012 **PI**: Gang-Len Chang

[8] Traffic Monitoring System for the Ocean City Region-Phase II, $ 542,778
Role: Student Investigator
Source: FHWA/ State Highway Administration of Maryland

Time: May. 2013 – 2015 **PI**: Gang-Len Chang

[9] Routing Design of Transit System in Maoming, GuangZhou, China, $100,000
Role: Student Investigator
Source: Guangzhou Department of Transportation
Time: Feb. 2009 – Jun, 2009 **PI**: Xinmiao Yang

4.2 Journals/Conferences Reviewer Services:

- Journal of Intelligent Transportation System
- Transportation Research Board/ Transportation Research Record
- Journal of Transportation Engineering, ASCE
- Journal of Computing in Civil Engineering, ASCE
- Journal of Urban Planning and Development, ASCE
- ITS World Congress
- International Symposium on Highway Geometric Design
- COTA International Conference for Transportation Professionals

5. Teaching

5.1 Course Instructor:

- **CIVE 620** (graduate course, Fall, 2015), "Traffic Flow Control", Department of Civil Engineering, San Diego State University

  Course Introduction: Advanced treatment of traffic flow and control issues. Highway capacity and traffic flow characteristics, traffic flow modeling, intersection control, freeway control systems, intelligent transportation systems.

- **ENCE 470** (undergraduate course, Fall, 2014), "Highway Engineering", Department of Civil & Environmental Engineering, University of Maryland.

  Course Introduction: Includes the discussion of design and modeling issues in traffic engineering, such as critical lane volume analysis, traffic signal system design, traffic flow theory, and freeway traffic modeling.

- **ENCE 688C** (graduate course, Spring, 2014 & Spring, 2015), "Advanced Topics in Civil Engineering: Traffic Signal Design and Analysis", Department of Civil & Environmental Engineering, University of Maryland.

  Course Introduction: Primary topics covered in this course include intersection capacity analysis, data detection and collection technology, pre-timed signal control, actuated

signal control, signal coordination, transit signal priority control, adaptive signal control, network signal control, and unconventional intersection signal design.

- **ENCE 370** (undergraduate course, Spring, 2014), "Introduction to Transportation Engineering and Planning", Department of Civil & Environmental Engineering, University of Maryland. (Serve as guest instructor, cover three lecture sessions).

  Course Introduction: Engineering problems of transportation by highways, airways, pipelines, waterways, and railways. Transportation modes and technologies, vehicle dynamics, basic facility design, traffic stream models, capacity analysis, transportation planning, evaluation and choice, and network analysis.

5.2 Teaching Assistant:

- ENCE 470 (undergraduate course, Fall, 2010), "Highway Engineering", Department of Civil & Environmental Engineering, University of Maryland.
- ENCE 670 (graduate course, Fall, 2011), "Highway Traffic Characteristics and Measurements", Department of Civil & Environmental Engineering, University of Maryland.

6. Awards

- CEE Fellowship, University of Maryland, 2015
- Best PhD Research Award, University of Maryland, 2015
- CEE Fellowship, University of Maryland, 2014
- Future Faculty Fellowship, University of Maryland, 2013
- CEE Fellowship, University of Maryland, 2012
- Han Yinzheng Scholarship, Tsinghua University, China, 2009
- The 3rd prize of National Scholarship, Tsinghua University, China, 2008
- The 2nd prize of Transportation Competition, Tsinghua University, China, 2008
- Tsinghua Fellowship, Tsinghua University, China, 2006