Marija Ostojic

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[Google Scholar Profile](#)
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EDUCATION

Northwestern University	**Florida Atlantic University**	**University of Belgrade**

- Ph.D. 2020
- Transportation Systems
  Analysis and Planning
	- M.Sc. 2015
	- Transportation Systems
	  Engineering
		- B.Sc. 2005 & M.Sc. 2007
		- Transportation and Traffic
		  Engineering

PROFESSIONAL EXPERIENCE

ATMS.now Product Leader

Cubic ITS//Trafficware ▪ ITS Product Development ▪ Sugar Land, TX　　　　　　*Oct. 2020 – Present*

- o Design central signal system software (ATMS) functional requirements
- o Define product strategy and roadmap with prioritized features
- o Develop and execute training plans, beta and pilot programs with early-stage samples
- o Liaise with various departments that have requests for the ATMS development team

RESEARCH PROJECTS (NU)

Trajectory Analytics for Traffic Signal System Management in Connected Vehicle Environments

Dissertation Research　　　　　　　　　　　　　　　　　　　　*Sep. 2018 – Jun. 2020*

- o Formulated traffic state characterization method via state responsive trajectory-based measures
- o Developed time-space-signal diagnostic tool to uncover causes of signal inferior performance
- o Formulated and compared optimization-based strategies to operate CV and mixed fleets
- o Created an offline and online performance-based management framework for "connected" signals

Integrated Modeling for Road Conditions Prediction (IMRCP)

Federal Highway Administration ▪ Research Team Leader ▪ Kansas City, KS　　　*Jun. 2016 – Mar. 2018*

- o Formulated online traffic conditions estimation method from road weather, incident, work zone and demand real-time information using TrEPS/DYNASMART-X
- o Developed a research framework to analyze eventual advantages and limitations relative to the current state of the system with respect to different operational conditions and data availability
- o Combined data/outputs from multiple planning tools to extract the subnetwork origin-destination (OD) matrix considering internal-external subnetwork and full network OD demand consistency
- o Transformed static into dynamic time-dependent demand patterns based on real-time link-level sensor observations

Chicago Red Light Camera Enforcement Study

Chicago Department of Transportation ▪ Member of Research Team ▪ Chicago, IL　　*Oct. 2015 – Sep. 2016*

- o Investigated historical data to formulate a set of performance indicators and guidelines to ensure best practices
- o Developed multivariate econometric regression models to analyze different elements of violation behavior in the presence of RLC

RESEARCH PROJECTS (FAU)

Identifying Congestion Causes on Arterial Roadways – Insights from Two Case Studies

Federal Highway Administration ▪ Member of Research Team ▪ Ft. Lauderdale, FL　　*Jan. 2015 – Jul. 2015*

- o Created analytical models to determine relevant causal factors contributing to overall arterial congestion
- o Developed quantification methods to assess inadequate control parameters associated intersection and corridor delay

Demand-based Signal Retiming Phase 2

Florida Department of Transportation ▪ Member of Research Team ▪ Ft. Lauderdale, FL   *Jan. 2014 – Jul. 2015*

- o Devised analytical methods and applications in VBA related to signal timing refinement for ITS-data rich environments
- o Established general analysis framework to determine most appropriate strategies to address signal timing associated deficiencies

400S Corridor Assessment Study

Utah Department of Transportation ▪ Member of Research Team ▪ Salt Lake City, Utah   *Aug. 2013 – Jan. 2014*

- o Evaluated the impact of LRT TSP on other transportation modes and overall network performance
- o Designed and assessed various control strategies to reduce adverse effects of proposed LRT expansion within VISSIM-Siemens NextPhase virtual controller integrated setup

EXPERTISE

Modeling Transportation Systems and Networks: Simulation Models – focus on microsimulation
Traffic Signal Systems Operations: Signalized Facilities Performance Assessment and Control
Intelligent Transportation Systems: High-Resolution Data Applications
Connected Vehicle Environments: Vehicle Trajectory-based Analytics

COMPUTER SKILLS

Languages: Python, R, Fortran, VBA, MATLAB, SQL
Platforms: Windows, Microsoft Office Suite
Software: PTV VISSIM (VISTRO, VISUM), Synchro, DYNASMART (-P and -X), DTALite/NeXTA, TransCAD, EMEE/2/3, ArcGIS, Tableau
Other traffic engineering tools: Acyclica, RITIS, BlueToad

SELECTED PEER-REVIEWED PUBLICATIONS

J1   **Ostojic, M**. and Mahmassani, H.S., 2021. Evaluation of traffic signal systems effectiveness in connected vehicle environments using trajectory analytics. *Transportation research record* *accepted for publication in 2021

J2   **Ostojic, M**., Mittal, A. and Mahmassani, H.S., 2020. Comprehensive framework for quantitative performance assessment of signal control effectiveness using vehicle trajectories. *Transportation research record*, *2674*(12), pp.118-129.

J3   **Ostojic, M**., Stevanovic, A., Jolovic, D. and Mahmassani, H.S., 2017. Assessment of the Robustness of Signal Timing Plans in an Arterial Corridor Through Seasonal Variation of Traffic Flows. Transportation Research Record, 2619(1), pp.85-94. **Best Paper (TRB Traffic Signal Systems Committee) – runner up**

J4   So, J., Stevanovic, A. and **Ostojic, M**., 2017. Methodology to Estimate Volume–Capacity Ratios at Traffic Signals Based on Upstream-Link Travel Times. Journal of Transportation Engineering, Part A: Systems, 143(4), p.04017002.

J5   Stevanovic, A., Stevanovic, J., So, J. and **Ostojic, M**., 2015. Multi-criteria optimization of traffic signals: Mobility, safety, and environment. Transportation Research Part C: Emerging Technologies, 55, pp.46-68.

PROFESSIONAL ACTIVITIES and EXPERIENCE

Student Member: Transportation Research Board (TRB); Institute of Transportation Engineers (ITE); Northwestern CEE Graduate Association
Peer Reviewer: Transportation Research Record; IEEE International Conference on Intelligent Transportation System (ITSC), IEEE Transactions on Intelligent Transportation Systems

AWARDS & HONORS

Terminal Year Fellowship, McCormick School of Engineering, Northwestern University   2019-20
Best Paper (Runner-Up) - Transportation Research Board, 2017 Annual Meeting   2017
Walter P. Murphy Fellowship, McCormick School of Engineering, Northwestern University   2015-16