

Airton G. Kohls

PhD

Senior Consultant



Dr. Kohls is a Senior Consultant at ESI specializing in Civil Engineering. He is also a Research Assistant Professor at the University of Tennessee Center for Transportation Research (CTR) where he is the director of the Traffic Signal Academy, a continuing education program. Dr. Kohls earned his Ph. D. in Civil and Environmental Engineering where his research focused on adaptive traffic signal control. He serves as an Adjunct Professor instructing undergraduate and graduate level courses, including Transportation Engineering I and Traffic Engineering Operations. Dr. Kohls has served as the Principal Investigator for several projects funded by US Department of Transportation and the Tennessee Department of Transportation. He has collaborated on projects with the US Department of Energy and Oak Ridge National Laboratory.

Dr. Kohls worked for over 10 years in Brazil as a Transportation Engineer for the city of Santa Cruz do Sul. He was responsible for the planning, operation and maintenance of traffic signals, transit and taxi operations, inspection of infrastructure projects, sewage systems and the construction of schools, sport facilities and marketplaces for the city. Dr. Kohls worked alongside city council members in developing legislation on requirements for parking spaces, zoning, and historic preservations of buildings.

Dr. Kohls is an accomplished researcher and dedicated Professor. He is a leader in the arena of Traffic Signal Control continuing education, being listed in the Federal Highway Administration (FHWA) Arterial Management Program as a source of training.

Education

PhD, Civil Engineering. University of Tennessee. 2010

MS, Civil Engineering. University of Tennessee. 2007

BS, Civil Engineering. University of Tennessee. 1995

Languages

- English
- Portuguese

Contact Information

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Peachtree Corners, GA 30092

Areas of Specialization

- Automotive / Accident Analysis
- Intelligent Transportation Systems
- Traffic Operations
- Traffic Signal Control
- Traffic Signal Timing
- Transportation Safety

Positions Held

Engineering Systems Inc., Peachtree Corners, Georgia

- Senior Consultant, 2022 – Present

University of Tennessee Center for Transportation Research

- Research Assistant Professor, 2024 – Present
- Research Associate III, 2010 – 2024

Traffic Signal Academy

- Principal Instructor, 2012 – Present

Tennessee Transportation Assistance Program (TTAP)

- Principal Instructor, 2010 – Present

University of Tennessee, Department of Civil and Environmental Engineering

- Adjunct Professor, 2012 – Present

City of Santa Cruz Do Sul, Brazil

- Transportation Engineer, 1996 – 2006

Professional Affiliations/Honors

Institute of Transportation Engineers Student Chapter at the University of Tennessee

- President, 2007 – 2009
- Member, 2010 – Present
- Tennessee Section of the Institute for Transportation Engineers – William L. Moore Jr. Student Scholarship Award, 2007, 2008 and 2009

Southeastern Smart Mobility Consortium

- Member, 2015 – Present

Peer Reviewer

“Report 812 – Signal Timing Manual 2nd Edition,” National Cooperative Highway Research Program (NCHRP), 2015 – outside reviewer

“Traffic Signal Committee,” Transport Research Board, 2011 – Present, paper reviewer

“Journal of Professional Issues in Engineering Education and Practice,” American Society of Civil Engineers (ASCE), 2014 – Present, paper reviewer

IEEE Intelligent Transportation Systems Magazine, 2016 – Present, paper reviewer

Journal of Intelligent Transportation Systems, 2016 – Present, paper reviewer

Southeastern Transportation Center, 2011 – Present, paper reviewer

Publications

Adaptive Urban Traffic Signal Control for Multiple Intersections: An LQR Approach – J Park, T Liu, C Wang, A Berres, J Severino, J Ugirumurera, **AG Kohls** – 2022 IEEE 25th International Conference on Intelligent Transportation Systems.

Deploying a Model Predictive Traffic Signal Control Algorithm – A Field Deployment Experiment Case Study – Q Wang, J Severino, H Sorensen, J Sanyal, J Ugirumurera, C Wang, A Berres, W Jones, **AG Kohls** - 2022 IEEE 25th International Conference on Intelligent Transportation Systems.

Truck parking Needs in Tennessee – M Golias, S Mishra, CR Cherry, **AG Kohls**, D Murray, DK Giampouranis, V Liatsos – RES 2019-16 Tennessee Department of Transportation.

Autonomous Truck Mounted Attenuator (ATMA) Pilot – **AG Kohls** – RES 2019-15 – Tennessee Department of Transportation.

TDOT Bicycle & Pedestrian Counting Best Methodologies Assessment – N Shah, C Cherry, C Brakewood, M Cate, **AG Kohls**, M Ortmann, F Proulx – RES 2019-13 - Tennessee Department of Transportation.

“Signal phase timing impact on traffic delay and queue length-a intersection case study,” Li X., Khattak AJ, and **AG Kohls**, Winter Simulation Conference, 2016.

“A Reinforcement Learning based on Multi-agent System for Network Traffic Signal Control,” Arel I., Liu C., Urbanik T., and **AG Kohls**, IET Intelligent Transport Systems, Vol. 4, No. 2, pp. 128-135, June 2010. 92 citations as of 3/23/2016.

“Improved Truck Safety and Traffic Signals,” Liu C., Elhananay I., XU J., **AG Kohls**, Urbanik T., National Transportation Research Center Incorporated, June 2009.

“Assessing the Impact of Security Measures at Gates of Seaports on Traffic Operations,” Chatterjee A., **AG Kohls**, Hummer J., Clarke D., Southeastern Transportation Center and North Carolina State Ports Authority, July 2008.

“Flow Based Adaptive Split Signal Control,” **AG Kohls**, PhD dissertation, University of Tennessee, 2010- 976 downloads as of 03/23/2016.

Presentations

Permissive Dual Left-Turn Lanes at Signalized Intersections – TDOT Traffic Engineering Workshop – Pigeon Forge – TN – 2022.

“Tennessee Traffic Signal Asset Management System – Indiana Local Transportation Asset Management Conference” – Online – October 2020.

“Signalized Intersection Safety – INTERSECT19 – Grid smart” – Knoxville, TN – October 2019.

- “Improving Intersection Safety – Leading Pedestrian Interval and Yellow Change Interval – FHWA– Accelerating Safety Activity Program” – Chattanooga, Johnson City, Franklin, Memphis, and Knoxville, TN – May 2019.
- “Yellow Change Intervals and Red Clearance Intervals – TDOT Traffic Engineering Workshop” – Chattanooga, TN – 2017.
- “Improving Operations with Automated Traffic Signal Performance Measures – Tennessee Section of ITE Meeting” – Franklin, TN – 2017.
- “Traffic Signal Safety – TN Highway Safety and Operations Conference” – Franklin, TN – 2017.
- “Traffic Signal Training – Tennessee Society of Professional Engineers” – Dandridge, TN – November 2015.
- “Traffic Signal Training – INTERSECT15 – Grid smart” – Knoxville, TN – October 2015.
- “TDOT Traffic Design Manual” – Burns, TN – September 2015.
- “Flashing Yellow Arrow – TSITE (Tennessee Section of the Institute for Transportation Engineers)” – Gatlinburg, TN – September 2012.
- “Update of the Tennessee Department of Transportation Traffic Design Manual” – Buchanan, TN – September 2014.
- “Coordination beyond Cycle, Split and Offset” – Group Sync – Rhythm Engineering, Kansas City – June 2012.
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