

AGUSTIN GUERRA, PH.D.

+507-6494-8787 | agustinguerra@ufl.edu | [LinkedIn](#) | [Website](#)

PROFESSIONAL SUMMARY

Engineering professional with **5+** years of experience in the transportation industry and **+4** years of research experience in traffic engineering. Analytical and detail-oriented person, able to work independently, team player and fast learner. Experienced in **optimization, statistics, machine learning (predictive and classification models)**, and **numerical simulations**.

EDUCATION

PhD in Civil Engineering <i>University of Florida</i>	Aug. 2019 – May 2023 <i>Gainesville, FL</i>
MS in Civil Engineering <i>University of Kansas</i>	Aug. 2017 – May 2019 <i>Lawrence, KS</i>
BS in Civil Engineering <i>Universidad Tecnologica de Panama</i>	Mar. 2008 – May 2013 <i>Panama, PA</i>

TECHNICAL SKILLS

Expertise: Transportation Engineering, Statistical Analysis, Operation Research, Machine Learning
Programming and Statistical Languages: Python (+3 years), R (1 year), C++/SQL (< 1 year)
Software: MS Office, SPSS
Developer Tools: Github, Visual Studio Code
Scientific Python Libraries: Pandas, NumPy, Matplotlib, Pandas, Gurobi, CPLEX, sci-kit learn, TensorFlow, Selenium, Seaborn, SimPy, webdrivermanager, xml

EXPERIENCE

Graduate Research Assistant <i>University of Florida</i>	Aug. 2019 – Present <i>Gainesville, FL</i>
<ul style="list-style-type: none">Lead two research projects sponsored by the NSF (\$1,296,428) and the STRIDE-H6 (\$329,692) from conceptualization to completion, each project with published articles and others under preparationPerformed all phases of the research process, including problem definition, literature review, research design, data collection, analysis of results, and preparation of reportsDeveloped optimization algorithms in Python for arterials considering CAVs capabilitiesDeveloped, maintained, updated, and documented the development of simulation algorithms in Python for the evaluation of CAVs control strategiesPerformed unit, integration, story, and acceptance tests of numerical simulations for CAVsAssisted in the implementation of optimization algorithm for isolated intersections in a microsimulation softwareFormulated different optimization models to reduce intersection delays, including LP, IP, and MILP modelsDeveloped heuristic methods using search-based algorithms to reduce delays in arterialsDeveloped a Python-based data pipeline to extract CAVs trajectories from connected vehiclesImplemented various techniques for data preprocessing, including data normalization, outlier detection and removal, and feature selection, to ensure the quality and integrity of the data prior to analysisEvaluated machine learning algorithms to estimate the occurrence of future crashesFacilitated the coordination of projects' activities to meet deadlines	
Highway & Traffic Consultant <i>WSP</i>	May 2019 – Aug. 2019 <i>Panama</i>
<ul style="list-style-type: none">Provided safety assessment for roadways, interchanges, and intersectionsDeveloped geometric design proposals	
Highway Engineer <i>Louis Berger</i>	Nov. 2012 – Aug. 2017 <i>Panama</i>
<ul style="list-style-type: none">Led the development of highway design projects. Project portfolio comprises several projects in the Latin American region (Panama, Colombia, Honduras, and Peru) adding up to \$3 billion in construction amountCoordinated with different departments (geotechnical, hydraulic, and pavement) to meet deadlinesFacilitated the establishment of a new business unit in Bogota, ColombiaSupervised and provided mentorship to a team of four drafters, contributing to their professional development, and ensuring project deliverables met quality standards	

LEADERSHIP/INVOLVEMENT

Founding Member and Chair of the IEEE-ITSS Student Chapter: Led the efforts to establish an IEEE Student Chapter branch of the Intelligent Transportation Systems Society (ITSS) at the University of Florida	2021 – 2022
ITE University Chapter Vice President: Coordinated student seminars and ITE activities	2021 – 2022
Student Representative at the UFTI Internal Steering Committee: Promoted engagement activities between industry professionals and students	2020 – 2022
Media Manager at KU Fulbright Student Association: Led dissemination of activities promoted by the Fulbright Student Board, 2018	2018 – 2019

FELLOWSHIPS & AWARDS

ITS Florida Anne Brewer Academic Scholarships: Awarded by the ITS Florida Chapter	2022
Second Place, IEEE-ITSS Logo Design Competition: Awarded by the IEEE Intelligent Transportation Systems Society (ITSS)	2022
Fulbright Fellowship: Awarded by the U.S Bureau of Educational and Cultural Affairs	2017
Global Best Project: Awarded by the ENR for the Coastal Beltway project in Panama	2015
Petroterminal of Panama Scholarship: Awarded by the Petroterminal of Panama (PTP) to complete a Bachelors's Degree at the Universidad Tecnologica de Panama	2009

RELEVANT PROJECTS

Evaluation of Apartment Pricing and Urban Development in Panama City Panama	2023
<ul style="list-style-type: none">Developed data scraper to collect the spatial distribution of residential projects, and transportation network in Panama CityPerformed data preprocessing, exploratory data analysis, outliers detectionEvaluate Machine Learning prediction models, ANN, XGBoost, Random Forest, Linear Regression	
Social Network Analysis, Research Topics in Transportation Engineering Florida	2022
<ul style="list-style-type: none">Developed data scraper to collect relationships among researchersPerformed data preprocessing, exploratory data analysis, outliers detection and treatmentPerformed network analysis to identify key stakeholders' degree, betweenness, and closeness centrality analysis	

PUBLICATIONS

Peer-Reviewed Journals

- [1] **Guerra, A.**, L. Elefeteriadou. Platooning Trajectory Optimization for Connected Automated Vehicles in Coordinated-Arterials. *Transportation Research Record*, 2022. <https://doi.org/10.1177/03611981221112099>
- [2] **Guerra, A.**, V. Gadhiya, P. Srisurin. Crash Prediction on Road Segments Using Machine Learning Methods. *ASEAN Engineering Journal*, 2022. <https://doi.org/10.11113/aej.v12.17601>

Conference Proceedings

- [1] **Guerra, A.**, L. Salas-Nino. Actuated Micromobility Users Presence Awareness System in Urban Arterials. *The Transportation Research Board (TRB) 102st Annual Meeting*, 2023
- [2] L. Carvalho, **Guerra, A.**, X. Wang, P. Manjunatha, L. Elefeteriadou. Simulation Platform for Testing and Evaluation of CAV Trajectory Optimization and Signal Control Algorithm Integrated with Commercial Traffic Simulator. *Proceedings of the 2022 Winter Simulation Conference*. <https://doi.org/10.1109/WSC57314.2022.10015399>
- [3] **Guerra, A.**, M. Asgharzadeh, A. Kondyli. Discretionary Lane Changing Decisions for Connected-Vehicles Based on Fuzzy Logic. *Transportation Research Board 99th Annual Meeting Transportation Research Board*, 2020

PROFESSIONAL SOCIETIES

IEEE: Institute of Electrical and Electronics Engineers	2022 – Present
TRB AME40: TRB Standing Committee on Transportation in Developing Countries	2022 – Present
IEEE-ITSS: IEEE Intelligent Transportation Systems Society	2022 – Present
ASCE: American Society of Civil Engineers	2022 – 2023
ITE: Institute of Transportation Engineers	2019 – Present