

AGUSTIN GUERRA

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PROFESSIONAL SUMMARY

Highly motivated engineering professional with **5+** years of experience in the transportation industry and **+4** years of research experience in traffic engineering. Committed to providing high-quality service focusing on innovation, safety, sustainability, operational performance, diversity, equity, and inclusion. Currently conducting research about optimization of traffic operations considering connected and automated vehicles (CAVs).

EDUCATION

PhD in Civil Engineering

University of Florida

Aug. 2019 – Expected May 2023

Gainesville, FL

MS in Civil Engineering

University of Kansas

Aug. 2017 – May 2019

Lawrence, KS

BS in Civil Engineering

Universidad Tecnológica de Panama

Mar. 2008 – May 2013

Panama, PA

TECHNICAL SKILLS

Expertise: Transportation Engineering, Statistical Analysis, Operation Research, Machine Learning

Programming and Statistical Languages: Python (+3 years), R (1 year)

Software: MS Office, SPSS

Developer Tools: Github, Visual Studio Code

Scientific Python Libraries: Pandas, NumPy, Matplotlib, CPLEX, sci-kit learn, TensorFlow, Selenium, webdrivermanager, xml

EXPERIENCE

Graduate Research Assistant

University of Florida

Aug. 2019 – Present

Gainesville, FL

- Performed all phases of the research process, including problem definition, literature review, research design, data collection, analysis of results, and preparation of reports
- Developed optimization algorithms in Python for arterials considering CAVs capabilities
- Developed, maintained, updated, and documented the development of simulation algorithms in Python for the evaluation of CAVs control strategies
- Performed unit, integration, story, and acceptance tests of numerical simulations for CAVs
- Assisted in the implementation of optimization algorithm for isolated intersections in a microsimulation software
- Formulated different optimization models to reduce intersection delays, including LP, IP, and MILP models
- Developed heuristic methods using search-based algorithms to reduce delays in arterials
- Developed a Python-based data pipeline to extract CAVs trajectories from connected vehicles
- Implemented 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 analysis
- Evaluated machine learning algorithms to estimate the occurrence of future crashes
- Facilitated the coordination of projects' activities to meet deadlines

Highway & Traffic Consultant

WSP

May 2019 – Aug. 2019

Panama

- Provided safety assessment for roadways, interchanges, and intersections
- Developed geometric design proposals

Highway Engineer

Louis Berger

Nov. 2012 – Aug. 2017

Panama

- 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 amount
- Coordinated with different departments (geotechnical, hydraulic, and pavement) to meet deadlines
- Facilitated the establishment of a new business unit in Bogota, Colombia
- Supervised 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

PUBLICATIONS

Peer-Reviewed Journals

- [1] **Guerra, A.**, L. Elefeteriadou. Platooning Trajectory Optimization for Connected Automated Vehicles in Coordinated-Arterials. *Transportation Research Record*, 2022
- [2] **Guerra, A.**, V. Gadhiya, P. Srisurin. Crash Prediction on Road Segments Using Machine Learning Methods. *ASEAN Engineering Journal*, 2022.

Conference Proceedings

- [1] 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*

PROFESSIONAL SOCIETIES

IEEE: Institute of Electrical and Electronics Engineers	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

REFERENCES

Lily Elefeteriadou, PhD: Barbara Goldsby Professor, University of Florida	elefter@ce.ufl.edu
Juliana Canas: Senior Advisor, First Climate	juliana.canas-vanegas@firstclimate.com
Julio Aysa: Env./Social and Governance Lead Officer, IDB	jaysa71@yahoo.com.mx