

# AGUSTIN GUERRA

888-858-6716 | [agustinguerra@ufl.edu](mailto:agustinguerra@ufl.edu) | [LinkedIn](#) | [Website](#)

## PROFESSIONAL PROFILE

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I am a highly motivated engineering professional with **+5** years of experience in the transportation industry and **+3** years of research experience in traffic engineering. My research interest includes human factors, driving simulator studies, microsimulation, traffic flow theory, and optimization frameworks considering Connected and Automated Vehicles (CAVs) capabilities. Currently, my PhD dissertation focuses on developing optimization algorithms for **real-time** applications considering CAVs at the arterial level.

## EDUCATION

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### PhD candidate in Civil Engineering

*University of Florida, GPA: 3.66*

Aug. 2019 – Expected May 2023

*Gainesville, FL*

### MS in Civil Engineering

*University of Kansas, GPA: 3.89*

Aug. 2017 – May 2019

*Lawrence, KS*

### BS in Civil Engineering

*Universidad Tecnologica de Panama*

Mar. 2008 – May 2013

*Panama, PA*

## RESEARCH EXPERIENCE

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### Graduate Research Assistant

*University of Florida*

Aug. 2019 – Present

- Develop optimization algorithms in Python for arterials considering CAVs capabilities
- Assist in the implementation of optimization algorithm for isolated intersections
- Facilitate the coordination of projects' activities to meet deadlines

### Master's Thesis

*University of Kansas*

May. 2018 – May. 2019

- Conducted a driving simulator study to assess human behavior under-connected environments during discretionary lane-changing (DLC) maneuvers
- Implemented a predictive DLC fuzzy logic model in a driving simulator

## SUMMARY OF RESEARCH SKILLS

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- Project management, research methodology & design, participant recruitment, data collection, data management, data analysis (R, SPSS), Python (Matplotlib, CPLEX, Gurobi, Numpy, Pandas, SciPy),  $\text{\LaTeX}$ , oral presentations, Education and Public Outreach (EPO)

## TEACHING EXPERIENCE

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### Teaching Assistant

*University of Florida*

Sep. 2020 – Dec. 2020

- Explained and assisted students with traffic flow theory assignments
- Created reference material to assist students to understand key concepts

### Guest Lecturer

*University of Florida*

Sep. 2021 – Dec. 2021

- Educated on identifying deficiencies of existing signal control strategies
- Introduce CAVs concepts, discrete optimization methods, Python-programming language as a tool for developing optimization frameworks for CAVs

## PUBLICATIONS

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### Peer-Reviewed Journals

- [1] **Guerra, A.**, L. Elefeteriadou. Platooning Trajectory Optimization for Connected Automated Vehicles in Coordinated-Arterials. *Transportation Research Record*, 2022 (under-review)

## PRESENTATIONS

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- [1] **Guerra, A.**, L. Elefeteriadou. A Trajectory-based Method for Platoon Formation of Connected and Automated Vehicles. *7th Annual UTC Conference for the Southeastern Region*, 2022
- [2] **Guerra, A.**, L. Elefeteriadou. Platooning Trajectory Optimization for Connected Automated Vehicles in Coordinated-Arterials. *The Transportation Research Board (TRB) 101st Annual Meeting*, 2022
- [3] **Guerra, A.**, L. Elefeteriadou. Platooning Trajectory and Signal Phasing Optimization for Connected Automated Vehicles in Coordinated-Arterials. *The Transportation Research Board (TRB) 101st Annual Meeting*, 2022
- [4] **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

## TECHNICAL REPORTS

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- [1] Manjunatha P., L. Elefeteriadou, M. Hunter, H. Zhou, S. Noei, **A. Guerra**, L. Carvalho, R. Favero, A. Guin, A. Saroj. Evaluation of Advanced Vehicle and Communication Technologies through Traffic Microsimulation (Project I5) *Phase II, Task 1*, 2022
- [2] Elefeteriadou L., **A. Guerra**, P. Manjunatha. Extended Development and Testing of Optimized Signal Control with Autonomous and Connected Vehicles, FDOT Contract BDV31-977-109, *Plan for Field Deployment*, 2021

## INDUSTRY EXPERIENCE

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### Highway & Traffic Consultant

WSP

May 2019 – Aug. 2019

Panama

- Provided safety assessment for roadways, interchanges, and intersections
- Developed geometric design proposals
- Conducted earthwork estimation for highway projects

### Highway Engineer

Louis Berger

Nov. 2012 – Aug. 2017

Panama

- Developed geometric designs for proposal and as-built drawings for highway 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
- Created digital model terrain for highway projects
- Verified slope stability analysis using the Slide-Rockscience software
- Supervised and mentored drafter team with 4 people

## LEADERSHIP/INVOLVEMENT

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<b>Volunteer at the Young Member Council, TRB:</b> Currently developing a website for the the YMC - S&R to enhance communication, and dissemination of events	2022 – Present
<b>Co-founder of the IEEE-ITS Student Chapter:</b> Currently leading the efforts to establish an IEEE Student Chapter focused on ITS	2022 – Present
<b>ITE University Chapter Vice President:</b> Coordinated student seminars and <u>ITE</u> activities	2021 – 2022
<b>Student Representative at the UFTI Internal Steering Committee:</b> Promoted engagement activities between industry professionals and students	2020 – 2022
<b>Media Manager at KU Fulbright Student Association:</b> Led dissemination of activities promoted by the Fulbright Student Board, 2018	2018 – 2019

## FELLOWSHIPS & AWARDS

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- **Anne Brewer Academic Scholarships :** Awarded by the Intelligent Transportation Society (ITS) Florida Chapter 2022
- **Fulbright Fellowship:** Awarded by the U.S Bureau of Educational and Cultural Affairs to complete a Master's Degree at the University of Kansas 2017
- **Global Best Project in Roads and Highways:** Awarded by the ENR for the Coastal Beltway project in Panama 2015

## PROFESSIONAL SOCIETIES

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<u>IEEE</u> : Institute of Electrical and Electronics Engineers	2022 – Present
<u>ASCE</u> : American Society of Civil Engineers	2022 – Present
<u>ITE</u> : Institute of Transportation Engineers	2019 – Present

## REFERENCES

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<b>Lily Elefteriadou, PhD:</b> Barbara Goldsby Professor, University of Florida	elefter@ce.ufl.edu
<b>Alexandra Kondyli, PhD:</b> Associate Professor, University of Kansas	akondyli@ku.edu
<b>Aurora Izquierdo:</b> Civil Structural Engineer II, WSP	Aurora.Izquierdo@wsp.com
<b>Juliana Canas:</b> Senior Advisor, First Climate	juliana.canas-vanegas@firstclimate.com