

Education

University of California, Berkeley <i>PhD (in progress) in Civil and Environmental Eng, Transportation Engineering</i> Advisor: Maria Laura Delle Monache	2022–Present
University of California, Berkeley <i>MS in Civil and Environmental Engineering</i> Advisor: Maria Laura Delle Monache	2022
University of Maryland, College Park <i>BS in Civil Engineering & BS in Mathematics</i>	2021

Experience

Research.....	
University of California, Berkeley <i>PhD Student – Maria Laura Delle Monache, Dept. of CEE</i>	Sept '21–Present <i>Berkeley, CA</i>
<ul style="list-style-type: none"> ○ 2D second-order Model: Studied the effect of the diffusion term on the conservative PDE with respect to traffic flow evolution. Programmed finite volume solver in Julia and verified results using microsimulation in Aimsun. ○ 2D NEWS Model: Translated existing C++ numerical method code into Matlab. Designed and advised semester project for Master's student where they added input features to the program. 	
University of Maryland, College Park <i>Undergraduate Researcher – Gang-Len Chang, Dept. of CEE</i>	Aug '18–May '21 <i>College Park, MD</i>
<ul style="list-style-type: none"> ○ Diverging Diamond Interchange: Developed methods of optimizing signal control and coordination for unconventional interchanges using Mixed-Integer Linear Programming formulations. Additionally formulated approximate models for efficient signal design for practical usage. ○ Center for Traffic Safety and Operations Part-time Fall and Spring semester, Full-time Winter and Summer. 	
University of Maryland, College Park <i>Research Intern – Ahmet Aydelik, Dept. of CEE</i>	Sept '17–Jan '18 <i>College Park, MD</i>
<ul style="list-style-type: none"> ○ Geotechnical: Analyzed highway slopes of various soil substitutes to determine a sustainable substrate. 	
The George Washington University <i>Research Intern – Catherine A. Forster, Dept. of Biological Sciences</i>	May '16–Nov '16 <i>Washington, D.C.</i>
<ul style="list-style-type: none"> ○ New Dinosaur: Described the brain case of a new and unique species. ○ Awards: Regeneron Science Talent Search Scholar (Semifinalist) 	

Teaching.....	
University of California, Berkeley <i>Graduate Student Instructor</i>	<i>Berkeley, CA</i>
<ul style="list-style-type: none"> ○ Fall '22—CE 255: Highway Traffic Characteristics (Graduate Level) Taught students traffic flow theory and transportation data processing; designed projects using Aimsun microsimulator; grade assignments 	

Publications

- Do, D; Matin, HN; & Delle Monache, ML (2023) A Two-Dimensional Diffusive and Advective Traffic Model on Large Networks [Conference presentation]. *TRB 102nd Annual Meeting*
- Do, D; Chen, YY; & Chang, GL (2022) Concurrent Optimization of Cycle Length, Green Splits, and Offsets for the Diverging Diamond Interchange. *Transp. Res. Rec.*

Scholarships

Stephen M. Evans, P.E. Memorial Scholarship <i>American Society of Highway Engineers</i>	2020/2021
--	------------------

Skills

- **Languages:** Julia, Python, R, MATLAB, \LaTeX , HTML, CSS, JavaScript
- **Engineering:** Aimsun, Vissim, XPress
- **Misc:** Photoshop, Illustrator, InDesign

Activities

UMD Puzzle Club

September '17–'21

President, Project Lead

Lead an online competition with ~800 participants across ~300 teams: <https://2021.umdpuze.club/>. Write logic/wordplay puzzles of varying complexity for UMD Puzzlehunts. Design and compose all official club documents and puzzles.