

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> University Honors	2021
Montgomery Blair High School <i>Magnet Program</i>	2017

Experience

Research.....	
University of California, Berkeley <i>PhD Student – Maria Laura Delle Monache, Dept. of CEE</i>	Sept '21–Present Berkeley, CA
<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 College Park, MD
<ul style="list-style-type: none"> ◦ Work Zone Signal Optimization: Developed an iterative method using Mixed-Integer Linear Programming to optimize signal control with concurrent demand allocation for work-zone impacted networks. Investigating methods for real-time control updates in order to optimize driver route-choice. ◦ 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 College Park, MD
<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 Washington, D.C.
<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) 	

Work.....	
Kim Engineering <i>Lab Technician Intern</i>	May '18–Aug '18 Beltsville, MD
Reviewed site plans and performed compaction and concrete inspections for geotechnical projects.	

Publications

<ul style="list-style-type: none"> ◦ Concurrent Optimization of Cycle Length, Green Splits, and Offsets for the Diverging Diamond Interchange D Do, YY Chen, & GL Chang, <i>Transp. Res. Rec.</i>, 2022 	
Under Review/Works in progress <i>last updated July 18, 2022</i>	

- A second-order model for macroscopic 2D Traffic Flow
D Do, HNZ Matin, & ML Delle Monache

Scholarships

Stephen M. Evans, P.E. Memorial Scholarship <i>American Society of Highway Engineers</i>	2020/2021
Leidos Corporate Partner Scholarship <i>A. James Clark School of Engineering</i>	2018/2019

Skills

Primary	Secondary
<ul style="list-style-type: none"> ○ Languages: Julia, Python, R, Matlab, \LaTeX, Java HTML, JavaScript ○ Engineering: XPress, Minitab, Vissim ○ Misc: Photoshop, Illustrator, InDesign 	<ul style="list-style-type: none"> Aimsun, Transyt7f, TSIS

Activities

UMD Puzzle Club <i>President, Project Lead</i> 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.	September '17–'21
American Concrete Institute <i>UMD Competition Team</i> <ul style="list-style-type: none"> ○ Mortar Flowability Competition 2019: Designed mortar mix and attended ACI convention in Québec City, Québec, Canada. ○ Pervious Concrete Competition 2018: Designed permeable mix and attended ACI convention in Las Vegas, NV. 	Feb '18–June '19