Manuel A. Martinez Garcia

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Objective

I am passionate about transportation research and education, with a strong interest in developing efficient, data-driven solutions that improve mobility systems and promote inclusive, accessible learning opportunities for all communities.

Education

UC Berkeley | B.S. Industrial Engineering and Operations Research **August 2022 - Present**

Coda Music Academy | Certificate of Completion **August 2018 - June 2021**

Certificate of Completion in Advanced Music Theory, Performance Specialties in Piano and Guitar

Experience

Cal Transportation Team| Operations Researcher **January 2023 – Present**

- Two-time 1st Place Winner – Northwestern District (2023) & MidPac (2025) for excellence in transportation analysis and planning
- Served as Lead Presenter for the Operations department, communicating key findings to judges and company representatives
- Performed traffic flow and congestion analysis using Synchro and PTV Vissim, informing signal timing and corridor improvements
- Developed population and demand forecasting models to optimize routing and resource allocation
- Conducted statistical analysis on transportation datasets to improve transit performance and service delivery
- Collaborated with design and planning teams to provide safety insights and target areas for redesign

Traffic Counts Reporter **September 2023 - October 2023**

- Conducted traffic surveys to monitor vehicle and pedestrian activity across intersections in Berkeley
- Utilized data visualization to create clear, informative reports on people's behavior across major and minor intersections.
- Supported development of traffic management plans to improve transportation flow

Monarch Research Scholar | UC Berkeley – IEOR Department & CITRIS **May 2024 – Present**

- **May–Dec 2024:** Selected as one of five students in the inaugural Monarch Research Scholars program to conduct faculty-mentored research through the IEOR Department
  - Conducted research for the Calyber project, developing dynamic pricing and matching systems for a shared carpool service
  - Reduced rider wait times and operational costs through optimization modeling
  - Delivered transportation analytics workshops for T-PREP students and coco-authored a paper framing Calyber as a teaching tool for applied machine learning
- **Jan 2025–May 2025:** Invited to assist in administering the Monarch program during the academic semester
  - Coordinated onboarding, drafted announcements, and supported communication and scheduling
- **May 2025–Present: Returned to Monarch Scholars for new research project at CITRIS**
  - Exploring cooperative automated vehicles for the trucking industry
  - Conducting cost-benefit analyses on gas savings, brake wear, and emissions reductions
  - Designing a potential AI-powered leaderboard system to promote eco-friendly driving habits

Engineering Mentorship Program | Lead Mentor **August 2024 – December 2024**

- Worked in a group of 5 to manage mentorship team for underrepresented engineering students on campus
- Coordinated and planned professional development logistics for student events
- Created and taught web development for personal / CV uses

Cal Institute of Transportation Engineers | STEM Outreach **January 2025 – Present**

- Co-authored a STEM Outreach proposal to introduce transportation engineering to local Berkeley schools
- Presented concepts on multimodal transportation, sustainability, and safety to K–12 students
- Helped organize interactive activities including a reverse science fair and a "bike-bus" demonstration
- Promoted early engagement in STEM through hands-on learning and real-world transportation challenges

Skills and Abilities

Technical & Analytical

- Nonlinear/Discrete Optimization, Linear Programming, Stochastic Processes
- Decision Analytics, Machine Learning, Forecasting, Data Visualization
- Logistics & Supply Chain Design, Production Systems Analysis
- Exploratory Data Analysis, Statistical Modeling

Programming & Tools

- Python, R, MATLAB, SQL, Excel, AMPL, Gurobi
- Synchro, PTV Vissim, Office 365
- Object-Oriented Programming (Python)
- OS: Linux, Windows, macOS
- Git/GitHub for version control and collaborative coding

Communication & Leadership

- Public Speaking, Lead Presenter (Transportation Research)
- English/Spanish Translation, Advising & Counseling
- Empathetic Communication & Behavioral Patience (developed through personal caregiving)
- Team collaboration across multidisciplinary research and outreach projects