

# Justin Tse, MLA

Graduate Student Researcher, Institute of Urban & Regional Development  
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## RESEARCH INTERESTS

Modelling and spatial analysis of urban climate conditions and interactions using techniques including machine learning, GeoAI, and structural equation modeling. Topics of interest include applications of low-cost sensors in multi-hazard assessment, interactions between heat and air pollution, local climate zone framework, urban morphological analysis, and climate-responsive design.

## EDUCATION

- 2023 - 2025      **Master of Landscape Architecture** (focus on environmental planning)  
University of California, Berkeley  
*Thesis:* “Examining the Interplay Between Temperature and PM<sub>2.5</sub> and Their Relationships with Land Use and Landscape Patterns: A Case Study of Denton County”  
*Committee:* Lu Liang (Chair, LAEP), Kristina Hill (LAEP), Zoé Hamstead (CP)
- 2021 - 2023      **Bachelor of Arts in Environmental Studies**  
University of California, Santa Barbara
- 2019 - 2021      **Associate of Arts**  
Edmonds College, Lynnwood

## RESEARCH EXPERIENCE

- 2024 - Present      **Graduate Student Researcher (Bay Area Air Quality Mapping)**  
*Institute of Urban and Regional Development- Berkeley, CA*  
Lead the code development in the ArcGIS Online Notebook to automate the preprocessing, spatial interpolation, and zonal statistics of crowdsourced air quality data in the Bay Area. Design a web application to enable the visualization of real-time PM<sub>2.5</sub> prediction and daily historical exposure, along with emission and wildfire data to inform outdoor air quality. Perform evaluations on different machine learning algorithms and sampling techniques to identify the optimal mapping method.
- 2024      **Graduate Student Researcher (Heat and Haze in Denton, TX)**  
*UC Berkeley - Berkeley, CA*  
Performed bivariate correlation and landscape morphological analysis using Python and R to investigate the influence of landscape patterns on the seasonal correlation between urban heat and air quality. Developed a series of forward-selection random effect models to identify the most significant landscape and land use variables. Created a Shiny dashboard to visualize temperature and humidity time series at different sensor locations.

- 2023                      **Undergraduate Researcher**  
*UCSB Sustainability - Santa Barbara, CA*  
 Analyzed the campus-wide survey to identify and synthesize housing and food insecurity trends, correlations, and variations across AANHPI communities. Conducted, transcribed, and coded 10 interviews to collect qualitative data on AANHPI students' experience regarding commuting and campus basic needs services. Work collectively with other researchers to develop a policy brief and brainstorm ideas to advise the task force on supporting AANHPI students in basic needs efforts.
- 2023                      **Research Assistant**  
*UC Santa Barbara - Santa Barbara, CA*  
 Collected and analyzed data from sources, collections, and databases to facilitate in-depth research on ocean equity and Chumash Heritage National Marine Sanctuary. Assisted with the oral history project by conducting literature reviews and transcribing interviews with the Chumash community. Attended relevant seminars, lectures, and events to collect qualitative data from different stakeholders.

## **WORK EXPERIENCE**

- 2024 - Present        **Graduate Student Intern**  
*City of San Jose – San Jose, CA*  
 Research park quality framework and standardization methods to establish a baseline model for city-wide park quality assessment. Develop park amenity conditions and diversity indicators at the census tract level from over 2700 features using ArcGIS Pro. Update spatial data, develop automation in RME, and load data into the enterprise database to provide analytical data. Perform other on-demand tasks, such as georeferencing, digitization, reviewing joint use agreements, updating attributes, and configuring mobile and web apps in ArcGIS Survey 123, ExperienceBuilder, and QuickCapture.
- 2023 - 2024           **Communications Intern**  
*Center for Creative Land Recycling - Berkeley, CA*  
 Was responsible for multimedia content creation through drafting newsletters and editing the official website regularly to maintain content consistency and quality, and to deliver timely information for effective external communication. Created 2 to 3 videos and multiple educational materials monthly to promote brownfield redevelopment and engagement.
- 2023 - 2024           **Cal Zero Waste Project Coordinator**  
*UC Berkeley - Berkeley, CA*  
 Spearheaded the deployment of reusables across the campus community by delegating respective tasks to staff associates and coordinating with food ware providers, university staff, and the City of Berkeley. Assisted with dishwashing capacity research on campus to identify potential sites for dishwasher deployment. Developed strategic plans and schemes collectively to promote the implementation of zero-waste projects and enhance their operations.

- 2023                    **OCS Mandarin Book Drafting Intern**  
*Environmental Defense Fund - San Francisco, CA*  
 Summarized and translated the methodology and findings of methane emission analysis projects and research into Chinese. Ideated and developed infographics, diagrams, maps, and illustrations using Adobe Creative Suite to enhance visual clarity and the efficiency of content delivery. Developed a book template on Microsoft Word to streamline the formatting process.
- 2023                    **Marketing Intern**  
*Wine To Water - Boone, NC*  
 Researched and analyzed WTW's audiences, social media engagement, public image, and market to gather market information. Created marketing materials, including short videos, reels, graphics, and manuals, to increase social media presence and disseminate information to stakeholders. Assisted with marketing project management and digital asset management to enhance project efficiency and content accessibility.
- 2022 - 2023           **Media Coordinator**  
*Don't Cage Our Ocean - Santa Barbara, CA*  
 Developed strategic plans and identified media to connect with to increase community engagement and expand the campaign. Coordinated volunteer events and activities, including petitioning and phone-banking. Participated in community events to engage with stakeholders and educate them about the social and environmental impacts of aquaculture.
- 2022                    **Research and Communication Intern**  
*U.S. Green Chamber of Commerce - Solana Beach, CA*  
 Curated online content for the Global Climate Pledge project to promote the project and enhance environmental awareness. Managed social media accounts and developed strategic plans to increase content reach. Identified and communicated with potential partners to establish partnerships.
- 2022                    **Urban Forestry Restoration Intern**  
*UCSB Your Children's Tree - Santa Barbara, CA*  
 Conducted weekly tree assessments for 50+ trees to inspect tree health and remedy potential threats. Assisted with other native species and forest restoration projects at YCT to expedite the North Campus Open Space Project.

### **SELECTED STUDENT PROJECTS**

- 2024                    Green Space as Indicator of Urban Health: Evaluating its Changes in Hong Kong
- 2023                    California Tiger Salamander GIS-based Habitat Assessment in Central Valley
- 2023                    Campus Point Faculty Housing Environmental Impact Report (Aesthetics)
- GIS Land Suitability Analysis - Urban PV Solar in the City of Seattle and Austin
- 2022                    Environmental Short Film - "Awake"

### **PEER-REVIEWED PUBLICATION**

Tse, J., & Liang, L. (2025). Evaluating PurpleAir Sensors: Do They Accurately Reflect Ambient Air Temperature?. *Sensors*, 25(10), 3044.

### **PRESENTATIONS**

- 2025                **Tse, Justin** (March 25). American Association of Geographers (AAG), “Examining the Interplay Between Temperature and PM2.5 and Their Relationships with Landscape Patterns: A Case Study of Denton County.” Detroit, MI.
- 2024                **Tse, Justin** (November 21). UC GIS Week, “Comparing GIS-Based and WUDAPT Approaches for Local Climate Zone Mapping: A Case Study in Denton County.” Online.

### **COMPETITIONS**

- 2024                2024 APA Student Planning and Design Competition (Reclaiming Nicollet: the People and the Place) – **Honorable Mention**  
2024 ULI Hines Student Competition (Emerald Nexus)

### **UNIVERSITY SERVICE**

- 2023 - 2023        **Mentor**, UCSB Transfer Student Mentoring Program
- 2022 - 2023        **Route Rider**, UCSB Associated Student Recycling
- 2021 - 2022        **Volunteer**, UCSB Greenhouse Garden Project

### **COMMUNITY INVOLVEMENT**

- 2022 - 2023        **Mapping Volunteer**, Humanitarian OpenStreetMap Team
- 2022 - 2023        **Volunteer**, Silicon Valley Alliance Church
- 2021 - 2023        **Photographer**, Daily Nexus
- 2022 - 2023        **Historian**, UCSB Hong Kong Student Association
- 2022 - 2023        **Graphic Designer**, UCSB International Student Association
- 2021 - 2022        **Activity Director**, UCSB International Student Association
- 2021 - 2021        **Volunteer**, UCSB CALPIRG

### **CERTIFICATIONS**

LEED Green Associate, *GBCI*  
Graduate Certificate in Geographic Information Science and Technology, *UC Berkeley*

### **ADDITIONAL TRAININGS**

Spatial Data Science: The New Frontier in Analytics offered by *Esri Academy*  
Imagery in Action offered by *Esri Academy*  
Regression Analysis Essentials offered by *Esri Academy*

### **PROFESSIONAL MEMBERSHIPS**

American Planning Association (APA)  
American Society of Landscape Architects (ASLA)  
Associate of Environmental Professionals (AEP)

American Association of Geographers (AAG)  
U.S. Green Building Council (USGBC)

### **SKILLS**

Technical writing: CEQA, EIR  
Graphic design: Adobe Illustrator, Adobe Photoshop, Canva  
Programming: Python, JavaScript, R  
Other: Microsoft Office Suite, Zoom, ArcGIS, ArcGIS Online, QGIS, Google Earth Engine

### **LANGUAGE PROFICIENCIES**

Cantonese: Fluent  
Mandarin: Proficient  
English: Proficient

### **PROFESSIONAL REFERENCES**

**Prof. Lu Liang** (Thesis Committee chair)

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**Prof. Kristina Hill** (Thesis Committee member)

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Research Director, Institute of Urban and Regional Development  
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**Nolan Bertuca** (Advisor)

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