

SCAG and USC Spatial Sciences Institute Internship Program

Scope of Work

Background

As a metropolitan planning organization – the largest in the nation – Southern California Association of Governments (SCAG) is responsible for developing long-range transportation plans and a Sustainable Communities Strategy for a vast and varied region, which includes the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The centerpiece of that planning work is Connect SoCal, our Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The Plan charts a path toward a more mobile, sustainable, and prosperous region by making key connections: between transportation networks, between planning strategies and between the people whose collaboration can make plans a reality.

Connect SoCal is one of many projects that SCAG is responsible for—other projects, for instance, are the Regional Housing Needs Assessment (RHNA) and Environmental Justice (EJ) Analysis. There are numerous projects created to support the development of the aforementioned major projects such as SCAG Data/Map Books, Retail Land Use Studies, Local Profiles, and General Plan Data/Map Books. Geographic information system (GIS), data science, architectural design, mathematics, artificial intelligent, and urban planning backgrounds are key to make these projects successful. As such, SCAG is seeking potential resources to solve a vast array of regional planning and environmental issues (e.g. job/housing imbalance, housing affordability, emerging technologies, etc.). On the other hand, one of SCAG’s mission is to provide services to its local partners; one of which is career development for students from local universities in the region. SCAG has been successful with such service from Cal Poly Pomona (CPP), Cal State University Northridge (CSUN), University of California Los Angeles (UCLA), and University of Southern California (USC).

As part of the University Partnership Program, SCAG proposes to partner with the USC Spatial Sciences Institute to provide GIS and technical assistance. Under general supervision, students will learn and perform a variety of administrative and technical duties in support of the Planning Division. This position will primarily assist in performing spatial database management, mapping and geoprocessing, conducting research and data analysis, and providing GIS services.

Projects

- **Remote Sensing and Image Classification Using ArcGIS Pro (Summer 2022 – Fall 2022)**
 - Digital image processing project that employs the very high resolution remotely sensed imagery to identify the ground features using Object-based image analysis (OBIA)
 - Utilizing ArcGIS Pro to further post-classification editing the outputs and assess its accuracy with randomly selected samples

Project Timeline and Number of Students

Potential candidates will be providing assistance two to three days a week up with at least 10 hours.

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Student Qualifications

Ideal candidates should understand whole systems of components workflow – from planning procedures, data geoprocessing, and land use policies to architecture geo-design, environmental impact computational assessments by using computer simulations, modeling, numerical techniques, and statistical data analysis.

Expected Outcomes

The major expected outcomes for students would be regional planning knowledge and enhancement in GIS and programming skills (e.g. Python, SAS, R, VBA, etc.). SCAG utilizes state of the art technologies and methodologies to support and develop Connect SoCal. As such, students would learn how to work professionally with SCAG staff and achieve potential skills such as collaboration, communication, presentation, and organization.