# The Jurisdictional Clarity Project: A Webtool for On-Demand, District-Specific Data Estimates

Beam, Ryan (School: Scotts Valley High School)

As an intern in the office of my State Assemblymember, I was sometimes tasked with determining the extent to which our legislative district was affected by geographic issues, such as projected sea level rise, increased wildfire risk, or drought zones. I learned quickly that California comes in many shapes and sizes; even official maps depict Californias that are inconsistently stretched, pulled, warped and rotated. As a result, the extent to which a legislative district is affected by a geographic issue can not usually be determined simply by superimposing a map of legislative district boundaries over the relevant “data map" and performing standard transformations. It is important that policymakers have access to the clearest data available, especially when it comes to the districts which they represent, and right now there is a stunning lack of properly contextualized data on that front. In order to provide much-needed jurisdictional clarity, I imagined and successfully created an easy-to-use webtool which allows under-resourced legislative offices to accurately resize online “data maps” to align with a standardized map of district boundaries, and then to accurately determine the percentage of their district which is affected by a given issue. With this information, there will be less room for public officials to accidentally misrepresent scientific findings or forget certain constituencies. Although I had no computer programming experience at the outset, I taught myself some Python and used the open source computer vision library OpenCV to build the webtool. The tool's key feature is its homography function, although as a complete novice, each of its subsystems was a project of its own, worthy of a complete abstract.