

## Research Experience Essay

Participating in NSF Research Experiences for Undergraduates at Cornell University and at the National Radio Astronomy Observatory (NRAO) in Green Bank, West Virginia, taught me more about astronomy than I could have learned in a classroom. At Cornell, I worked with the Extra Galactic Group (EGG) on preliminary work for a blind neutral hydrogen survey. The work I did helped EGG begin observations using the Arecibo telescope. My responsibility was to prepare and analyze a catalog of known sources in selected sky fields and to create sky maps for quick visual reference. This helped distinguish between known galaxies and new sources found by this survey, and highlighted any potentially confusing radio sources. Over the summer of 2004, I worked as a summer REU student at the NRAO with Jansky Fellow X. I produced a sample of Gigahertz Peaked Spectrum radio sources from a collection of more than three thousand spectra; only two hundred sources made the cut. I was responsible for sorting through the spectra, ultimately deciding which spectra were those of a GPS source, and fitting the spectra to parabolic and linear models in order to estimate interesting parameters such as the spectral indices, the turnover frequency, and the turnover flux density. I also conducted a statistical investigation of the sources in these lists in order to provide typical values of these parameters. Now back in city Y, I am working on my Advanced Honors senior thesis with my advisor, Z. I'm investigating the cosmic microwave background's dependence on cosmological parameters and using likelihood computations to estimate parameters like the density of baryonic matter. My work will culminate in a written thesis and University Advanced Honors designation when I graduate. I think the experience of writing the thesis will be absolutely invaluable in terms of preparing me for graduate study. I have finished running my code, and will use the spring semester to write.