**Lead Author:** David Vega  
**Degree objective when research was completed:** Bachelor's  
**Major:** Physics  
**College:** COS

**Co-presenter(s):** Not applicable

**Faculty Mentor(s):** Dr. Erkan Salik

**Bronco Student Center**  
**Time of Presentation:** 4 to 6 pm

**Presentation Type:** Poster Session

**Project Title:** Computational Microscopy on a Cellphone

**Synopsis:** In this research project we intend to test the maximum resolution and field of view that we can obtain with a computational microscope in a cellphone. Then we will try to overcome these limitations.

**Abstract:**  
Fluorescent microscopy has been a widely used technique in biomedical sciences to identify nanoparticles, viruses, organisms, molecules and many other things in different samples. In addition, many researchers have been modifying this technique to make it affordable and easily usable in any situation that a cellphone is available. For example, with this device a doctor in a low-income country can test for a bacteria or virus in a blood sample of a patient without having to access expensive laboratory equipment.

Using a current working model developed by other students, we are testing its maximum resolution, and field of view. We are currently obtaining pictures using this model and analyzing them in ImageJ (a software to analyze image data) to determine its maximum resolution with the current lens of the model developed and the cellphone camera. Once we obtain concrete data for maximum resolution, we will determine its maximum field of view.

Once we get the maximum resolution and field of view that we can obtain with this set up, we will try to determine its limitations. Understanding this we will try to overcome these limitations to produce a better working model of the computational microscope on a cellphone.