|  |  |  |
| --- | --- | --- |
| **Student** | **Advisor** | **Poster Title, Abstract & Student Bio** |
| Landon Burnley | Dr. Erik Sapper | Title: Evolutionary Programming and Genetic Algorithms for Polymer Coating Design and Synthesis  Abstract: Typical approaches used in the design and discovery of polymeric materials for the use in coatings rely on extensive time spent in a laboratory, and usually explore only very limited regions of the possible design space. As a result, new polymeric materials are only arrived at after much careful and resource-heavy experimentation. Additionally, the vast number of synthetic procedures available to the researcher is usually underutilized. The goal is to create an all-encompassing evolutionary programming approach that will use a genetic algorithm to automatically evolve new and novel polymeric materials. The ultimate objective is to generate new resin materials in a resource-efficient manner, minimizing both material waste and human resources. The use of polymer gene expressions that are encoded with synthetic procedure information allows for the automatic generation of proposed synthetic routes for novel polymeric materials. The program may be able to propose entire novel polymer systems that have specified characteristics. Initial attempts at codifying polymer syntheses into gene expressions and using those expressions in genetic algorithm calculations will be presented.  Bio: Landon Burnley is Materials Engineering Junior at Cal Poly.  He graduated from Robert McQueen High School, Reno NV, with the Class of 2015. One of Landon’s major accomplishments is making it into the Cal Poly Symphony for 3 years in a row. Landon loves to play the cello that he has been playing for 10 years now. He is also very much into photography, primarily landscapes and adventure photography. |