Team Name:

Algaeorithm

Team Schools/Organizations:

Los Altos High School, Los Altos, CA
The Paideia School, Atlanta, GA
Institute for Systems Biology, Seattle, WA

Abstract:

Our project, Algaeorithm, is an image analysis application that can rapidly quantify information about algae datasets. We began working on this project over the past summer after unprecedented climate disasters and skyrocketing gas prices prompted a desire for more sustainable forms of energy. In particular, biofuels, liquid fuels created from biomass like algae, seemed very promising because of their high energy density and compatibility with existing infrastructure. We had the opportunity to talk with Dr. Jacob Valenzuela, an expert in this field, and he mentioned the challenge of manually analyzing biomass datasets, especially by students. We believed we could create a machine-learning-based application to address this, and one specifically designed with students in mind. We also decided to create educational content in addition to the application to teach students both how it works and how to use it. Our application prototype has already been used by over 60 students in beta testing, and our educational content has been viewed over 150 times. During the AlgaePrize competition, we plan to add new features to our application and refine its accuracy, generate more educational content, and cultivate algae to test and optimize the application's core algorithm.