

2026 Winter Online Research for High Schoolers:
Project of Visualization in Engineering

Project Title: Visualization in Engineering

Project Prerequisites: This research project is for high school level students at the 10th grade and above who have an interest in majoring in engineering or in another scientific field.

About the project: Visualization has become a critical part of communicating technical ideas in engineering fields – video media being the most popular way to accomplish this, especially when research reaches an important milestone. Visualization in Engineering is an interdisciplinary project that sharpens the student’s skills in Engineering, computers and communication. Each student will be assigned an engineering project, apply computer software packages, and finish a documentary video to demonstrate his or her engineering research outcome.

Project Schedule: This four-week program meets twice a week. After each meeting, the student receives an assignment that contributes to becoming proficient in the tools needed in his or her project. The specific days are to be determined.

Week 1: Basic computer skills, visualization, and research communication.

Week 2: Pre-classical science readings, and research topic selections.

Week 3: Video structuring, preliminary videos, and critiques.

Week 4: Video finalization, critiques and final presentations.

Student Deliverables: The student learns the principles of visualization in engineering research and, by the end of the course, has produced a 5 to 10 minute documentary video on a scientific/engineering topic of interest (selected by the student).

Project Outcomes:

1. Understanding of the fundamentals of engineering visualization, of the structure of engineering communication, and of engineering video-based communication.
2. Gain experience with conducting a research survey of pre-classical science and engineering.
3. Gain experience with online video tools.
4. Gain experience with the basic stages of documentary videography, from documentary research in engineering and science, script writing, material collection, to editing.

Target Audience:

This program is tailored for high school students interested in Engineering and Physics and will join these related academic areas in undergraduate.