d. Publicly Releasable Project Summary/Abstract
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We run an 8 week summer educational program that aims to expose students to applied statistical research and teach students the statistical and data-analytical skills broadly applicable across the defense and aerospace communities. In particular, students will work on projects related to hypersonics with the faculty mentor at William & Mary in consultation with research collaborators at NASA Langley Research Center (LaRC). A total of six students will work in pairs on three projects related to high-speed air-breathing vehicles. The projects will focus on: (1) uncertainty quantification, (2) isolator dynamics, and (3) design optimization. Student pairs will consist of an undergraduate student (ideally at the freshman/sophomore level) paired with a high-school student (ideally at the rising junior/senior level). Student participants in the program will be recruited locally from Virginia with particular emphasis on recruiting a diverse collection of participants from marginalized and under-represented groups. The summer educational program will consist of eight weeks of activities. Each week will involve specific structured programming assignments to teach basic programming and data analytical skills on real data. Students in the program will also gather weekly for group meetings with PI. The group meetings will have specific ice-breaker points of discussion related to engineering statistics, data analysis, research ethics, and reproducibility. Weekly group meetings will also facilitate discussion progress on student projects. Students will also attend weekly seminar-style meetings with a wider group of research students doing summer research at the College of William & Mary. COVID restrictions allowing, the research program will organize a visit to LaRC for students to meet in-person with collaborators and tour facilities. The program will conclude with research presentations by students on their summer projects.