

LEVI JUNKINS, Dept of Computer Science and Engineering, Shepherd University, Shepherdstown, WV, 25443, and WEIDONG LIAO (Faculty Advisor), Dept of Computer Science and Engineering, Shepherd University, Shepherdstown, WV, 25443. Simulating Kessler Syndrome and the Space Debris Problem

Space is essential to our modern way of life; but as the number of satellites in orbit increases, so does the chance of collisions and subsequent debris. This creation of debris increases the probability of new collisions in a positive feedback loop, potentially leading to runaway growth called Kessler Syndrome. To investigate this problem, a simulation of Low Earth Orbit has been created. Results show exponential growth initially but a decrease in carrying capacity as time increases. More research is needed to apply this result to the real world.