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The Black Hole(s) of *Interstellar* NATHAN STEINLE, Undergraduate, Texas State University Physics Department, DONALD OLSON, Professor, Texas State University Physics Department — The movie *Interstellar* walks a fine line between science fiction and scientific accuracy, and it generally excels on both sides. The release of the movie and its companion book, *The Science of Interstellar* (2014) by Kip Thorne, generated much online conversation about attempts to replicate calculations underlying the film and the book. For Miller's planet, orbiting near the horizon of the rotating (Kerr) black hole Gargantua, three numerical quantities of interest are the time dilation factor (one hour on the planet corresponds to seven years on Earth), the location of the planet's orbit, and the speed in its orbit (given in Thorne's book as 0.55c). We use general relativistic equations to calculate these three quantities and explain discrepancies in online discussions of the speed of Miller's planet. Thorne mentioned that the makers of *Interstellar* chose visual elegance over scientific consistency in depicting the accretion disk. A somewhat surprising result of our calculations is that multiple choices of the black hole's mass and spin parameters are required to match all the details of the film's plot and the numerical values in the book.

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