Digital Apollo: Human And Machine In Spaceflight
As Apollo 11’s Lunar Module descended toward the moon under automatic control, a program alarm in the guidance computer's software nearly caused a mission abort. Neil Armstrong responded by switching off the automatic mode and taking direct control. He stopped monitoring the computer and began flying the spacecraft, relying on skill to land it and earning praise for a triumph of human over machine. In Digital Apollo, engineer-historian David Mindell takes this famous moment as a starting point for an exploration of the relationship between humans and computers in the Apollo program. In each of the six Apollo landings, the astronaut in command seized control from the computer and landed with his hand on the stick. Mindell recounts the story of astronauts’ desire to control their spacecraft in parallel with the history of the Apollo Guidance Computer. From the early days of aviation through the birth of spaceflight, test pilots and astronauts sought to be more than "spam in a can" despite the automatic controls, digital computers, and software developed by engineers. Digital Apollo examines the design and execution of each of the six Apollo moon landings, drawing on transcripts and data telemetry from the flights, astronaut interviews, and NASA’s extensive archives. Mindell’s exploration of how human pilots and automated systems worked together to achieve the ultimate in flight -- a lunar landing -- traces and reframes the debate over the future of humans and automation in space. The results have implications for any venture in which human roles seem threatened by automated systems, whether it is the work at our desktops or the future of exploration.

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"Digital Apollo: Human and Machine in Spaceflight" by David A. Mindell is an excellent work of history and a benchmark in the study of Project Apollo. It will become a starting point for all future work on the technology of this important space effort. The landscape of Apollo is littered with general histories, memoirs, and run-of-the-mill popular accounts, but outstanding historical writing on the subject is much less common. In the past most historians have focused on one of five major areas relative to Apollo. These include the foreign policy and public policy antecedents of Apollo and its immediate ramifications, the flights of the astronauts, the history of lunar science, the social and cultural history of the Moon landings, and the evolution of space technology. It is in this last category that this work makes an important contribution. While most of the prior work on the history of Apollo technology has been internalist in focus and undertaken by those mesmerized by the "nuts and bolts" story without much attention to the wider context, Mindell's account embraces a larger vision of how Apollo fit into the human/machine relationship for flight vehicles. He argues for, and then succeeds in demonstrating, a new research agenda in the history of human spaceflight that extends beyond the virtual catechism of retelling of a specific myth in the conventional story. He shows how historians might move beyond the "fetish for the artifact" that has dominated most of the historiography of Apollo. Mindell's most significant contribution is to highlight the debate that has raged since the origins of spaceflight between the pilot/astronauts and the aerospace engineers over the degree of control held by each group in human-rated spacecraft.

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