

Autonomous Infrastructure for Observatory Operations

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Abstract

This is an era of rapid change from ancient human-mediated modes of astronomical practice to a vision of ever larger time domain surveys, ever bigger "big data", to increasing numbers of robotic telescopes and astronomical automation on every mountaintop. Over the past decades, facets of a new autonomous astronomical toolkit have been prototyped and deployed in support of numerous space missions. Remote and queue observing modes have gained significant market share on the ground. Archives and data-mining are becoming ubiquitous; astroinformatic techniques and virtual observatory standards and protocols are areas of active development. Astronomers and engineers, planetary and solar scientists, and researchers from communities as diverse as particle physics and exobiology are collaborating on a vast range of "multi-messenger" science. What then is missing?