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## Enhancing asteroid taxonomy classification using multi-band observations

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The emergence of large-scale surveys, exemplified by the Sloan Digital Sky Survey (SDSS), has propelled asteroid taxonomic classification into the realm of big data, facilitating the characterization of hundreds of thousands of objects. Leveraging data from diverse surveys such as SDSS, SkyMapper, and Visible and Infrared Survey Telescope for Astronomy (VISTA), we present a comprehensive approach to asteroid classification. Integrating multi-band observations across visible and near-infrared spectra, we employ neural networks to obtain the most precise taxonomic classification to date for maximized number of objects. While previous efforts have primarily relied on isolated datasets from individual surveys, our approach merges data from multiple sources to bolster classification robustness. We aim to enhance the accuracy of asteroid taxonomic classification, paving the way for deeper insights into the composition and evolution of these bodies and preparing for the vast datasets anticipated from the forthcoming Legacy Survey of Space and Time (LSST).