

Fitting HI Spectra with Neural Networks ()

Hide affiliations

Hallenbeck, Gregory (*Computing & Information Studies, Washington & Jefferson College, Washington, PA, United States*);

Jong, Eun Ju (*Computing & Information Studies, Washington & Jefferson College, Washington, PA, United States*);

Muther, Ryan (*Northeastern University, Boston, MA, United States*)

The number of extragalactic sources of HI detected in radio surveys is growing exponentially. It will soon no longer be feasible for human researchers to individually fit spectra. We present algorithms for automatically extracting the typical parameters of interest for the 21 cm HI line —recessional velocity, velocity width, and integrated flux—using neural networks. Features are produced by convolving spectra with templates generated with the Busy Function. We present the results of fitting hundreds of spectra with many different shapes, and at a wide range of signal to noise ratio. Additionally, we compare with prior methods of automated source extraction. This work has been supported by NSF grants AST-1211005 and AST-1637339.

Publication:


American Astronomical Society, AAS Meeting #233, id.245.23

Pub Date:

January 2019

Bibcode:

2019AAS...23324523H

 Feedback/Corrections? (http://adsabs.harvard.edu/adsfeedback/submit_abstract.php?bibcode=2019AAS...23324523H)