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3D visualization and analysis of HI in and around galaxies

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Acknowledgment

To the reader,

thanks for reading my thesis, I hope you enjoyed it and in this final section I will be very short (due my deeply aversion to the writing process).

First of all I thank Simona, my girlfriend, for just being her (actually not always!) and being at my side.

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Propositions

1. The main role of 3D visualization of HI observations is to aid the interactive analysis of single (or groups of) sources. (Chapter 2)
2. Interactive 3D visualization provides an immediate overview of all the coherence in the spatial and velocity dimensions. In particular, it is very efficient for inspecting complex emission around galaxies such as tidal tails. (Chapter 2)
3. Filtering coupled with interactive 3D visualization provides a powerful tool to find and inspect very faint HI structures such as filaments. (Chapter 3)
4. The Intensity-driven gradient filter is the optimal choice for enhancing the signal-to-noise ratio (S/N) of HI data because of its adaptive characteristics. (Chapter 3)
5. The 3D **CloudLasso** selection technique is an essential tool to help analysis in the 3D space and strongly enhances the efficiency and effectiveness of the analysis itself. (Chapter 4)

6. Embedded modeling in a visualization tool greatly helps the identification and analysis of different HI components of the data. (Chapter 4)
7. The components of *SlicerAstro*: quantitative and comparative 3D visualization, 3D user interaction and analysis capabilities, and coupled 2D/3D displays offer an effective toolbox that can enhance the analysis of complex sources. (Chapter 4)
8. The quality of the cuisine of a country is correlated with the “product” of the local culture and geography location (e.g., amount of Sunshine).
9. A not *sufficient*, but *necessary* condition for cooking proper carbonara is the use of these ingredients: proper Roman pecorino, guanciale, black pepper and two fresh eggs per person.
10. Any personal achievement tastes unsatisfactory if it cannot be shared with the loved ones in the evening.