Acknowledgments

It is hard to find the words to thank all the people that helped me during my Ph.D. I am really thankful to my advisor Raffaele Perego, for his guidance, support and encouragement during these years at CNR. Raffaele gave me this opportunity and the freedom to choose the topics I liked most; I feel very fortunate to have him as a mentor and friend. In addition to Raffaele, I will be forever in debt to Claudio Lucchese, Fabrizio Silvestri and Salvatore Orlando, also members of the HPCLab. They are great mentors, and are still important guides in my growth as a researcher. In particular, I have to thank Fabrizio for pushing me to spend time abroad and for creating those opportunities; I wish him all the best in his new research position at Yahoo!.

Moreover, thanks to the external reviewers, Peter Mika and Gerhard Weikum, for taking the effort to contribute to this work by reviewing it: I am really honored of having their endorsement. I am also grateful to Roberto Grossi and Anna Bernasconi for their precious advice.

I would like to thank Giovanni Tummarello and the Digital Enterprise Research Institute in Galway, that hosted me for three amazing months. During my internship I had the opportunity to work (and to drink Guinness) with beautiful people like Giovanni, Stéphane Campinas, Renaud Delbru, and Giulio Cesare Solaroli that gave up their time to help me.

I am grateful to Ricardo Baeza-Yates that hosted me at Yahoo! Research in Barcelona, and also to Roi Blanco, Berkant Barla Cambazoglu, Peter Mika and Jordi Atserias for their valuable guidance and fruitful discussions. In Barcelona I also had good times thanks to the Yahooers, and to my flatmates Chiara, Giuseppe, Marcelo and Vittoria.

I had four amazing years in the HPCLab, and this is mostly due to the special people I met in the lab. I spent two years in the C64 room together with Franco, Gabriele C. and Gabriele T., that, like older brothers, were always available for helping me and are still good friends. I had a good time with everybody in the lab, but I want to individually thank Cristina, Daniele, Rossano, and Salvo: people with whom I shared hard work, long deadline nights, travels, and so many laughs. You made all this work less hard.

This thesis is dedicated to all my *famiglia*, where *famiglia* means all the

people that in these years have always been very close. I want to thank my mother who always had faith in me, and Sergio for all his valuable advice. Thanks to my father, Tullia, Flavio and Giulio for their unconditional support. Thanks to my musical family: Carlo, Chiara, Giovanni, Stefano and Thomas with whom I shared billions of reels, jigs, sad songs and beers. I never felt I was alone thanks to special friends like Dalia, Elisa, Laura, Marco, Robin, Irene, Alessandro, Riccardo, Tatonzio, Peppe, Donato, Ugo V., Ugo S., Stéphane and Kasia. Also, thanks to the Montesi family for welcoming me in their home. Thanks *famiglia*, I would have never reached this goal without your help.

Last but not least, to my incredible Sara, for her trust, love, hard work, and the beauty she has brought into my life.