ACKNOWLEDGEMENTS

First, I thank my advisor Craig Zimring, for his continuous support in the Ph.D. program. Craig was always there to listen and to give advice. He is responsible for involving me in the Archie project in the first place. He taught me how to ask questions and express my ideas. He showed me different ways to approach a research problem and the need to be persistent to accomplish any goal. I also thank the other two Archie project leaders, Janet Kolodner, who as my minor advisor guided my study of cognitive science and computing in my first two years at Georgia Tech, and Eric Domeshek, with whom I explored the ideas, organization, requirements and development of Archie II in MCL. Thanks also to Jim Foley (at GVU) for teaching me Human-Computer Interaction techniques and how to do a usability study, a skill that confirmed my intuition that designers need a drawing environment to access knowledge-based systems like Archie.

A special thanks goes to my co-advisor, Mark D. Gross, who is most responsible for helping me complete the writing of this dissertation as well as the challenging research that lies behind it. Mark has been a friend and mentor. He taught me how to write academic papers, made me a better programmer, had confidence in me when I doubted myself, and brought out the good ideas in me. (More importantly, he taught me how to work hard and play hard, and how to ski to reduce stress!) Without his encouragement and constant guidance (and the Tender Loving Care for me and my plants at the Sundance Lab), I could not have finished this dissertation. He was always there to meet and talk about my ideas, to proofread and mark up my papers and chapters, and to ask me good questions to help me
think through my problems (whether philosophical, analytical or computational). He also made the Sundance Lab a wonderful workplace and home for the past four years by indulging my ever expanding bookshelf space and computer equipment needs. The beautiful weather in Boulder, Colorado has kept me in good spirits. Also thanks to the folks at the Sundance Lab for interesting discussions and being fun to be with. Thanks, Sundancers!

Besides my advisors, I would like to thank the rest of my thesis committee: Jean Wineman, who asked me good questions and rescued me from various red tape crisis, Janet Kolodner, for her friendship, encouragement and hard questions, and Frank Ching, who gave insightful comments and reviewed my work on a very short notice.

During the course of this work, at Georgia Tech (1992 – 1994), I was supported in part by Archie research grants from EduTech Project D48-566, and Defense Advanced Research Projects Agency, monitored by ONR under contract N00014-91-J-4092. At Boulder (1994 – 1998), I was supported by grants from the National Science Foundation DDM-93-13186 and IRI-96-19856.

Let me also say ‘thank you’ to the following people at Georgia Tech: Bill Bullock (Industrial Design Program) and Thomas Gallowy (Dean) to have confidence in me and for supporting my research and teaching activities at the College of Architecture. Sharon Williams (Doctoral Program), for helping me at any time, and solving any unsolvable problems concerning Ph.D. students. (Sharon, you are great!) and Mercedes Saghini, who continues the support of the program after Sharon. Linda Duckworth (International Students and Scholars Program), who dedicated her precious time and a drawer in the file cabinet for all my complicated records. Thank you, Linda! Suguru Ishizaki, Aaron
Fleisher, N. John Habraken, Barbara Tversky, John Peponis, Chuck Eastman, Ömer Akin, Ray McCall, Mike Gerzso and Sheng-Fen Nik Chien for insightful remarks. I am also grateful to the designers who participated in my design drawing experiment (my friends, you know who you are, thank you!), and the 62 design students in Ray McCall’s Design Methods and Theory class in winter ‘94. Thanks also go to Janet Kolodner and Kevin Matthews for the use of screen shots from Archie and the Great Buildings Collection. Thanks to David Craig for help editing the final draft of the dissertation.

I am also greatly indebted to many teachers in the past: Ming-Hung Wang and Chao-Ching Fu (National Cheng Kung University in Taiwan) for getting me interested in Design Methods and Theory and coming to the United States. Wade Hokoda, Stephen Ervin and Bill Mitchell (Harvard GSD), for introducing me to CAD programs and concepts, and teaching me programming skills. Wade deserves a special mention. After hearing my complaints and frustration with the abilities of state of the art CAD tools, he helped me develop my idea and vision of what computers should do for designers, as well as with writing the statement of my research agenda for the Ph.D. Program. Wade lives on in the loving memory of his friends and family.

Last, but not least, I thank my family: my parents, Philip Y. Do, and Grace Lynn Do, for giving me life in the first place, for educating me with aspects from both arts and sciences, for unconditional support and encouragement to pursue my interests, even when the interests went beyond boundaries of language, field and geography. My sister Yi-Yin Do, for sharing her experience of the dissertation writing endeavor with me, for listening to my complaints and frustrations, and for believing in me. My brother Ben Roy Do, for refusing to answer my e-mails unless I have something interesting to say, for reminding me that my research should always be useful and serve good purposes for all humankind.