

Acknowledgments

Although only two names appear on the cover of this book, we recognize that if other people had not been there for us, and many others had not helped, this book would have never been written. These people provided training and guidance, created opportunities, gave advice and encouragement, corrected us when we were wrong, and showed the way to improved understanding of the subject. Although there were many pivotal individuals early in our lives, here we only mention those who have contributed during the last decade when the idea for this book first came to mind.

Timothy Trucano, Frederic Blottner, Patrick Roache, Dominique Pelletier, Daniel Aeschliman, and Luís Eça have been critical in generously providing technical insights for many years. We have benefited from their deep knowledge of verification and validation, as well as a number of other fields. Jon Helton and Scott Ferson have guided our way to an understanding of uncertainty quantification and how it is used in risk-informed decision making. They have also provided key ideas concerning how to connect quantitative validation results with uncertainty estimates in model predictions. Without these people entering our technical lives, we would not be where we are today in our understanding of the field.

Martin Pilch created opportunities and provided long-term funding support at Sandia National Laboratories, without which we would not have been able to help advance the state of the art in V&V. He, along with Paul Hommert, Walter Rutledge, and Basil Hassan at Sandia, understood that V&V and uncertainty quantification were critical to building credibility and confidence in modeling and simulation. They all recognized that both technical advancements and changes in the culture of people and organizations were needed so that more reliable and understandable information could be provided to project managers and decision makers.

Many colleagues provided technical and conceptual ideas, as well as help in working through analyses. Although we cannot list them all, we must mention Mathew Barone, Robert Croll, Sharon DeLand, Kathleen Diegert, Ravi Duggirala, John Henfling, Harold Iuzzolino, Jay Johnson, Cliff Joslyn, David Larson, Mary McWherter-Payne, Brian Rutherford, Gary Don Seidel, Kari Sentz, James Stewart, Laura Swiler, and Roger Tate. We have benefited from the outstanding technical editing support through the years from Rhonda Reinert and Cynthia Gruver. Help from students Dylan Wood, S. Pavan Veluri, and John Janeski in computations for examples and/or presentation of graphical results was vital.

Reviewers of the manuscript have provided invaluable constructive criticism, corrections, and suggestions for improvements. Edward Allen, Ryan Bond, James Carpenter, Anthony Giunta, Matthew Hopkins, Edward Luke, Chris Nelson, Martin Pilch, William Rider, and William Wood reviewed one or more chapters and helped immeasurably in improving the quality and correctness of the material. Special recognition must be given to Tim Trucano, Rob Easterling, Luís Eça, Patrick Knupp, and Frederick Blottner for commenting on and correcting several draft chapters, or in some cases, the entire manuscript. We take full responsibility for any errors or misconceptions still remaining.

We were blessed with encouragement and patience from our wives, Sandra and Rachel. They tolerated our long hours of work on this book for longer than we deserved.