

HOW TO EVALUATE AND PUBLISH YOUR MODEL

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This tutorial draws from a book in process about design patterns in cognitive modeling, tentatively titled /Design patterns in modeling and HCI/ to be published by OUP.

“How to evaluate your model” introduces the basic concepts in evaluating a model. After debunking the concept of proving a model, this chapter presents the case that you would like to do two fundamental things: show that the model is worth taking seriously, both to yourself and to others, and to know where to improve it. I note non-numeric, numeric, and advanced methods that have been used, using a scorecard as a way to summarize the fit. The tutorial will also address interactions of these tasks with publishing your model. *“How to publish your model”* provides general comments on publishing reports of models and the steps in modeling and simulation. I note the importance of writing and of the final results. I provide a detailed process for handling the preparation, submission, and revision of a paper reporting a model, particularly about the importance of staying in touch with stakeholders.

Keywords: modeling, publishing,

Expected audience (including the expected backgrounds of the attendees)

The expected audience is advanced undergraduate students, graduate students, and researchers evaluating simulations and looking for how to publish models and those looking for a theory of how to evaluate models of all kinds.

Short bio and contact information of the organizers

Frank Ritter (BSEE, with honors, U. of Illinois/Urbana; MS in psychology, PhD in AI and psychology, CMU) is a computer scientist and psychologist interested in creating theories of human behavior predicting that humans are intelligent because the theories are intelligent. He is a founding professor in the College of Information Sciences and Technology at Penn State, and is also affiliated with the

Psychology and sometimes Computer Science and Engineering, and Industrial Engineering. He taught at the U. of Nottingham for six years primarily in psychology but also in computer science. He is an Associate Editor for /Human Factors/ and has been an Associate editor for /IEEE SMC Part A: Humans and Systems/ and /Cognitive Systems Research/. He was a member of the Committee on Human-System Design and a member of Army Research Laboratory Technical Assessment Board (ARLTAB) at the National Academy of Sciences' National Research Council (NRC).

Ritter helped create the /International Conference on Cognitive Modeling/, and has been on each of the program committees; he currently publishes the proceedings. Along with Richard Young, he created and ran a successful series of tutorial programs held the day before the /Cognitive Science Society conference/. The tutorials have been part of that conference since 1999. He has served as an external examiner for cognitive science programs and PhDs in the UK and Canada, as a reviewer for NSF of a modeling graduate program in the US; and has hosted praktikum students from Germany and Japan. He has edited or written nine books, and over 60 journal articles and 100 conference papers. In 2005 he was a Fulbright Scholar at TU/Chemnitz to teach and research in cognitive modeling. In 2018 he received a lifetime achievement award from the Behavior Representation in Modeling and Simulation (BRIMS) Society, and in 2022 received the Penn State Graduate Teacher of the Year award. He is the editor of the Oxford Series on Cognitive Models and Architectures.

Further information is available at www.frankritter.com and frankritter.com/papers/ritter-papers.html