## BOOK REVIEW

# The Guide to Computer Simulations and Games:
## A Review

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*The Guide to Computer Simulations and Games*
*K. Becker and J.R. Parker*
*© 2011 by Wiley*
*480 pp.*
*$75.00*
*ISBN: 978-1-118-00923-9*

The Guide to Computer Simulations and Games, authored by Katrin Becker and J.R. Parker is, from its introductory beginning and across its 446 pages, centered around the notion that computer simulations and games are not at all disparate but very much aligning concepts. This not only makes for an interesting premise but also an engaging book overall which offers a resource into an educational subject (for it is educational simulations that the authors predominantly address) which is not overly saturated.

The aim of the book as a result of this decision, which is explained early on, but also because of its subsequent structure, is to enlighten its intended audience in the way that effective and successful simulations/games operate (on a theoretical/conceptual and technical level, although in the case of the latter the book intentionally never delves into the realms of software programming specifics per se), can be designed, built and, finally, evaluated. The book is structured in three different and distinct parts, with four chapters in the first, six chapters in the second and six chapters in the third and final one.

The first chapter is essentially a "teaser", according to the authors. There are a couple of more traditional simulations described, a couple of well-known mainstream games (Mario Kart and Portal 2, interesting choices, especially the first one) and then the authors proceed to present applications which show the simulation and game convergence. These applications have a strong educational outlook (covering on this occasion very diverse topics, from flood prevention to drink driving awareness, amongst others). This chapter works very well in initiating the audience in the subject matter and drawing the necessary parallels. With all of the simulations/games/educational applications included

described consistently in terms of their goals, structure, gameplay, features and simulated content, this leads into the rest of book much better than a "drier" first chapter would have done (which could have been a more obvious choice, the authors should be applauded for avoiding it). The second chapter is what one would have expected to open the book, making the differentation between simulation and modelling and then defining the former plus offering the necessary historical perspectives. The latter are thankfully not drawn out, necessary though they may be they can be found elsewhere and it is to the authors' credit that they keep these segments reasonably short, using them to provide some basic context for what follows. The third chapter also focuses on historical perspectives though these are more leveraged this time towards the transition from traditional (or analog) to digital simulations (and digital games). What is particularly interesting in this chapter is the section where the authors describe the implications incurred after this transition to a number of different aspects of the simulation. The final chapter of the first part (four) covers beginner's programming topics, albeit on a very high level, such as the concept of the algorithm and the design of flow charts. This chapter fits into what the authors set out to do but is one which could be, potentially, considered somewhat redundant (even if the audience is entirely non-technical they could pick up this information from somewhere else, so the space really could have been used for other more relevant content). Having said this, the place of this chapter in the overall narrative flow of the book is definitely justified.

The second part of the book predominantly provides the technical know-how on simulations, in order for the audience to understand (and appreciate) how they operate (and why). The authors call it the "heart of this book" quite early on and this is a statement which is hard to refute. This is probably the most beneficial part of the book too as the six chapters contained within cover concepts such as continuous, discreet and hybrid simulations and designing one (chapter 5), the importance of randomness and

its implementation (chapter 6), queuing systems and probability distributions (chapter 7), 2D/3D graphics and animation fundamentals (chapter 8) plus validation and verification (chapter 9). This part of the book is concluded with a chapter (chapter 10) dedicated to the detailing of design methodologies and an emergent model. The minor criticism which was leveraged towards chapter four can be maintained here for a small portion of this part of the book. For example, the computer graphics fundamentals sections the audience can read about elsewhere, if indeed they are not familiar with this already, as a lot of them it is suspected may well be if they picked up this book in the first place. This however is only a very small concern, this part of the book is expertly and succinctly written, clearly explained and well-referenced and could assist people who design, for example, serious games considerably in understanding how they are put together with the sequential comprehensive coverage of all the concepts described throughout it.

In the third part of the book the authors focus firstly on (a few) tools which can aid in the development of simulations/games such as GameMaker and the Unreal Development Kit (amongst others). This chapter could have been much shorter, if not omitted altogether, as it offers information which is easily accessible, especially considering what follows it, which is four original case studies. It would have been far more useful to have the space for an additional one of those. These four case studies, which take up a chapter each and culminate in the development of a stock market-themed serious game (using GameMaker), are a great practical summary of concepts discussed previously. The final serious game's development process, simple though the results may be, is in fact very clearly explained (as are all the case studies in fact) and constitutes a real highlight for this book. Although the strong second part of the book remains the core, it is commendable to see actual hands-on examples (drawing parallels to the second chapter concepts) and also discussions on important topics such as playtesting.

In summary, this book could be very useful to aspiring serious game designers, particularly if they have educational applications in mind. It is mostly aimed at an audience with little or no experience in the processes of designing a game (or simulation) though it has to be said that more experienced designers could also benefit considerably from certain parts of it, particularly if they intend to use the second section (chapters 5 to 10) as a handy and convenient reference for fundamental concepts.

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