



# Growing Artificial Societies: Social Science from the Bottom Up

*Joshua M. Epstein, Robert L. Axtell*

Download now

[Click here](#) if your download doesn't start automatically

# Growing Artificial Societies: Social Science from the Bottom Up

*Joshua M. Epstein, Robert L. Axtell*

**Growing Artificial Societies: Social Science from the Bottom Up** Joshua M. Epstein, Robert L. Axtell

In this groundbreaking study, Joshua M. Epstein and Robert L. Axtell use cutting-edge computer simulation techniques to examine how such fundamental collective behaviours as group formation, cultural transmission, combat, and trade are seen to "emerge" from the interaction of individual agents following simple local rules. In their computer model, Epstein and Axtell begin the development of a "bottom up" social science. Their program, named Sugarscape, simulates the behaviour of artificial people (agents) located on a landscape of a generalized resource (sugar). Agents are born onto the Sugarscape with a vision, a metabolism, a speed, and other genetic attributes. Their movement is governed by a simple local rule: "look around as far as you can; find the spot with the most sugar; go there and eat the sugar." Every time an agent moves, it burns sugar at an amount equal to its metabolic rate. Agents die if and when they burn up all their sugar. A remarkable range of social phenomena emerge. For example, when seasons are introduced, migration and hibernation can be observed. Agents are accumulating sugar at all times, so there is always a distribution of wealth. Next Epstein and Axtell attempt to grow a "proto-history" of civilisation. It starts with agents scattered about a twin-peaked landscape; over time, there is self-organization into spatially segregated and culturally distinct "tribes" centered on the peaks of the Sugarscape. Population growth forces each tribe to disperse into the sugar lowlands between the mountains. There, the two tribes interact, engaging in combat and competing for cultural dominance, to produce complex social histories with violent expansionist phases, peaceful periods, and so on. The proto-history combines a number of ingredients, each of which generates insights of its own. One of these ingredients is sexual reproduction. In some runs, the population becomes thin, birth rates fall, and the population can crash. Alternatively, the agents may over-populate their environment, driving it into ecological collapse. When Epstein and Axtell introduce a second resource (spice) to the Sugarscape and allow the agents to trade, an economic market emerges. The introduction of pollution resulting from resource-mining permits the study of economic markets in the presence of environmental factors. Growing Artificial Societies is also available in CD-ROM format which includes about fifty animations that develop the scenarios described in the text. This study is part of the 2050 Project, a joint venture of the Santa Fe Institute, the World Resources Institute, and the Brookings Institution. The project is an international effort to identify conditions for a sustainable global system in the middle of the next century and to design policy actions to help achieve such a system.

 [Download Growing Artificial Societies: Social Science from ...pdf](#)

 [Read Online Growing Artificial Societies: Social Science fro ...pdf](#)

## **Download and Read Free Online Growing Artificial Societies: Social Science from the Bottom Up** **Joshua M. Epstein, Robert L. Axtell**

---

### **From reader reviews:**

#### **Bernard McLaren:**

Reading a guide tends to be new life style on this era globalization. With reading you can get a lot of information that could give you benefit in your life. Along with book everyone in this world can certainly share their idea. Publications can also inspire a lot of people. Many author can inspire their very own reader with their story or even their experience. Not only situation that share in the guides. But also they write about the knowledge about something that you need example. How to get the good score toefl, or how to teach your kids, there are many kinds of book which exist now. The authors in this world always try to improve their expertise in writing, they also doing some investigation before they write on their book. One of them is this Growing Artificial Societies: Social Science from the Bottom Up.

#### **Mary Partee:**

The guide with title Growing Artificial Societies: Social Science from the Bottom Up has lot of information that you can find out it. You can get a lot of gain after read this book. This specific book exist new expertise the information that exist in this publication represented the condition of the world currently. That is important to yo7u to understand how the improvement of the world. This particular book will bring you throughout new era of the syndication. You can read the e-book in your smart phone, so you can read the idea anywhere you want.

#### **Jason Scott:**

Growing Artificial Societies: Social Science from the Bottom Up can be one of your starter books that are good idea. All of us recommend that straight away because this e-book has good vocabulary which could increase your knowledge in vocabulary, easy to understand, bit entertaining but delivering the information. The author giving his/her effort to set every word into joy arrangement in writing Growing Artificial Societies: Social Science from the Bottom Up however doesn't forget the main position, giving the reader the hottest in addition to based confirm resource facts that maybe you can be certainly one of it. This great information can easily drawn you into fresh stage of crucial contemplating.

#### **Jennifer Stanley:**

You can spend your free time to see this book this reserve. This Growing Artificial Societies: Social Science from the Bottom Up is simple to deliver you can read it in the area, in the beach, train in addition to soon. If you did not possess much space to bring the printed book, you can buy the e-book. It is make you quicker to read it. You can save typically the book in your smart phone. Thus there are a lot of benefits that you will get when one buys this book.

**Download and Read Online Growing Artificial Societies: Social  
Science from the Bottom Up Joshua M. Epstein, Robert L. Axtell  
#GKC8TJFHU4V**

## **Read Growing Artificial Societies: Social Science from the Bottom Up by Joshua M. Epstein, Robert L. Axtell for online ebook**

Growing Artificial Societies: Social Science from the Bottom Up by Joshua M. Epstein, Robert L. Axtell Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Growing Artificial Societies: Social Science from the Bottom Up by Joshua M. Epstein, Robert L. Axtell books to read online.

## **Online Growing Artificial Societies: Social Science from the Bottom Up by Joshua M. Epstein, Robert L. Axtell ebook PDF download**

**Growing Artificial Societies: Social Science from the Bottom Up by Joshua M. Epstein, Robert L. Axtell Doc**

**Growing Artificial Societies: Social Science from the Bottom Up by Joshua M. Epstein, Robert L. Axtell Mobipocket**

**Growing Artificial Societies: Social Science from the Bottom Up by Joshua M. Epstein, Robert L. Axtell EPub**