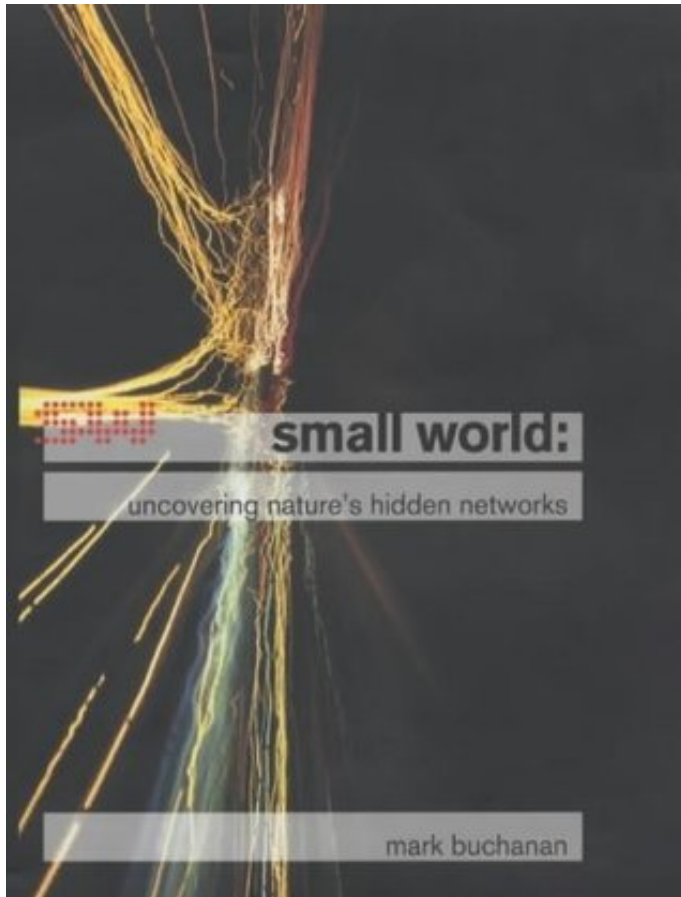

Mark Buchanan

Small World: Uncovering Nature's Hidden Networks



Title: Small World: Uncovering Nature's Hidden Networks

Author: Mark Buchanan

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Description

Most of us have had the experience of running into a friend of a friend far away from home - and feeling that the world is somehow smaller than it should be. We usually write off such unlikely encounters as coincidence, even though it seems to happen with uncanny frequency. According to a handful of physicists at Los Alamos and other cutting-edge research labs around the world, it turns out that this small-world phenomenon is no coincidence at all. Rather, it is a manifestation of a hidden and powerful design that binds the world together. In this title, Mark Buchanan tells the story of how a stunning discovery in complexity science is revolutionizing the way we understand networks. The Internet, the brain, power-grids and the global economy are all networks that seem to have evolved a small-world geometry - with properties independent of the nature of the things themselves. The author argues that this underlying pattern may be one of nature's greatest design tricks, and the book shows us how scientists are putting this new insight to work.

Insightful reviews

Domenico: Che cosa accomuna i rapporti sociali, l'economia, la struttura del World Wide Web e la diffusione delle malattie?

Il saggio divulgativo di Mark Buchanan, fisico teorico, cerca di rispondere a queste domande. Con disinvoltura e con un linguaggio semplice e accattivante espone i vari tipi di rete esistenti. Una rete fortemente aggregata ma priva di contatti "casuali" sembrerebbe incrementare la fiducia dei vari membri e di contro scoraggiare la diffusione delle idee o "memi"; una rete casuale invece, nella quale i vari membri intrattengono rapporti "a casaccio" non vincolati da contiguità spaziale,

non sembrerebbe rispecchiare una situazione realistica. Infine vi sono delle reti che riassumono tutte le caratteristiche delle due precedenti: sono le reti "piccolo mondo", reti fortemente aggregate e aventi anche dei "legami deboli" definiti così dal sociologo americano Granovetter; questi legami permetterebbero la coesione di tutta la rete mondiale e di gruppi umani fortemente aggregati che altrimenti resterebbero isolati. In una rete sociale, per esempio, pochi individui al mondo (chiamati hubs) sembrerebbero svolgere questa funzione coesiva: la loro scomparsa invece potrebbe sortire degli effetti disastrosi sull'intera rete. Buchanan analizza una particolarità di questo tipo di rete: attraverso soli sei passaggi (una catena comprendente gli amici degli amici degli amici degli amici degli amici degli amici) permetterebbe a qualsiasi uomo di contattare il Presidente degli Stati Uniti: ogni individuo è separato da soli sei gradi da qualsiasi altro abitante sulla faccia della Terra. Attraverso il gusto del paradosso Buchanan arriva a una conclusione: il mondo apparentemente dominato dal caos sembra in realtà vincolato da leggi e configurazioni topologiche precise, che non sarebbero frutto della capricciosa volontà individuale, ma quasi il risultato di un'anima universale.

Riana: interesting book that quite impressibly demonstrates how everything is connected with everything.

good, accessible, and educating read!

Theresa: Great explanation of complex mathematical phenomenon relating to networks that help explain many things from communities to river systems. I highly recommend it to anyone who likes science for the non-scientist-educated-person.

Katie: thoroughly fascinating. the area is either far more complicated and masses easier than I thought. so that you can comprehend what fireflies in New Guinea need to do with the unfold of AIDS, learn this.

Unicorn: i discovered this a light, relaxing advent to community theory.

Jack: Having stumbled via a graph conception path in college, i will say the writer places an effective renowned face on principally painful, annoyed memories. Translating arcane statistical physics and community conception into implications in regards to the efficacy of assorted schemes for scuffling with AIDS made for fascinating reading. And of course, to be filed away for these cocktail conversations approximately why the examine of simple science, math, might be funded.

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