

Chapter 3 Model Development And Simulation

Agent-based modeling and simulation (ABMS), a way to simulate a large number of choices by individual actors, is one of the most exciting practical developments in business modeling since the invention of relational databases. It represents a new way to understand data and generate information that has never been available before--a way for businesses to view the future and to understand and anticipate the likely effects of their decisions on their markets and industries. It thus promises to have far-reaching effects on the way that businesses in many areas use computers to support practical decision-making. Managing Business Complexity is the first complete business-oriented agent-based modeling and simulation resource. It has three purposes: first, to teach readers how to think about ABMS, that is, about agents and their interactions; second, to teach readers how to explain the features and advantages of ABMS to other people and third, to teach readers how to actually implement ABMS by building agent-based simulations. It is intended to be a complete ABMS resource, accessible to readers who haven't had any previous experience in building agent-based simulations, or any other kinds of models, for that matter. It is also a collection of ABMS business applications resources, all assembled in one place for the first time. In short, Managing Business Complexity addresses who needs ABMS and why, where and when ABMS can be applied to the everyday business problems that surround us, and how specifically to build these powerful agent-based models.

This title represents the most forward thinking and comprehensive review of development economics currently available.

Delineating a comprehensive theory, Advanced Vibration Analysis provides the bedrock for building a general mathematical framework for the analysis of a model of a physical system undergoing vibration. The book illustrates how the physics of a problem is used to develop a more specific framework for the analysis of that problem. The author elucidates a general theory applicable to both discrete and continuous systems and includes proofs of important results, especially proofs that are themselves instructive for a thorough understanding of the result. The book begins with a discussion of the physics of dynamic systems comprised of particles, rigid bodies, and deformable bodies and the physics and mathematics for the analysis of a system with a single-degree-of-freedom. It develops mathematical models using energy methods and presents the mathematical foundation for the framework. The author illustrates the development and analysis of linear operators used in various problems and the formulation of the differential equations governing the response of a conservative linear system in terms of self-adjoint linear operators, the inertia operator, and the stiffness operator. The author focuses on the free response of linear conservative systems and the free response of non-self-adjoint systems. He explores three method for determining the forced response and approximate methods of solution for continuous systems. The use of the mathematical foundation and the application of the physics to build a framework for the modeling and development of the response is emphasized throughout the book. The presence of the framework becomes more important as the complexity of the system increases. The text builds the foundation, formalizes it, and uses it in a consistent fashion including application to contemporary research using linear vibrations.

This book discusses systematically treatment on the development of stochastic, statistical and state space models of the HIV epidemic and of HIV pathogenesis in HIV-infected individuals, and presents the applications of these models. The book is unique in several ways: (1) it uses stochastic difference and differential equations to present the stochastic models of the HIV epidemic and HIV pathogenesis; in this sense, the deterministic models are considered as special cases when the numbers of different type of people or cells are very large (2) it provides, a critical analysis of deterministic and statistical models in the literature; (3) it develops state space models by combining stochastic models and statistical models; and (4) it provides a detailed discussion on the pros and cons of the different modeling approaches. This book is the first to introduce state space models for the HIV epidemic. It is also the first to develop stochastic models and state space models for the HIV pathogenesis in HIV-infected individuals.

Cybernetics and Development

General Contractor Business Model for Smart Cities

Hydraulic Fracture Modeling

A Neuro-reliability-based Approach

The Integration of Regions and Nations

Impact Evaluation in Practice, Second Edition

Nanotechnology-Based Approaches for Targeting and Delivery of Drugs and Genes provides an overview of the important aspects of nanomedicine in order to illustrate how to design and develop novel and effective drug delivery systems using nanotechnology. The book is organized into three sections, beginning with an introduction to nanomedicine and its associated issues. Section two discusses the latest technologies in nanomedicine, while the third section covers future developments and challenges in the field. By focusing on the design, synthesis, and application of a variety of nanocarriers in drug and gene delivery, this book provides pharmaceutical and materials science students, professors, clinical researchers, and industry scientists with a valuable resource aimed at tackling the challenges of delivering drugs and genes in a more targeted manner. Explores a wide range of promising approaches for the diagnosis and treatment of diseases using the latest advances in cutting-edge nanomedical technologies Contains contributions from world-renowned experts and researchers working in the area of nanomedicine and drug delivery Covers the associated challenges and potential solutions to working with nanotechnology in drug delivery Highlights crucial

topics, such as biopharmaceutical and toxicity issues, quality by design, drug targeting, and more

Hydraulic Fracture Modeling delivers all the pertinent technology and solutions in one product to become the go-to source for petroleum and reservoir engineers. Providing tools and approaches, this multi-contributed reference presents current and upcoming developments for modeling rock fracturing including their limitations and problem-solving applications. Fractures are common in oil and gas reservoir formations, and with the ongoing increase in development of unconventional reservoirs, more petroleum engineers today need to know the latest technology surrounding hydraulic fracturing technology such as fracture rock modeling. There is tremendous research in the area but not all located in one place. Covering two types of modeling technologies, various effective fracturing approaches and model applications for fracturing, the book equips today's petroleum engineer with an all-inclusive product to characterize and optimize today's more complex reservoirs. Offers understanding of the details surrounding fracturing and fracture modeling technology, including theories and quantitative methods Provides academic and practical perspective from multiple contributors at the forefront of hydraulic fracturing and rock mechanics Provides today's petroleum engineer with model validation tools backed by real-world case studies

Integrating the results of comparative morphology, experiments on pattern development, the genetics of color patterns, and theoretical modeling of pattern formation, Nijhout shows that the enormous diversity of natural patterns arises largely from quantitative variations in a small set of readily understandable generating rules.

At the global level, international actors have repeatedly expressed their desire to end hunger and food insecurity. However, food insecurity has persisted. More analysis is hence needed on the link between continuously high levels of global food insecurity and the ever increasing flow of development aid. Global Food Security and Development Aid investigates the impact that development aid has had on food security in developing countries and includes international case studies on Peru, Ethiopia, India and Vietnam. It examines the effect of development aid in general and the impact of aid divided into different categories based on donor, mechanism and sector to which it is provided. In each examined relationship between aid and food security, particular attention is paid to the potentially intervening role played by the quality of national and/or local governance. The book makes policy recommendations, most importantly that donors should take greater care in considering which types of aid are suitable to which specific countries, localities, and development goals, and account for expected developments in the complex relationship between aid, food security, and governance. This book will be of considerable interest to students, researchers and policy-makers in the areas of development aid and food security.

Stochastic Modeling of AIDS Epidemiology and HIV Pathogenesis

A Bayesian Approach

Multinational Business Service Firms

Duality of the Mind

Birth Models That Work

First Automotive Software Workshop, ASWSD 2004, San Diego, CA, USA, January 10-12, 2004, Revised Selected Papers

Many regulations issued by the U.S. Environmental Protection Agency (EPA) are based on the results of computer models. Models help EPA explain environmental phenomena in settings where direct observations are limited or unavailable, and anticipate the effects of agency policies on the environment, human health and the economy. Given the critical role played by models, the EPA asked the National Research Council to assess scientific issues related to the agency's selection and use of models in its decisions. The book recommends a series of guidelines and principles for improving agency models and decision-making processes. The centerpiece of the book's recommended vision is a life-cycle approach to model evaluation which includes peer review, corroboration of results, and other activities. This will enhance the agency's ability to respond to requirements from a 2001 law on information quality and improve policy development and implementation.

A comprehensive overview of an interdisciplinary approach to robotics that takes direct inspiration from the developmental and learning phenomena observed in children's cognitive development. Developmental robotics is a collaborative and interdisciplinary approach to robotics that is directly inspired by the developmental principles and mechanisms observed in children's cognitive development. It builds on the idea that the robot, using a set of intrinsic developmental principles regulating the real-time interaction of its body, brain, and environment, can autonomously acquire an increasingly complex set of sensorimotor and mental capabilities. This volume, drawing on insights from psychology, computer science, linguistics, neuroscience, and robotics, offers the first comprehensive overview of a rapidly growing field. After providing some essential background information on robotics and developmental psychology, the book looks in detail at how developmental robotics models and experiments have attempted to realize a range of behavioral and cognitive capabilities. The examples in these chapters were chosen because of their direct correspondence with specific issues in child psychology research; each chapter begins with a concise and accessible overview of relevant empirical and theoretical findings in developmental psychology. The chapters cover intrinsic motivation and curiosity; motor development, examining both manipulation and locomotion; perceptual development, including face recognition and perception of space; social learning, emphasizing such phenomena as joint attention and cooperation; language, from phonetic babbling to syntactic processing; and abstract knowledge, including models of number learning and reasoning strategies. Boxed text offers technical and methodological details for both psychology and robotics experiments.

What is econophysics? What makes an econophysicist? Why are financial economists reluctant to use results from econophysics? Can we overcome disputes concerning hypotheses used in financial economics and that make no sense for econophysicists? How can we create a profitable dialogue between financial economists and econophysicists? How do we develop a common theoretical framework allowing the creation of more efficient models for the financial industry? This book moves beyond the disciplinary frontiers in order to initiate the development of a common theoretical framework that makes sense for both traditionally trained financial economists and econophysicists. Unlike other publications dedicated to econophysics, this book is written by two financial economists and it situates econophysics in the evolution of financial economics. The major issues that concern the collaboration between the two fields are analyzed in detail. More specifically, this book explains the theoretical and methodological foundations of these two fields in an accessible vocabulary providing the first extensive analytic comparison between models and results from both fields. The book also identifies the major conceptual gate-keepers that complicate dialogue between the two communities while it provides elements to overcome them. By mixing conceptual, historical, theoretical and formal arguments our analysis bridges the current deaf dialogue between financial economists and econophysicists. This book details the recent results in econophysics that bring it closer to financial economics. So doing, it identifies what remains to be done for econophysicists to contribute significantly to financial economics. Beyond the clarification of the current situation, this book also

proposes a generic model compatible with the two fields, defining minimal conditions for common models. Finally, this book provides a research agenda for a more fruitful collaboration between econophysicists and financial economists, creating new research opportunities. In this perspective, it lays the foundations for common theoretical framework and models.

Ecosystems are still a puzzle for mankind. We would like to be able to know their reactions and control them, but repeatedly we have been surprised by their unexpected reactions to our somewhat hasty actions. We unfortunately have to admit that our present knowledge about ecosystems and their true nature is rather limited. Many excellent contributions to a more profound understanding of ecosystems have been launched during the last two decades, but if you do not know the field, it looks as if all the presented ecosystem theories are in complete discord with each other. However, ecosystems are extremely complex and only a pluralistic view will be able to reveal their basic properties. The different approaches therefore have much in common, when you go deeper into the core material, than the first superficial more glance will be able to tell and there is therefore a natural need for a unification of the various approaches to ecosystem theories. It has for many years been my desire to attempt to make a unification of the many excellent thoughts, ideas and observations about ecosystems, that scientists have contributed. These thoughts, ideas and hypotheses have not been made in vain.

International Series of Monographs in Pure and Applied Biology: Zoology

Developmental Robotics

Automotive Software-Connected Services in Mobile Networks

Disrupted Development and the Future of Inequality in the Age of Automation

Modeling the Durability of Aggregate Used in Concrete Pavement Construction

Managing Business Complexity

An authoritative guide to educational supervision in today's complex environment The Wiley Handbook of Educational Supervision offers a comprehensive resource that explores the evolution of supervision through contributions from a panel of noted experts. The text explores a wealth of topics including recent and dramatic changes in the complex context of today's schools. This important resource: Describes supervision in a historical context Includes a review of adult learning and professional community Reviews new teacher preparation and comprehensive induction systems Contains perspectives on administrative feedback, peer coaching and collaboration Presents information on professional development and job-embedding learning Examines policy and implementation challenges in teacher evaluation Written for researchers, policy analysts, school administrators and supervisors, The Wiley Handbook of Educational Supervision draws on concepts, theories and research from other closely related fields of study to enhance and challenge our understanding of educational supervision. Consistent with international trends, there is an active pursuit of more engaging science education in the Asia-Pacific region. The aim of this book is to bring together some examples of research being undertaken at a range of levels, from studies of curriculum and assessment tools, to classroom case studies, and investigations into models of teacher professional learning and development. While neither a comprehensive nor definitive representation of the work that is being carried out in the region, the contributions—from China, Hong Kong, Taiwan, Korea, Japan, Singapore, Australia, and New Zealand—give a taste of some of the issues being explored, and the hopes that researchers have of positively influencing the types of science education experienced by school students. The purpose of this book is therefore to share contextual information related to science education in the Asia-Pacific region, as well as offering insights for conducting studies in this region and outlining possible questions for further investigation. In addition, we anticipate that the specific resources and strategies introduced in this book will provide a useful reference for curriculum developers and science educators when they design school science curricula and science both pre-service and in-service teacher education programmes. The first section of the book examines features of science learners and learning, and includes studies investigating the processes associated with science conceptual learning, scientific inquiry, model construction, and students' attitudes towards science. The second section focuses on teachers and teaching. It discusses some more innovative teaching approaches adopted in the region, including the use of group work, inquiry-based instruction, developing scientific literacy, and the use of questions and analogies. The third section reports on initiatives related to assessments and curriculum reform, including initiatives associated with school-based assessment, formative assessment strategies, and teacher support accompanying curriculum reform. The Open Access version of this book, available at <http://www.taylorfrancis.com/books/e/9781315717678>, has been made available under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 license.

A goal of mine ever since becoming an educational researcher has been to help construct a sound theory to guide instructional practice. For far too long, educational practice has suffered because we have lacked firm instructional guidelines, which in my view should be based on sound psychological theory, which in turn should be based on sound neurological theory. In other words, teachers need to know how to teach and that "how-to-teach" should be based solidly on how people learn and how their brains function. As you will see in this book, my answer to the question of how people learn is that we all learn by spontaneously generating and testing ideas. Idea generating involves analogies and testing requires comparing predicted consequences with actual consequences. We learn this way because the brain is essentially an idea

generating and testing machine. But there is more to it than this. The very process of generating and testing ideas results not only in the construction of ideas that work (i. e. , the learning of useful declarative knowledge), but also in improved skill in learning (i. e. , the development of improved procedural knowledge).

This book constitutes the thoroughly refereed post-proceedings of the First Automotive Software Workshop, ASWD 2004, held in San Diego, CA, USA in January 2004. The 10 revised full papers presented were carefully reviewed and selected from 26 lectures held at the workshop that brought together experts from industry and academia, working on highly complex, distributed, reactive software systems related to the automotive domain.

Implications for Science and Mathematics Instruction

Netcentric System of Systems Engineering with DEVS Unified Process

Rethinking Development Economics

Model Rules of Professional Conduct

Reading Development and Difficulties

A Multimodal Approach to Video Games and the Player Experience

First published in 1998, this influential volume entered the debate on Foreign Direct Investment in the UK and focuses on the role of Multinational Enterprises (MNEs) in the service rather than manufacturing and primary sectors. While the significance of the service industry had been recognised (exceeding 60% of total GDP in some countries at the time of original publication), the role of FDIs has not. Joanne Roberts thus contributed to a woefully under researched field, covering areas including international trade, the organisational theory of the firm and the UK business sector.

This book is a condensation of a large body of work concerning human learning carried out over a period of more than five years by Dr. Sun and his collaborators. In a nutshell, this work is concerned with a broad framework for studying human cognition based on a new approach that is characterized by its focus on the dichotomy of, and the interaction between, explicit and implicit cognition and a computational model that implements this framework. In this work, a broad, generic computational model was developed that instantiates Dr. Sun's framework and enables the testing of his theoretical approach in a variety of ways. With this model, simulation results were matched with data of human cognition in a variety of different domains. Formal (mathematical and computational) analyses were also carried out to further explore the model and its numerous implementational details. Furthermore, this book addresses some of the most significant theoretical issues, such as symbol grounding, intentionality, social cognition, consciousness, and other theoretical issues in relation to the framework. The general framework and the model developed generate interesting insights into these theoretical issues.

Models in Environmental Regulatory Decision MakingNational Academies Press

This volume puts forth an original theoretical framework, the ludonarrative model, for studying video games which foregrounds the empirical study of the player experience. The book provides a comprehensive introduction to and description of the model, which draws on theoretical frameworks from multimodal discourse analysis, game studies, and social semiotics, and its development out of participant observation and qualitative interviews from the empirical study of a group of players. The volume then applies this approach to shed light on how players' experiences in a game influence how they understand and make use of game components in order to progress its narrative. The book concludes with a frame by frame analysis of a popular game to demonstrate the model's principles in action and its subsequent broader applicability to analyzing video game interaction and design. Offering a new way forward for video game research, this volume is key reading for students and scholars in multimodality, discourse analysis, game studies, interactive storytelling, and new media.

Discovering Strategic Solutions with Agent-Based Modeling and Simulation

Studies in Science Education in the Asia-Pacific Region

Multilevel and Longitudinal Modeling with IBM SPSS

Fundamentals and Techniques

Advanced Vibration Analysis

Teachers use e-learning systems to develop course notes and web-based activities to communicate with learners on one side and monitor and classify their progress on the other. Learners use it for learning, communication, and collaboration. Adaptive e-learning systems often employ learner models, and the behavior of an adaptive system varies depending on the data from the learner model and the learner's profile. Without knowing anything about the learner who uses the system, a system would behave in exactly the same way for all learners. Bayesian Networks for Managing Learner Models in Adaptive Hypermedia Systems: Emerging Research and Opportunities is a collection of research on the use of Bayesian networks and methods as a probabilistic formalism for the management of the learner model in adaptive hypermedia. It specifically discusses comparative studies, transformation rules, and case diagrams that support all phases of the learner model and the use of Bayesian networks and multi-entity Bayesian networks to manage dynamic aspects of this model. While highlighting topics such as developing the learner model, learning management systems, and modeling techniques, this book is ideally designed for instructional designers, course administrators, educators, researchers, and professionals.

Reading Development and Difficulties is a comprehensive and balanced introduction to the development of the two core aspects of reading: good word reading skills and the ability to extract the overall meaning of a text. Unique in its balanced coverage of both word reading and reading comprehension development, this book is an essential resource for undergraduates studying literacy acquisition. Offers wide coverage of the subject and discusses both typical development and the development of difficulties in reading. Accessibly written for students and professionals with no previous background in reading development or reading difficulties. Provides a detailed examination of the specific problems that underlie reading difficulties.

The second edition of the Impact Evaluation in Practice handbook is a comprehensive and accessible introduction to impact evaluation for policy makers and development practitioners. First published in 2011, it has been used widely across the development and academic communities. The book incorporates real-world examples to present practical guidelines for designing and implementing impact evaluations. Readers will gain an understanding of impact evaluations and the best ways to use them to design evidence-based policies and programs. The updated version covers the newest techniques for evaluating programs and includes state-of-the-art implementation advice, as well as an expanded set of examples and case studies that draw on recent development challenges. It also includes new material on research ethics and partnerships to conduct impact evaluation. The handbook is divided into four sections: Part One discusses what to evaluate and why; Part Two presents the main impact evaluation methods; Part Three addresses how to manage impact evaluations; Part Four reviews impact evaluation sampling and data collection. Case studies illustrate different applications of impact evaluations. The book links to complementary instructional material available online, including an applied case as well as questions and answers. The updated second edition will be a valuable resource for the international development community, universities, and policy makers looking to build better evidence around what works in development.

This book is the first of its kind to systematically analyze and apply Lim Chong Yah's S-Curve Hypothesis to the various facets of economic growth and economic transition. By augmenting the mathematical and economical sophistication of the hypothesis, this book extends the S-Curve hypothesis to provide further insight into economic growth and transition. It also utilizes a construction of a stochastic growth model to provide the microeconomic foundation for the S-Curve hypothesis. This model resolves the puzzle of why some developing countries experience economic take-off, while others do not. The book analyzes and extends discussion on the S-Curve, and also applies the S-Curve hypothesis to predict long-term growth in Japan and Singapore. It serves as an excellent resource for people interested in Lim's growth theory.

Human Development and Performance Throughout the Lifespan

Jointly Modeling Latent Trajectories and a Subsequent Outcome Variable

The Wiley Handbook of Educational Supervision

Global Food Security and Development Aid

Environmental Impact Statement

Small Area Modeling in Washington DC

Human Development & Performance Throughout the Lifespan, 2nd Edition is ideal for occupational therapy, physical therapy, and other rehabilitation disciplines. It provides a broad, occupation-based viewpoint of development and performance throughout all life stages with an emphasis on the factors that influence daily participation and optimal performance of desired daily life tasks. The authors use a life course conceptual model as an organizational foundation for clinical reasoning to help readers understand how to implement the activity- and participation-based goals and outcomes for therapy. Written by an occupational therapist and a physical therapist, the book incorporates chapters by leading experts in human development, giving users cutting-edge information and a wide range of perspectives. By integrating information from the International Classification of Function and Disability (ICF) with a developmental life-task perspective, the book gives both newcomers and experienced professionals an essential, contemporary frame of reference. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This open access book examines the future of inequality, work and wages in the age of automation with a focus on developing countries. The authors argue that the rise of a global 'robot reserve army' has profound effects on labor markets and economic development, but, rather than causing mass unemployment, new technologies are more likely to lead to stagnant wages and premature deindustrialization. The book illuminates the debate on the impact of automation upon economic development, in particular issues of poverty, inequality and work. It highlights public policy responses and strategies—ranging from containment to coping mechanisms—to confront the effects of automation.

The Model Rules of Professional Conduct provides an up-to-date resource for information on legal ethics. Federal, state and local courts in all jurisdictions look to the Rules for guidance in solving lawyer malpractice cases, disciplinary actions, disqualification issues, sanctions questions and much more. In this volume, black-letter Rules of Professional Conduct are followed by numbered Comments that explain each Rule's purpose and provide suggestions for its practical application. The Rules will help you identify proper conduct in a variety of given situations, review those instances where discretionary action is possible, and define the nature of the relationship between you and your clients, colleagues and the courts.

In areas such as military, security, aerospace, and disaster management, the need for performance optimization and interoperability among heterogeneous systems is increasingly important. Model-driven engineering, a paradigm in which the model becomes the actual software, offers a promising approach toward systems of systems (SoS) engineering. However, model-driven engineering has largely been unachieved in complex dynamical systems and netcentric SoS, partly because modeling and simulation (M&S) frameworks are stove-piped and not designed for SoS composability. Addressing this gap, Netcentric System of Systems Engineering with DEVS Unified Process presents a methodology for realizing the model-driven engineering vision and netcentric SoS using DEVS Unified Process (DUNIP). The authors draw on their experience with Discrete Event Systems Specification (DEVS) formalism, System Entity Structure (SES) theory, and applying model-driven engineering in the context of a netcentric SoS. They describe formal model-driven

engineering methods for netcentric M&S using standards-based approaches to develop and test complex dynamic models with DUNIP. The book is organized into five sections: Section I introduces undergraduate students and novices to the world of DEVS. It covers systems and SoS M&S as well as DEVS formalism, software, modeling language, and DUNIP. It also assesses DUNIP with the requirements of the Department of Defense's (DoD) Open Unified Technical Framework (OpenUTF) for netcentric Test and Evaluation (T&E). Section II delves into M&S-based systems engineering for graduate students, advanced practitioners, and industry professionals. It provides methodologies to apply M&S principles to SoS design and reviews the development of executable architectures based on a framework such as the Department of Defense Architecture Framework (DoDAF). It also describes an approach for building netcentric knowledge-based contingency-driven systems. Section III guides graduate students, advanced DEVS users, and industry professionals who are interested in building DEVS virtual machines and netcentric SoS. It discusses modeling standardization, the deployment of models and simulators in a netcentric environment, event-driven architectures, and more. Section IV explores real-world case studies that realize many of the concepts defined in the previous chapters. Section V outlines the next steps and looks at how the modeling of netcentric complex adaptive systems can be attempted using DEVS concepts. It touches on the boundaries of DEVS formalism and the future work needed to utilize advanced concepts like weak and strong emergence, self-organization, scale-free systems, run-time modularity, and event interoperability. This groundbreaking work details how DUNIP offers a well-structured, platform-independent methodology for the modeling and simulation of netcentric system of systems.

A Bottom-up Approach Toward Cognition

Yield Gaps and Potential Agricultural Growth in West and Central Africa

Nanotechnology-Based Approaches for Targeting and Delivery of Drugs and Genes

Streams and rivers. Biochemical oxygen demand/dissolved oxygen and nutrients/ eutrophication

Technical Guidance Manual for Developing Total Maximum Daily Loads

Economic Growth And Transition: Econometric Analysis Of Lim's S-curve Hypothesis

This book covers three principal subject areas: smart cities, general contractors and business models. The smart city concept is currently on the rise and cities around the world appear to be in a race to become smart, fast. Converting big cities into smart cities is a move that almost all cities around the globe have made, or will undoubtedly make in the near future, to be able to cope with the various repercussions of urbanization. Smartness is a vague term that could relate to anything and everything, such as infrastructure, people or governance. In this book, we focus our attention on smart buildings - large ones, in particular - and attempt to identify the key problems that France-based construction companies face today, in order to suggest plausible solutions. Our research findings show that no single business model can fit all smart cities worldwide. Using the general contractor business model for smart cities, this book proposes an original solution to managing smart city projects, bringing together architecture, construction and strategy.

Economic Geography is the most complete, up-to-date textbook available on the important new field of spatial economics. This book fills a gap by providing advanced undergraduate and graduate students with the latest research and methodologies in an accessible and comprehensive way. It is an indispensable reference for researchers in economic geography, regional and urban economics, international trade, and applied econometrics, and can serve as a resource for economists in government. Economic Geography presents advances in economic theory that explain why, despite the increasing mobility of commodities, ideas, and people, the diffusion of economic activity is very unequal and remains agglomerated in a limited number of spatial entities. The book complements theoretical analysis with detailed discussions of the empirics of the economics of agglomeration, offering a mix of theoretical and empirical research that provides a unique perspective on spatial disparities. It reveals how location continues to matter for trade and economic development, yet how economic integration is transforming the global economy into an economic space in which activities are performed within large metropolitan areas exchanging goods, skills, and information. Economic Geography examines the future implications of this evolution in the spatial economy and relates them to other major social and economic trends. Provides a complete introduction to economic geography Explains the latest theory and methodologies Covers the empirics of agglomeration, from spatial concentration measurement to structural estimations of economic geography models Includes history and background of the field Serves as a textbook for students and a resource for professionals

This groundbreaking book takes us around the world in search of birth models that work in order to improve the standard of care for mothers and families everywhere. The contributors describe examples of maternity services from both developing countries and wealthy industrialized societies that apply the latest scientific evidence to support and facilitate normal physiological birth; deal appropriately with complications; and generate excellent birth outcomes—including psychological satisfaction for the mother. The book concludes with a description of the ideology that underlies all these working models—known internationally as the midwifery model of care.

First Published in 2010. Routledge is an imprint of Taylor & Francis, an informa company.

Economic Geography

Flexible Views for View-based Model-driven Development

The Development and Evolution of Butterfly Wing Patterns

A Theory of the Firm in Information Product Markets: Integrated and Joint Ventures

Integration of Ecosystem Theories: A Pattern

The Neurological Basis of Learning, Development and Discovery

Cybernetics and Development deals with the ways in which growing and developing biological systems control themselves during development. It is a preliminary attempt to apply some of the insights and techniques of cybernetics to the problem of understanding such development and its control. The book begins with a discussion of the nature of cybernetics and its methods.

Separate chapters cover the use of cybernetics in the field of biological development; previous work in the area of cybernetics related to automata theory; and the application of information theory to development. Subsequent chapters present models of development. These include computer programs which continually replicate themselves and control the resulting development; growing automata nets as models of development; and a method that allows a system to control the relative sizes of its parts during development and afterwards during regeneration. This

book provides enough background material to make it understandable both to the biologist with little knowledge of cybernetics and the cybernetician with no great knowledge of developmental biology.

West and Central African nations face major obstacles to achieving the Millennium Development Goal of cutting poverty and hunger in half by 2015, not least among them the fragile state of their agriculture. Although most regional economies depend on agriculture for employment, national income, and export revenues, farm productivity tends to be low, owing to relatively little use of chemical fertilizers, improved seeds, and other modern technologies. *Yield Gaps and Potential Agricultural Growth in West and Central Africa* responds to this problem by identifying potential areas of growth in the agricultural and livestock sectors. Using data on the soil, water availability, and weather in different parts of West and Central Africa, the authors find significant gaps in different locations between the potential and actual yield of various agricultural products. They then use an economywide multimarket model to simulate the future economic effects of closing these yield gaps. In coastal nations, crops such as cassava, cereals, and yams have the greatest yield gaps, whereas, in the Sahel, livestock, rice, coarse grains and oilseeds (groundnuts) have more room for growth. Although identifying these yield gaps does not guarantee that they can be closed, it does provide a focus for development efforts in the region. The authors conclude, moreover, that if such efforts involve transnational cooperation in agricultural research, marketing, and other areas, they could produce significant benefits across West and Central Africa. This study's findings will be of interest to policymakers, researchers, and others concerned with African development.

In this report, backpropagation neural networks are developed from a large database containing data pertinent to 750 different experimental investigations on concrete durability. The database was acquired from the Kansas Department of Transportation (KDOT). The networks are designed to enable determination of the durability factor and percent expansion from five basic physical properties of the aggregate. The developed neural models were found to classify the aggregates with regard to their durability with a relatively high degree of accuracy. The experimental data and predictions were used to produce reliability factors that indicate the probability that tested aggregate will meet specifications. In a second phase, the developed neural models were also validated against 778 new experimental durability data sets.

A study of past and prospective business development around rail transit stations in the Washington DC area. Washington has one of the very few new and extensive rail transit systems in America, although expectations of transit system-induced revitalization in this area have not uniformly been met. This book develops an econometric model of local development (LOCDEV) around major public investments, applies it to the existing Washington transit system, and uses it to forecast future development levels around new stations. The book includes a user's guide to the LOCDEV model and concludes with reflections on modelling and forecasting.

An Emerging Dialogue

Development of Multinational Organization Structures in the UK Business Service Sector

Bayesian Networks for Managing Learner Models in Adaptive Hypermedia Systems: Emerging Research and Opportunities

Econophysics and Financial Economics

Okanogan-Wenatchee National Forests (N.F.), White Pass Expansion, Master Development Plan Proposal

Emerging Research and Opportunities