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KEY=VOLUME - LEVY RICHARD

THE LEGO POWER FUNCTIONS IDEA BOOK, VOLUME 1

MACHINES AND MECHANISMS

No Starch Press **This first volume of The LEGO Power Functions Idea Book, Machines and Mechanisms, showcases small projects to build with LEGO Technic gears, motors, gadgets, and other moving elements. You'll find hundreds of clever, buildable mechanisms, each one demonstrating a key building technique or mechanical principle. You'll learn to build sliding doors, grasping claws, rack-and-pinion mechanisms, and ball-shooting devices of every sort! Each model includes a list of required parts and colorful photographs that guide you through the build without the need for step-by-step instructions. As you build, you'll explore the principles of simple machines, gear systems, power translation, and more.**

THE LEGO POWER FUNCTIONS IDEA BOOK

MACHINES AND MECHANISMS, VOLUME 1

Offering hundreds of projects and mechanisms you can build with LEGO Technic parts, this book focuses on LEGO Power Functions, which is the latest version of the Technic system of motors, lights, and other electric building elements. --

TECHNOLOGY DEVELOPMENTS: THE ROLE OF MECHANISM AND MACHINE SCIENCE AND IFTOMM

Springer Science & Business Media This is the first book of a series that will focus on MMS (Mechanism and Machine Science). This book also presents IFToMM, the International Federation on the Promotion of MMS and its activity. This volume contains contributions by IFToMM officers who are Chairs of member organizations (MOs), permanent commissions (PCs), and technical committees (TCs), who have reported their experiences and views toward the future of IFToMM and MMS. The book is composed of three parts: the first with general considerations by high-standing IFToMM persons, the second chapter with views by the chairs of PCs and TCs as dealing with specific subject areas, and the third one with reports by the chairs of MOs as presenting experiences and challenges in national and territory communities. This book will be of interest to a wide public who wish to know the status and trends in MMS both at international level through IFToMM and in national/local frames through the leading actors of activities. In addition, the book can be considered also a fruitful source to find out “who’s who” in MMS, historical backgrounds and trends in MMS developments, as well as for challenges and problems in future activity by IFToMM community and in MMS at large.

HIGH-TECH LEGO PROJECTS

16 RULE-BREAKING INVENTIONS

No Starch Press A collection of 16 fascinating scientific and technical projects to build with parts from the LEGO MINDSTORMS EV3 robotics set and other components. A great addition to any STEM curriculum or home library. High Tech LEGO® hijacks the MINDSTORMS® EV3 revolution, showing you how to build creative technical inventions with practical applications. You'll learn to build a dynamic array of working devices for outdoor research, home security,

spycraft, and more. Among the book's 16 fascinating projects you'll find a motion-activated animal cam, a Morse code transmitter, a laser security fence, a motion-sensing radar detector, an automated insect trapper, and a heat-seeking infrared cannon. Welcome to a whole new world of building! Every project brings together science, mechanics, electronics, optics, and software to create complex instruments for studying and measuring the world around you, all while maintaining the playfulness of LEGO. Each easy-to-follow model combines illustrated instructions with step-by-step guidance on the engineering methods at play. As you build, you'll learn: "Illegal" modding techniques (that may include drilling, cutting and soldering -- Shh!) Different ways to work with diode laser modules Tricks for modifying EV3 sensors and motors The joy of hacking LEGO light bricks to make a flickering fireplace How to use MINDSTORMS to build your own contraptions! Experiment on your own, and expand on your finished creations. Make a few adjustments so the Critter Cam triggers an alarm to scare away pests, or modify the Doppler radar to detect flammable gases. The possibilities are endless! **REQUIREMENTS: LEGO® MINDSTORMS® EV3 Home Edition Windows Vista or higher macOS 10.14 or earlier**

ADVANCES IN MECHANISM AND MACHINE SCIENCE

PROCEEDINGS OF THE 15TH IFTOMM WORLD CONGRESS ON MECHANISM AND MACHINE SCIENCE

Springer This book gathers the proceedings of the 15th IFTOMM World Congress, which was held in Krakow, Poland, from June 30 to July 4, 2019. Having been organized every four years since 1965, the Congress represents the world's largest scientific event on mechanism and machine science (MMS). The contributions cover an extremely diverse range of topics, including biomechanical engineering, computational kinematics, design methodologies, dynamics of machinery, multibody dynamics, gearing and transmissions, history of MMS, linkage and mechanical controls, robotics and mechatronics, micro-mechanisms, reliability of machines and mechanisms, rotor dynamics, standardization of terminology, sustainable energy systems, transportation machinery, tribology and vibration. Selected by means of a rigorous international peer-review process, they highlight numerous exciting advances and ideas that will spur novel research directions and foster new multidisciplinary collaborations.

MECHANISMS IN ANCIENT CHINESE BOOKS WITH ILLUSTRATIONS

Springer Science & Business Media This book presents a unique approach for studying mechanisms and machines with drawings that were depicted unclearly in ancient Chinese books. The historical, cultural and technical backgrounds of

the mechanisms are explained, and various mechanisms described and illustrated in ancient books are introduced. By utilizing the idea for the conceptual design of modern mechanisms, all feasible designs of ancient mechanisms with uncertain members and joints that meet the technical standards of the subjects' time periods are synthesized systematically. Ancient Chinese crossbows (the original crossbow and repeating crossbows), textile mechanisms (silk-reeling mechanism, spinning mechanisms, and looms), and many other artisan's tool mechanisms are used as illustrated examples. Such an approach provides a logical method for the reconstruction designs of ancient mechanisms with uncertain structures. It also provides an innovative direction for researchers to further identify the original structures of mechanisms and machines with drawings in ancient literature. This book can be used as a textbook and/or supplemental reading material for courses related to history of ancient (Chinese) machinery and creative mechanism design for senior and graduate students.

THE LEGO POWER FUNCTIONS IDEA BOOK, VOLUME 2

CARS AND CONTRAPTIONS

No Starch Press This second volume of The LEGO Power Functions Idea Book, Cars and Contraptions, showcases small projects to build with LEGO Technic gears, motors, gadgets, and other moving elements. You'll find hundreds of clever, buildable mechanisms, each one demonstrating a key building technique or mechanical principle. You'll learn to build four-wheel drive cars, adorable walking 'bots, steerable tanks, robotic inchworms, and cars that can follow the edge of a table! Each model includes a list of required parts and colorful photographs that guide you through the build without the need for step-by-step instructions. As you build, you'll explore the principles of gear systems, power translation, differentials, suspensions, and more.

DISTINGUISHED FIGURES IN MECHANISM AND MACHINE SCIENCE

THEIR CONTRIBUTIONS AND LEGACIES, PART 3

Springer This book is composed of chapters that focus specifically on technological developments by distinguished figures in the history of MMS (Mechanism and Machine Science). Biographies of well-known scientists are also included to describe their efforts and experiences and surveys of their work and achievements and a modern interpretation of their legacy are presented. After the first two volumes, the papers in this third volume again cover a wide range within

the field of the History of Mechanical Engineering with specific focus on MMS and will be of interest and motivation to the work (historical or not) of many.

THEORY OF PARALLEL MECHANISMS

Springer Science & Business Media This book contains mechanism analysis and synthesis. In mechanism analysis, a mobility methodology is first systematically presented. This methodology, based on the author's screw theory, proposed in 1997, of which the generality and validity was only proved recently, is a very complex issue, researched by various scientists over the last 150 years. The principle of kinematic influence coefficient and its latest developments are described. This principle is suitable for kinematic analysis of various 6-DOF and lower-mobility parallel manipulators. The singularities are classified by a new point of view, and progress in position-singularity and orientation-singularity is stated. In addition, the concept of over-determinate input is proposed and a new method of force analysis based on screw theory is presented. In mechanism synthesis, the synthesis for spatial parallel mechanisms is discussed, and the synthesis method of difficult 4-DOF and 5-DOF symmetric mechanisms, which was first put forward by the author in 2002, is introduced in detail. Besides, the three-order screw system and its space distribution of the kinematic screws for infinite possible motions of lower mobility mechanisms are both analyzed.

APPLIED MECHANICS REVIEWS

A BRIEF ILLUSTRATED HISTORY OF MACHINES AND MECHANISMS

Springer Science & Business Media Machines have always gone hand-in-hand with the cultural development of mankind throughout time. A book on the history of machines is nothing more than a specific way of bringing light to human events as a whole in order to highlight some significant milestones in the progress of knowledge by a complementary perspective into a general historical overview. This book is the result of common efforts and interests by several scholars, teachers, and students on subjects that are connected with the theory of machines and mechanisms. In fact, in this book there is a certain teaching aim in addition to a general historical view that is more addressed to the achievements by "homo faber" than to those by "homo sapiens", since the proposed history survey has been developed with an engineering approach. The brevity of the text added to the fact that the authors are probably not competent to tackle historical studies with the necessary rigor, means the content of the book is inevitably incomplete, but it nevertheless attempts to fulfil three basic aims: First, it is hoped that this book may provide a stimulus to

promote interest in the study of technical history within a mechanical engineering context. Few are the countries where anything significant is done in this area, which means there is a general lack of knowledge of this common cultural heritage.

MECHANISM AND MACHINE SCIENCE

PROCEEDINGS OF ASIAN MMS 2016 & CCMMS 2016

Springer These proceedings collect the latest research results in mechanism and machine science, intended to reinforce and improve the role of mechanical systems in a variety of applications in daily life and industry. Gathering more than 120 academic papers, it addresses topics including: Computational kinematics, Machine elements, Actuators, Gearing and transmissions, Linkages and cams, Mechanism design, Dynamics of machinery, Tribology, Vehicle mechanisms, dynamics and design, Reliability, Experimental methods in mechanisms, Robotics and mechatronics, Biomechanics, Micro/nano mechanisms and machines, Medical/welfare devices, Nature and machines, Design methodology, Reconfigurable mechanisms and reconfigurable manipulators, and Origami mechanisms. This is the fourth installment in the IFToMM Asian conference series on Mechanism and Machine Science (ASIAN MMS 2016). The ASIAN MMS conference initiative was launched to provide a forum mainly for the Asian community working in Mechanism and Machine Science, in order to facilitate collaboration and improve the visibility of activities in the field. The series started in 2010 and the previous ASIAN MMS events were successfully held in Taipei, China (2010), Tokyo, Japan (2012), and Tianjin, China (2014). ASIAN MMS 2016 was held in Guangzhou, China, from 15 to 17 December 2016, and was organized by the South China University under the patronage of the IFToMM and the Chinese Mechanical Engineering Society (CMES). The aim of the Conference was to bring together researchers, industry professionals and students from the broad range of disciplines connected to Mechanism Science in a collegial and stimulating environment. The ASIAN MMS 2016 Conference provided a platform allowing scientists to exchange notes on their scientific achievements and establish new national and international collaborations concerning the mechanism science field and its applications, mainly but not exclusively in Asian contexts.

MECHANICAL ENGINEERING, ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT -VOLUME I

EOLSS Publications **Mechanical Engineering, Energy Systems and Sustainable Development** theme is a component of

Encyclopedia of Physical Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Mechanical Engineering, Energy Systems and Sustainable Development with contributions from distinguished experts in the field discusses mechanical engineering - the generation and application of heat and mechanical power and the design, production, and use of machines and tools. These five volumes are aimed at the following five major target audiences: University and College Students Educators, Professional Practitioners, Research Personnel and Policy Analysts, Managers, and Decision Makers, NGOs and GOs.

THE LEGO TECHNIC IDEA BOOK: SIMPLE MACHINES

No Starch Press The LEGO® Technic Idea Book: Simple Machines is a collection of hundreds of working examples of simple yet fascinating Technic models that you can build based on their pictures alone. Each project uses color-coded pieces and is photographed from multiple angles, making it easy to see how the models are assembled without the need for step-by-step instructions. Every model illustrates a different principle, concept, or mechanism that will inspire your own original creations. You're encouraged to use these elements as building blocks to create your own masterpieces. The Technic models in Simple Machines demonstrate basic configurations of gears, shafts, pulleys, turntables, connectors, and the like. You'll learn how to create small, elegant machines like cranes, operable doors, motorized cars, a rubber band-powered rocket launcher, a hand-cranked drag racer, and even musical instruments. This visual guide, the first in the three-volume LEGO Technic Idea Book series, is the brainchild of master builder Yoshihito Isogawa of Tokyo, Japan. Each title is filled with photos of Isogawa's unique models, all of which are designed to fire the imaginations of LEGO builders young and old. Imagine. Create. Invent. Now, what will you build? NOTE: The LEGO Technic Idea Book series uses parts from various Technic sets. If you don't have some of the pieces shown in a particular model, experiment by substituting your own parts or visit the author's website for a list of the special parts used in the book.

DISTINGUISHED FIGURES IN MECHANISM AND MACHINE SCIENCE: THEIR CONTRIBUTIONS AND LEGACIES

Springer Science & Business Media This is the first part of a series of books whose aim is to collect contributed papers describing the work of famous persons in MMS (Mechanism and Machine Science). The current work treats mainly technical developments in the historical evolution of the fields that today are grouped in MMS. The emphasis is on

biographical notes describing the efforts and experiences of people who have contributed to technical achievements.

MACHINE AND INDUSTRIAL DESIGN IN MECHANICAL ENGINEERING

PROCEEDINGS OF KOD 2021

Springer Nature This book gathers the latest advances, innovations, and applications in the field of machine science and mechanical engineering, as presented by international researchers and engineers at the 11th International Conference on Machine and Industrial Design in Mechanical Engineering (KOD), held in Novi Sad, Serbia on June 10-12, 2021. It covers topics such as mechanical and graphical engineering, industrial design and shaping, product development and management, complexity, and system design. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

THEORY OF MECHANISMS AND MACHINES

PHI Learning Pvt. Ltd. Intended to cater to the needs of undergraduate students in mechanical, production, and industrial engineering disciplines, this book provides a comprehensive coverage of the fundamentals of analysis and synthesis (kinematic and dynamic) of mechanisms and machines. It clearly describes the techniques needed to test the suitability of a mechanical system for a given task and to develop a mechanism or machine according to the given specifications. The text develops, in addition, a strong understanding of the kinematics of mechanisms and discusses various types of mechanisms such as cam-and-follower, gears, gear trains and gyroscope.

FREEDOM IN MACHINERY: VOLUME 1, INTRODUCING SCREW THEORY

Cambridge University Press Does a machine run well by virtue of its accuracies, or its freedoms? This work presents an exciting, diagrammatic display of the hidden geometry of freedom and constraint. It bolsters the imaginative design of robots, but applies across all fields of machinery. The figures and their captions comprise alone a self-standing story, and this connects effectively with the rigorously argued text. The seamless combination of the two volumes (1984, 1990) renders the internal cross-referencing (forward and backward within the volumes) easier to look up. The appearance of this paperback is a clear testament to the work's ongoing readership. The term screw theory occurs

throughout. This relates (after Ball) to the book's philosophy; and one might equally mention kinetostatics (after Federhofer). An all-pervading, counter-intuitive fact accordingly presents itself: while, analogously, angular velocity relates to force, linear velocity relates to couple. A direct consequence of Freedom in Machinery is a more recent book by the same author. Specifically titled General Spatial Involute Gearing and published in Germany (2003), it exemplifies the many ways in which Freedom in Machinery clarifies the enigmatic field of spatial mechanism. That field continuously expands with the current, continuous thrust of ordinary engineering practice.

INTERNATIONAL SYMPOSIUM ON HISTORY OF MACHINES AND MECHANISMS PROCEEDINGS HMM 2000

Springer Science & Business Media The International Symposium on History of Machines and Mechanisms is a new initiative to promote explicitly researches and publications in the field of the History of TMM (Theory of Machines and Mechanisms). It was held at the University of Cassino, Italy, from 11 to 13 May 2000. The Symposium was devoted mainly to the technical aspects of historical developments and therefore it has been addressed mainly to the IFToMM Community. In fact, most the authors of the contributed papers are experts in TMM and related topics. This has been, indeed, a challenge: convincing technical experts to go further in-depth into the background of their topics of expertise. We have received a very positive response, as can be seen by the fact that these Proceedings contain contributions by authors from all around the world. We received about 50 papers, and after review about 40 papers were accepted for both presentation and publishing in the Proceedings. This means also that the History of TMM is of interest everywhere and, indeed, an in-depth knowledge of the past can be of great help in working on the present and in shaping the future with new ideas. I believe that a reader will take advantage of the papers in these Proceedings with further satisfaction and motivation for her or his work (historical or not). These papers cover the wide field of the History of Mechanical Engineering and particularly the History of TMM.

COMPUTATIONAL AND EXPERIMENTAL SIMULATIONS IN ENGINEERING

PROCEEDINGS OF ICCES 2020. VOLUME 1

Springer Nature This book gathers the latest advances, innovations, and applications in the field of computational engineering, as presented by leading international researchers and engineers at the 26th International Conference on Computational & Experimental Engineering and Sciences (ICCES), held in Phuket, Thailand on January 6-10, 2021. ICCES covers all aspects of applied sciences and engineering: theoretical, analytical, computational, and experimental

studies and solutions of problems in the physical, chemical, biological, mechanical, electrical, and mathematical sciences. As such, the book discusses highly diverse topics, including composites; bioengineering & biomechanics; geotechnical engineering; offshore & arctic engineering; multi-scale & multi-physics fluid engineering; structural integrity & longevity; materials design & simulation; and computer modeling methods in engineering. The contributions, which were selected by means of a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

TECHNOLOGY FOR LARGE SPACE SYSTEMS

A SPECIAL BIBLIOGRAPHY WITH INDEXES

COMPUTATIONAL INTELLIGENCE - VOLUME II

EOLSS Publications Computational intelligence is a component of Encyclopedia of Technology, Information, and Systems Management Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. Computational intelligence is a rapidly growing research field including a wide variety of problem-solving techniques inspired by nature. Traditionally computational intelligence consists of three major research areas: Neural Networks, Fuzzy Systems, and Evolutionary Computation. Neural networks are mathematical models inspired by brains. Neural networks have massively parallel network structures with many neurons and weighted connections. Whereas each neuron has a simple input-output relation, a neural network with many neurons can realize a highly non-linear complicated mapping. Connection weights between neurons can be adjusted in an automated manner by a learning algorithm to realize a non-linear mapping required in a particular application task. Fuzzy systems are mathematical models proposed to handle inherent fuzziness in natural language. For example, it is very difficult to mathematically define the meaning of “cold” in everyday conversations such as “It is cold today” and “Can I have cold water”. The meaning of “cold” may be different in a different situation. Even in the same situation, a different person may have a different meaning. Fuzzy systems offer a mathematical mechanism to handle inherent fuzziness in natural language. As a result, fuzzy systems have been successfully applied to real-world problems by extracting linguistic knowledge from human experts in the form of fuzzy IF-THEN rules. Evolutionary computation includes various population-based search algorithms inspired by evolution in nature. Those algorithms

usually have the following three mechanisms: fitness evaluation to measure the quality of each solution, selection to choose good solutions from the current population, and variation operators to generate offspring from parents. Evolutionary computation has high applicability to a wide range of optimization problems with different characteristics since it does not need any explicit mathematical formulations of objective functions. For example, simulation-based fitness evaluation is often used in evolutionary design. Subjective fitness evaluation by a human user is also often used in evolutionary art and music. These volumes are aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers.

MANAGEMENT

THE EAGLE AND THE DRAGON

GLOBALIZATION AND EUROPEAN DREAMS OF CONQUEST IN CHINA AND AMERICA IN THE SIXTEENTH CENTURY

John Wiley & Sons In this important new book the renowned historian Serge Gruzinski returns to two episodes in the sixteenth century which mark a decisive stage in global history and show how China and Mexico experienced the expansion of Europe. In the early 1520s, Magellan set sail for Asia by the Western route, Cortes seized Mexico and some Portuguese based in Malacca dreamed of colonizing China. The Aztec Eagle was destroyed but the Chinese Dragon held strong and repelled the invaders - after first seizing their cannon. For the first time, people from three continents encountered one other, confronted one other and their lives became entangled. These events were of great interest to contemporaries and many people at the time grasped the magnitude of what was going on around them. The Iberians succeeded in America and failed in China. The New World became inseparable from the Europeans who were to conquer it, while the Celestial Empire became, for a long time to come, an unattainable goal. Gruzinski explores this encounter between civilizations that were different from one another but that already fascinated contemporaries, and he shows that our world today bears the mark of this distant age. For it was in the sixteenth century that human history began to be played out on a global stage. It was then that connections between different parts of the world began to accelerate, not only between Europe and the Americas but also between Europe and China. This is what is revealed by a global history of the sixteenth century, conceived as another way of reading the Renaissance, less Eurocentric and more in tune with our age.

MECHANICAL DESIGN FOR THE STAGE

CRC Press **Scenic effects involving rotating turntables, tracking stage wagons, and the vertical movement of curtains and painted drops have become common in both Broadway and Regional theatre productions. The machines that drive these effects range from small pneumatic cylinders pushing loads of a few pounds an inch or two, to 40 horsepower winches running multi-ton scenery at speeds 6 feet per second or more. Usually this machinery is designed by theatre technicians specifically for a particular show's effect. Compared to general industry, this design process is short, often only a few days long, it is done by one person, design teams are rare, and it is done in the absence of reference material specifically addressing the issues involved. The main goal of this book is to remedy this last situation. Mechanical Design for the Stage will be a reference for you that will: * provide the basic engineering formulas needed to predict the forces, torques, speeds, and power required by a given move * give a technician a design process to follow which will direct their work from general concepts to specific detail as a design evolves, and * show many examples of traditional stage machinery designs. The book's emphasis will be on following standard engineering design and construction practices, and developing machines that are functional, efficient to build, easily maintained, and safe to use.**

MANAGEMENT, A BIBLIOGRAPHY FOR NASA MANAGERS

NEW TRENDS IN MECHANISM AND MACHINE SCIENCE

EUCOMES

Springer **This volume presents the latest research and industrial applications in the areas of mechanism science, robotics and dynamics. The respective contributions cover such topics as computational kinematics, control issues in mechanical systems, mechanisms for medical rehabilitation, mechanisms for minimally invasive techniques, cable robots, design issues for mechanisms and robots, and the teaching and history of mechanisms. Written by leading researchers and engineers, and selected by means of a rigorous international peer-review process, the papers highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations. They reflect the outcomes of the 8th European Conference on Mechanism Science (EuCoMeS) in 2020.**

SCIENCE AND CIVILISATION IN CHINA: VOLUME 4, PHYSICS AND PHYSICAL TECHNOLOGY, PART 2, MECHANICAL ENGINEERING

Cambridge University Press As Dr Needham's immense undertaking gathers momentum it has been found necessary to subdivide volumes into parts, each to be bound and published separately. The first part of Volume 4, already published, deals with the physical sciences; the second with the diverse applications of physics in the many branches of mechanical engineering; and the third will deal with civil and hydraulic engineering and nautical technology. With this part of Volume 4, then, we come to the application by the Chinese of physical principles in the control of forces and in the use of power; we cross the frontier separating tools from the machine. We have already noticed that the ancient Chinese concept of chhi (somewhat similar to the pneuma of the Greeks) asserted itself prominently in acoustics; but we discover here that the Chinese tendency to think pneumatically was also responsible for a whole range of brilliant technological achievements, for example, the double-acting piston-bellows, the rotary winnowing-fan, and the water-powered metallurgical blowing-machine (ancestor of the steam-engine); as well as for some extraordinary insights and predictions in aeronautics.

MACHINERY

MACHINE HABITUS

TOWARD A SOCIOLOGY OF ALGORITHMS

John Wiley & Sons We commonly think of society as made of and by humans, but with the proliferation of machine learning and AI technologies, this is clearly no longer the case. Billions of automated systems tacitly contribute to the social construction of reality by drawing algorithmic distinctions between the visible and the invisible, the relevant and the irrelevant, the likely and the unlikely - on and beyond platforms. Drawing on the work of Pierre Bourdieu, this book develops an original sociology of algorithms as social agents, actively participating in social life. Through a wide range of examples, Massimo Aioldi shows how society shapes algorithmic code, and how this culture in the code guides the practical behaviour of the code in the culture, shaping society in turn. The 'machine habitus' is the generative mechanism at work throughout myriads of feedback loops linking humans with artificial social agents, in the context of digital infrastructures and pre-digital social structures. Machine Habitus will be of great interest to students and

scholars in sociology, media and cultural studies, science and technology studies and information technology, and to anyone interested in the growing role of algorithms and AI in our social and cultural life.

NASA SP-7500

MANAGEMENT, A CONTINUING BIBLIOGRAPHY WITH INDEXES

CONCEPT FORMATION AND KNOWLEDGE REVISION

Springer Science & Business Media **A fundamental assumption of work in artificial intelligence and machine learning is that knowledge is expressed in a computer with the help of knowledge representations. Since the proper choice of such representations is a difficult task that fundamentally affects the capabilities of a system, the problem of automatic representation change is an important topic in current research. Concept Formation and Knowledge Revision focuses on representation change as a concept formation task, regarding concepts as the elementary representational vocabulary from which further statements are constructed. Taking an interdisciplinary approach from psychological foundations to computer implementations, the book draws on existing psychological results about the nature of human concepts and concept formation to determine the scope of concept formation phenomena, and to identify potential components of computational concept formation models. The central idea of this work is that computational concept formation can usefully be understood as a process that is triggered in a demand-driven fashion by the representational needs of the learning system, and identify the knowledge revision activities of a system as a particular context for such a process. The book presents a detailed analysis of the revision problem for first-order clausal theories, and develops a set of postulates that any such operation should satisfy. It shows how a minimum theory revision operator can be realized by using exception sets, and that this operator is indeed maximally general. The book then shows that concept formation can be triggered from within the knowledge revision process whenever the existing representation does not permit the plausible reformulation of an exception set, demonstrating the usefulness of the approach both theoretically and empirically within the learning knowledge acquisition system MOBAL. In using a first-order representation, this book is part of the rapidly developing field of Inductive Logic Programming (ILP). By integrating the computational issues with psychological and fundamental discussions of concept formation phenomena, the book will be of interest to readers both theoretically and psychologically inclined. From the foreword by Katharina Morik: `The ideal to combine the three sources of artificial intelligence research has almost never been reached. Such a**

combined and integrated research requires the researcher to master different ways of thinking, different work styles, different sets of literature, and different research procedures. It requires capabilities in software engineering for the application part, in theoretical computer science for the theory part, and in psychology for the cognitive part. The most important capability for artificial intelligence is to keep the integrative view and to create a true original work that goes beyond the collection of pieces from different fields. This book achieves such an integrative view of concept formation and knowledge revision by presenting the way from psychological investigations that indicate that concepts are theories and point at the important role of a demand for learning. to an implemented system which supports users in their tasks when working with a knowledge base and its theoretical foundation. '

THE SELFISH GENE

Oxford University Press, USA **An ethologist shows man to be a gene machine whose world is one of savage competition and deceit**

SCIENTIFIC AND TECHNICAL AEROSPACE REPORTS

INGENIOUS MECHANISMS FOR DESIGNERS AND INVENTORS

MECHANISMS AND MECHANICAL MOVEMENTS SELECTED FROM AUTOMATIC MACHINES AND VARIOUS OTHER FORMS OF MECHANICAL APPARATUS AS OUTSTANDING EXAMPLES OF INGENIOUS DESIGN EMBODYING IDEAS OR PRINCIPLES APPLICABLE IN DESIGNING MACHINES OR DEVICES REQUIRING AUTOMATIC FEATURES OR MECHANICAL CONTROL. VOL. 4

LEONARDO'S MACHINES

SECRETS AND INVENTIONS IN THE DA VINCI CODICES

Taylor & Francis **Leonardo nasconde un segreto? In realtà ne nasconde molti, basta cercare nelle pagine dei suoi codici, nelle migliaia di disegni di macchine o di parti di esse che quei codici contengono. Misteri e segreti che in questo libro vengono alla luce nella loro realtà progettuale. Dalle descrizioni e dai disegni dello scienziato, attraverso la rielaborazione digitale riemergono nella loro compiutezza e funzionalità imbarcazioni corazzate, argani e macchinari**

destinati al volo, alla guerra, al lavoro, alle imprese idrauliche. Un'operazione di ricostruzione virtuale che ha richiesto anni di studi e di applicazione e ha ottenuto il risultato di rendere accessibili le invenzioni nascoste tra le pagine dei codici leonardeschi. Annotation Supplied by Informazioni Editoriali

MECHANISM DESIGN FOR ROBOTICS

MEDER 2021

Springer Nature This book presents the proceedings of the 5th IFToMM Symposium on Mechanism Design for Robotics, **MEDER 2021**, held in Poitiers, France, 23-25 June 2021. It gathers contributions by researchers from several countries on all major areas of robotic research, development and innovation, as well as new applications and current trends. The topics covered include: theoretical and computational kinematics, mechanism design, experimental mechanics, mechanics of robots, control issues of mechanical systems, machine intelligence, innovative mechanisms and applications, linkages and manipulators, micro-mechanisms, dynamics of machinery and multi-body systems. Given its scope, the book offers a source of information and inspiration for researchers seeking to improve their work and gather new ideas for future developments.

SYSTEMS SCIENCE AND CYBERNETICS - VOLUME III

EOLSS Publications The subject “Systems sciences and cybernetics” is the outcome of the convergence of a number of trends in a larger current of thought devoted to the growing complexity of (primarily social) objects and arising in response to the need for globalized treatment of such objects. This has been magnified by the proliferation and publication of all manner of quantitative scientific data on such objects, advances in the theories on their inter-relations, the enormous computational capacity provided by IT hardware and software and the critical revisiting of subject-object interaction, not to mention the urgent need to control the efficiency of complex systems, where “efficiency” is understood to mean the ability to find a solution to many social problems, including those posed on a planetary scale. The result has been the forging of a new, academically consolidated scientific trend going by the name of Systems Theory and Cybernetics, with a comprehensive, multi-disciplinary focus and therefore apt for understanding realities still regarded to be inescapably chaotic. This subject entry is subdivided into four sections. The first, an introduction to systemic theories, addresses the historic development of the most commonly used systemic

approaches, from new concepts such as the so-called “geometry of thinking” or the systemic treatment of “non-systemic identities” to the taxonomic, entropic, axiological and ethical problems deriving from a general “systemic-cybernetic” conceit. Hence, the focus in this section is on the historic and philosophical aspects of the subject. Moreover, it may be asserted today that, beyond a shadow of a doubt, problems, in particular problems deriving from human interaction but in general any problem regardless of its nature, must be posed from a systemic perspective, for otherwise the obstacles to their solution are insurmountable. Reaching such a perspective requires taking at least the following well-known steps: a) statement of the problem from the determinant variables or phenomena; b) adoption of theoretical models showing the interrelationships among such variables; c) use of the maximum amount of - wherever possible quantitative - information available on each; d) placement of the set of variables in an environment that inevitably pre-determines the problem. That epistemology would explain the substantial development of the systemic-cybernetic approach in recent decades. The articles in the second section deal in particular with the different methodological approaches developed when confronting real problems, from issues that affect humanity as a whole to minor but specific questions arising in human organizations. Certain sub-themes are discussed by the various authors - always from a didactic vantage -, including: problem discovery and diagnosis and development of the respective critical theory; the design of ad hoc strategies and methodologies; the implementation of both qualitative (soft system methodologies) and formal and quantitative (such as the “General System Problem Solver” or the “axiological-operational” perspective) approaches; cross-disciplinary integration; and suitable methods for broaching psychological, cultural and socio-political dynamisms. The third section is devoted to cybernetics in the present dual meaning of the term: on the one hand, control of the effectiveness of communication and actions, and on the other, the processes of self-production of knowledge through reflection and the relationship between the observing subject and the observed object when the latter is also observer and the former observed. Known as “second order cybernetics”, this provides an avenue for rethinking the validity of knowledge, such as for instance when viewed through what is known as “bipolar feedback”: processes through which interactions create novelty, complexity and diversity. Finally, the fourth section centres around artificial and computational intelligence, addressing sub-themes such as “neural networks”, the “simulated annealing” that ranges from statistical thermodynamics to combinatory problem-solving, such as in the explanation of the role of adaptive systems, or when discussing the relationship between biological and computational intelligence.

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