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VIBRANT ARCHITECTURE

MATTER AS A CODESIGNER OF LIVING STRUCTURES



Vibrant Architecture Material Realm As A Codesigner Of Living Spaces

Andrew Adamatzky



Vibrant Architecture Material Realm As A Coder Designer Of Living Spaces:

Vibrant Architecture Rachel Armstrong, 2015-08-17 This book sets out the conditions under which the need for a new approach to the production of architecture in the twenty first century is established where our homes and cities are facing increasing pressures from environmental challenges that are compromising our lives and well being Vibrant architecture embodies a new kind of architectural design practice that explores how lively materials or vibrant matter may be incorporated into our buildings to confer on them some of the properties of living things such as movement growth sensitivity and self repair The theoretical and practical implications of how this may occur are explored through the application of a new group of materials Characteristically these substances possess some of the properties of living systems but may not have the full status of being truly alive They include forms of chemical artificial life such as dynamic droplets or synthetically produced soils As complex systems they are able to communicate directly with the natural world using a shared language of chemistry and so negotiate their continued survival in a restless world Vibrant architecture may create new opportunities for architectural design practice that venture beyond top down form finding programs by enabling architects to co design in partnership with human and nonhuman collectives which result from the production of post natural landscapes Ultimately vibrant architecture may operate as an ecological platform for human development that augments the liveliness of our planet rather than diminishes it

Advances in Unconventional Computing Andrew Adamatzky, 2016-07-26 The unconventional computing is a niche for interdisciplinary science cross bred of computer science physics mathematics chemistry electronic engineering biology material science and nanotechnology The aims of this book are to uncover and exploit principles and mechanisms of information processing in and functional properties of physical chemical and living systems to develop efficient algorithms design optimal architectures and manufacture working prototypes of future and emergent computing devices This second volume presents experimental laboratory prototypes and applied computing implementations Emergent molecular computing is presented by enzymatic logical gates and circuits and DNA nano devices Reaction diffusion chemical computing is exemplified by logical circuits in Belousov Zhabotinsky medium and geometrical computation in precipitating chemical reactions Logical circuits realised with solitons and impulses in polymer chains show advances in collision based computing Photo chemical and memristive devices give us a glimpse on hot topics of a novel hardware Practical computing is represented by algorithms of collective and immune computing and nature inspired optimisation Living computing devices are implemented in real and simulated cells regenerating organisms plant roots and slime mould The book is the encyclopedia the first ever complete authoritative account of the theoretical and experimental findings in the unconventional computing written by the world leaders in the field All chapters are self contains no specialist background is required to appreciate ideas findings constructs and designs presented This treatise in unconventional computing appeals to readers from all walks of life from high school pupils to university professors from mathematicians computers scientists and

engineers to chemists and biologists Liberating Sociology: From Newtonian Toward Quantum Imaginations: Volume 1: Unriddling the Quantum Enigma Mohammad H. Tamdgidi, 2020-01-20 In this major new study in the sociology of scientific knowledge social theorist Mohammad H Tamdgidi reports having unriddled the so called quantum enigma This book opens the lid of the Schrödinger's Cat box of the quantum enigma after decades and finds something both odd and familiar Not only the cat is both alive and dead it has morphed into an elephant in the room in whose interpretation Einstein Bohr Bohm and others were each both right and wrong because the enigma has acquired both localized and spread out features whose unriddling requires both physics and sociology amid both transdisciplinary and transcultural contexts The book offers in a transdisciplinary and transcultural sociology of self knowledge framework a relativistic interpretation to advance a liberating quantum sociology Deeper methodological grounding to further advance the sociological imagination requires investigating whether and how relativistic and quantum scientific revolutions can induce a liberating reinvention of sociology in favor of creative research and a just global society This however necessarily leads us to confront an elephant in the room the quantum enigma In Unriddling the Quantum Enigma the first volume of the series commonly titled Liberating Sociology: From Newtonian toward Quantum Imaginations sociologist Mohammad H Tamdgidi argues that unriddling the quantum enigma depends on whether and how we succeed in dehabituating ourselves in favor of unified relativistic and quantum visions from the historically and ideologically inherited classical Newtonian modes of imagining reality that have subconsciously persisted in the ways we have gone about posing and interpreting or not the enigma itself for more than a century Once this veil is lifted and the enigma unriddled he argues it becomes possible to reinterpret the relativistic and quantum ways of imagining reality including social reality in terms of a unified nonreductive creative dialectic of part and whole that fosters quantum sociological imaginations methods theories and practices favoring liberating and just social outcomes The essays in this volume develop a set of relativistic interpretive solutions to the quantum enigma Following a survey of relevant studies and an introduction to the transdisciplinary and transcultural sociology of self knowledge framing the study overviews of Newtonianism relativity and quantum scientific revolutions the quantum enigma and its main interpretations to date are offered They are followed by a study of the notion of the wave particle duality of light and the various experiments associated with the quantum enigma in order to arrive at a relativistic interpretation of the enigma one that is shown to be capable of critically cohering other offered interpretations The book concludes with a heuristic presentation of the ontology epistemology and methodology of what Tamdgidi calls the creative dialectics of reality The volume essays involve critical comparative integrative reflections on the relevant works of founding and contemporary scientists and scholars in the field This study is the first in the monograph series Tayyeb Series in East West Research and Translation of Human Architecture Journal of the Sociology of Self Knowledge XIII 2020 published by OKCIR Omar Khayyam Center for Integrative Research in Utopia Mysticism and Science Utopystics OKCIR is dedicated to exploring in a

simultaneously world historical and self reflective framework the human search for a just global society It aims to develop new conceptual methodological theoretical historical practical pedagogical inspirational and disseminative structures of knowledge whereby the individual can radically understand and determine how world history and her his selves constitute one another Reviews Mohammad H Tamdgidi s Liberating Sociology From Newtonian Toward Quantum Imaginations Volume 1 Unriddling the Quantum Enigma hits the proverbial nail on the head of an ongoing problem not only in sociology but also much social science namely many practitioners allegiance consciously or otherwise to persisting conceptions of science that get in the way of scientific and other forms of theoretical advancement Newtonianism has achieved the status of an idol and its methodology a fetish the consequence of which is an ongoing failure to think through important problems of uncertainty indeterminacy multivariation multidisciplinary and false dilemmas of individual agency versus structure among many others Tamdgidi has done great service to social thought by bringing to the fore this problem of disciplinary decadence and offering in effect a call for its teleological suspension thinking beyond disciplinarity through drawing upon and communicating with the resources of quantum theory not as a fetish but instead as an opening for other possibilities of social including human understanding The implications are far reaching as they offer as the main title attests liberating sociology from persistent epistemic shackles and thus many disciplines and fields connected to things social This is exciting work A triumph The reader is left with enthusiasm for the second volume and theorists of many kinds with proverbial work to be done Professor Lewis R Gordon Honorary President of the Global Center for Advanced Studies and author of Disciplinary Decadence Living Thought in Trying Times Routledge Paradigm 2006 and Freedom Justice and Decolonization Routledge forthcoming 2020 Social sciences are still using metatheoretical models of science based on 19th century newtonian concepts of time and space Mohammad H Tamdgidi has produced a tour de force in social theory leaving behind the old newtonian worldview that still informs the social sciences towards a 21st century non dualistic non reductionist transcultural transdisciplinary post Einsteinian quantum concept of TimeSpace Tamdgidi goes beyond previous efforts done by titans of social theory such as Immanuel Wallerstein and Kyriakos Kontopoulos This book is a quantum leap in the social sciences at large Tamdgidi decolonizes the social sciences away from its Eurocentric colonial foundations bringing it closer not only to contemporary natural sciences but also to its convergence with the old Eastern philosophical and mystical worldviews This book is a masterpiece in social theory for a 21st century decolonial social science A must read Professor Ramon Grosfoguel University of California at Berkeley Tamdgidi s Liberating Sociology succeeds in adding physical structures to the breadth of the world changing vision of C Wright Mills the man who mentored me at Columbia Relativity theory and quantum mechanics can help us to understand the human universe no less than the physical universe Just as my Creating Life Before Death challenges bureaucracy s conformist orientation so does Liberating Sociology liberate the infinite possibilities inherent in us Given our isolation in the Coronavirus era we have time to follow Tamdgidi in his journey into the depth of inner space where few men

have gone before It is there that we can gain emotional strength just as Churchill Roosevelt and Mandela empowered themselves That personal development was needed to address not only their own personal problems but also the mammoth problems of their societies We must learn to do the same Bernard Phillips Emeritus Sociology Professor Boston University

Star Ark Rachel Armstrong, 2016-11-13 As space ventures have become more numerous leading scientists and theorists have offered ways of building a living habitat in a hostile environment taking an ecosystems view of space colonization The contributors to this volume take a radical multi disciplinary view of the challenge of human space colonization through the ongoing project Persephone This book fundamentally challenges prevalent ideas about sustainability and proposes a new approach to resource austerity and conservation and providing truly sustainable approaches that are life promoting Readers will learn the details of the plans for Persephone a real project that is part of the company Icarus Interstellar s plans for the design and engineering of a living interior on a worldship to be constructed in Earth s orbit within 100 years Although the timeframe itself is only an estimate since it is contingent on many significant developments including funding and technological advances the industry consensus is that within 100 years we will see manned space exploration beyond our solar system This notion is shared by organizations such as the Initiative for Interstellar Studies and the DARPA funded 100 year starship project This book specifically develops the principles for the construction of a living habitat within a worldship a multi generational starship that contains its own world that supports colonists as it travels across great distances between stars at a speed much slower than light Far from being a sterile industrial setup such as the ISS or even being a bucolic suburbia as proposed by Gerard O Neill in the 1970s this worldship will provide the pre conditions for sustaining life beyond Earth s environment which may also lead to the evolution of non terrestrial ecologies Drawing on the principles of ecopoiesis and insights offered by the Biosphere 2 experiment that demonstrated what we have to learn about ecosystem construction this book proposes first designing the soils of such a space It should then be possible to set up the conditions that a first generation of colonists may experience in leaving our solar system to find new worlds to settle perhaps in spreading life throughout the universe Although the book takes a unique view of ecology and sustainability within the setting of a traveling starship it is equally concerned with the human experience on artificial worlds Chapters come from a range of multi disciplinary thinkers who shed light on the brave new future ahead from different angles *Materials Experience 2* Owain Pedgley, Valentina Rognoli, Elvin Karana, 2021-09-23 *Materials Experience 2* Expanding Territories of Materials and Design is the follow up companion to *Materials Experience* published in 2014 *Materials experience* as a concept has evolved substantially and is now mobilized to incorporate new ways of thinking and designing Through all new peer reviewed chapters and project write ups the book presents critical perspectives on new and emerging relationships between designers materials and artifacts Subtitled *Expanding Territories of Materials and Design* the book examines in depth the increased prevalence of material driven design practices as well as the changing role of materials themselves toward active and

influential agents within and outside design processes The book is essential reading for anyone involved in materials and design containing 11 authoritative chapters and 18 illustrated accounts of contemporary research projects and practices Presents both the knowledge and understanding of what new and emerging materials are where they come from and how they can be used effectively in design Looks at how the professional responsibility of material selection is evolving into a more complex and active role of material creation and appropriation Explores how an elevated sensitivity to materials influence people's experiences of the designed world

Vibrant Architecture R. A. Armstrong, 2014

Liquid Life Rachel Armstrong, 2019

If we lived in a liquid world the concept of a machine would make no sense Liquid life is metaphor and apparatus that discusses the consequences of thinking working and living through liquids It is an irreducible paradoxical parallel planetary scale material condition unevenly distributed spatially but temporally continuous It is what remains when logical explanations can no longer account for the experiences that we recognize as part of being alive Liquid life references a third millennial understanding of matter that seeks to restore the agency of the liquid soul for an ecological era which has been banished by reductionist brute materialist discourses and mechanical models of life Offering an alternative worldview of the living realm through a new materialist and liquid study of matter it conjures forth examples of creatures that do not obey mechanistic concepts like predictability efficiency and rationality With the advent of molecular science an increasingly persuasive ontology of liquid technologies can be identified Through the lens of lifelike dynamic droplets the agency for these systems exists at the interfaces between different fields of matter energy that respond to highly local effects with no need for a central organizing system Liquid Life seeks an alternative partnership between humanity and the natural world It provokes a re-invention of the languages of the living realm to open up alternative spaces for exploration Rolf Hughes angelology of language explores the transformative invocations of prose poetry and Simone Ferracina's graphical notations help shape our concepts of metabolism upcycling and designing with fluids A conceptual and practical toolset for thinking and designing Liquid Life reunites us with the irreducible soul substance of living things which will neither be simply solved nor go away

Rachel Armstrong is Professor of Experimental Architecture at Newcastle University UK and has also been a Rising Waters II Fellow for the Robert Rauschenberg Foundation April May 2016 TWOTY futurist in 2015 Fellow of the British Interplanetary Society and a Senior TED Fellow in 2010 She is also the coordinator of the Living Architecture project an EU funded project that establishes the principles for our buildings to share some of the properties of living things e.g. metabolism operating at the intersection of architecture building construction bio energy and synthetic biology She is also the author of *Vibrant Architecture* De Gruyter 2015 *Star Ark A Living Self Sustaining Spaceship* Springer 2017 and *Soft Living Architecture An Alternative View of Bio-informed Design Practice* Bloomsbury 2018

Soft Living Architecture Rachel Armstrong, 2018-09-06

Soft Living Architecture explores the invention of new architectures based on living processes It crafts a unique intersection between two fast developing disciplines biomimicry and biodesign in architecture and bioinformatics

and natural computing in the natural sciences This is the first book to examine both the theory and methodology of architecture and design working directly with the natural world It explores a range of approaches from the use of life like systems in building design to the employment of actual growing and living cell and tissue cultures as architectural materials creating architecture that can change learn and grow with us The use of living architecture is cutting edge and speculative yet it is also inspiring a growing number of designers worldwide to adopt alternative perspectives on sustainability and environmental design The book examines the ethical and theoretical issues arising alongside case studies of experimental practice to explore what we mean by natural in the Anthropocene and raise deep questions about the nature of design and the design of nature This provocative and at times controversial book shows why it will become ever more necessary to embrace living processes in architecture if we are to thrive in a sustainable future

Interrogating the Anthropocene Jan Jagodzinski, 2018-05-09 This volume weaves together a variety of perspectives aimed at confronting a spectrum of ethico political global challenges arising in the Anthropocene which affect the future of life on planet earth In this book the authors offer a multi faceted approach to address the consequences of its imaginary and projective directions The chapters span the disciplines of political economy cybernetics environmentalism bio science psychoanalysis bioacoustics documentary film installation art geoperformativity and glitch aesthetics The first section attempts to flesh out new aspects of current debates Questions over the Capitalocene are explored via confluences of class and climate revisiting the eco Marxist analysis of capitalism and the financial system that thrives on debt The second section explores the imaginary narratives that raise questions regarding non human involvement The third section addresses geoartistry the counter artistic responses to the specularization of climate disasters questioning eco documentaries and what a post anthropocentric art might look like The last section addresses the pedagogical response to the Anthropocene

Future Details of Architecture Mark Garcia, 2014-07-16 Despite the exaggerated news of the untimely death of the detail by Greg Lynn the architectural detail is now more lifelike and active than ever before In this era of digital design and production technologies new materials parametrics building information modeling BIM augmented realities and thenano bio information computation consilience the detail is now an increasingly vital force in architecture Though such digitally designed and produced details are diminishing in size to the molecular and nano levels they are increasingly becoming more complex multi functional high performance and self replicating Far from being a non essential and final finish this new type of highly evolved high tech detail is rapidly becoming the indispensable and critical core the sometimes iconic DNA of an innovative new species of built environmental form that is spawning in scale and prominence across product interior urban and landscape design This issue of AD re examines the history theories and design of the world's most significant spatial details and explores their innovative potentials and possibilities for the future of architecture Contributors include Rachel Armstrong Nic Clear Edward Ford Dennis Shelden Skylar Tibbitts Featured architects Ben van Berkel Hernan Diaz Alonso Peter Macapia Carlo Ratti Philippe Rahm Patrik

Schumacher NeilSpiller Experimental Architecture Rachel Armstrong,2019-06-11 In this ground breaking book the first to provide an overview of the theory and practice of experimental architecture Rachel Armstrong explores how interdisciplinary design led research practices are beginning to redefine the possibilities of architecture as a profession Drawing on experts from disciplines as varied as information technology mathematics poetry graphic design scenography bacteriology marine applied science and robotics Professor Armstrong delineates original cutting edge architectural experiments through essays quotes poetry equations and stories Written by an acknowledged pioneer of architectural experiment this visionary book is ideal for students and researchers wishing to engage in experimental practice based architectural and artistic research It introduces radical new ideas about architecture and provides ideas and inspiration which students and researchers can apply in their own work and proposals while practitioners can draw on it to transform their creative assumptions and develop thereby a distinctive edge to stand out in a highly competitive profession

Embark on a transformative journey with is captivating work, **Vibrant Architecture Material Realm As A Codesigner Of Living Spaces** . This enlightening ebook, available for download in a convenient PDF format , invites you to explore a world of boundless knowledge. Unleash your intellectual curiosity and discover the power of words as you dive into this riveting creation. Download now and elevate your reading experience to new heights .

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