



# Biomorphic Architecture

**Arno Pronk**



## **Biomorphic Architecture:**

*Biomorphic architecture* Günther Feuerstein,2002      *Toward a Living Architecture?* Christina Cogdell,2019-01-01 A bold and unprecedented look at a cutting edge movement in architecture *Toward a Living Architecture* is the first book length critique of the emerging field of generative architecture and its nexus with computation biology and complexity Starting from the assertion that we should take generative architects rhetoric of biology and sustainability seriously Christina Cogdell examines their claims from the standpoints of the sciences they draw on complex systems theory evolutionary theory genetics and epigenetics and synthetic biology She reveals significant disconnects while also pointing to approaches and projects with significant potential for further development Arguing that architectural design today often only masquerades as sustainable Cogdell demonstrates how the language of some cutting edge practitioners and educators can mislead students and clients into thinking they are getting something biological when they are not In a narrative that moves from the computational toward the biological and from current practice to visionary futures Cogdell uses life cycle analysis as a baseline for parsing the material energetic and pollution differences between different digital and biological design and construction approaches Contrary to green tech sustainability advocates she questions whether quartzite based silicon technologies and their reliance on rare earth metals as currently designed are sustainable for much longer challenging common projections of a computationally designed and manufactured future Moreover in critiquing contemporary architecture and science from a historical vantage point she reveals the similarities between eugenic design of the 1930s and the aims of some generative architects and engineering synthetic biologists today Each chapter addresses a current architectural school or program while also exploring a distinct aspect of the corresponding scientific language theory or practice No other book critiques generative architecture by evaluating its scientific rhetoric and disjunction from actual scientific theory and practice Based on the author s years of field research in architecture studios and biological labs this rare field building book does no less than definitively unsparingly explain the role of the natural sciences within contemporary architecture      *Flexible Forming for Fluid Architecture* Arno Pronk,2021-10-11 This book on flexible formwork for fluid architecture is a multi faceted research that covers a broad field from design to material and technology and from history to future developments It offers a pragmatic approach that can be extended with more cases materials techniques and methods for fluid architecture and provides a better understanding of the main aspects of fluid architecture and to help them find the most suitable combinations of all aspects The book is a challenging experience with many new discoveries including two patents one on moulding of fluid surfaces and one on 3D printing of fibre reinforced ice It also features two world records the largest span 30 meters and the highest thin shell structure 30 5 meters in ice as well as a method for the construction of a fully laminated shell structure in insulated glass      **Building for Life** Stephen R. Kellert,2012-09-26 Sustainable design has made great strides in recent years unfortunately it still falls short of fully

integrating nature into our built environment Through a groundbreaking new paradigm of restorative environmental design award winning author Stephen R Kellert proposes a new architectural model of sustainability In Building For Life Kellert examines the fundamental interconnectedness of people and nature and how the loss of this connection results in a diminished quality of life This thoughtful new work illustrates how architects and designers can use simple methods to address our innate needs for contact with nature Through the use of natural lighting ventilation and materials as well as more unexpected methodologies the use of metaphor perspective enticement and symbol architects can greatly enhance our daily lives These design techniques foster intellectual development relaxation and physical and emotional well being In the works of architects like Frank Lloyd Wright Eero Saarinen Cesar Pelli Norman Foster and Michael Hopkins Kellert sees the success of these strategies and presents models for moving forward Ultimately Kellert views our fractured relationship with nature as a design problem rather than an unavoidable aspect of modern life and he proposes many practical and creative solutions for cultivating a more rewarding experience of nature in our built environment Towards Users' Optimal and Pleasurable Experience in Smart Environments Mi Jeong Kim,Xiangyu Wang,Inhan Kim,2020-12-23 This eBook is a collection of articles from a Frontiers Research Topic Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series they are collections of at least ten articles all centered on a particular subject With their unique mix of varied contributions from Original Research to Review Articles Frontiers Research Topics unify the most influential researchers the latest key findings and historical advances in a hot research area Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office frontiersin.org about contact

**Biomorphic Structures** Asterios Agkathidis,2017-01-31 From leaves to liquids caves to crystal formations nature has always been a major source of inspiration for architects This book examines how nature can act as a precedent for design solutions through twelve case studies Packed with computer drawings sketches models and photographs this will be an ideal resource of ideas for students in their studio work as well as for practicing architects Bionics Fouad Sabry,2024-12-09 1 Bionics Explores the core concepts blending biology and robotics for groundbreaking results 2 Biomedical engineering Examines the medical applications of bionic systems for human benefit 3 Biomimetics Discusses technology inspired by biological systems to solve complex problems 4 Bioinspired computing Analyzes computing techniques rooted in natural processes 5 Janine Benyus Profiles the biomimicry pioneer and her influence on bionic applications 6 Biorobotics Reviews robots mimicking biological functions for enhanced adaptability 7 Neuroprosthetics Explores advancements in robotic prosthetics for neural integration 8 Rahul Sarpeshkar Highlights this key figure s contributions to bionics and bioengineering 9 Biological engineering Examines the crossover of biology and engineering in robotics 10 Biomaterial Investigates materials derived from or inspired by biology 11 Biomimetic material Focuses on materials designed to mimic biological properties 12 Cyborg Looks at the merging of human biology with robotics for enhanced abilities 13 Bionic disambiguation Clarifies the

terminology and scope of bionic in various fields 14 Biomimicry Institute Covers the organization's impact on bioinspired technologies 15 Werner Nachtigall Honors the researcher's foundational work in biomimetics 16 Bioinspired robotics Discusses robots inspired by biological movements and adaptations 17 Biomimetic architecture Reviews architecture influenced by natural forms and systems 18 Bioinspiration Highlights diverse applications of biology-inspired design in technology 19 Bioinspired photonics Explores photonics inspired by biological visual systems 20 Biochemical engineering Discusses biochemical processes applied in robotic functions 21 Biocompatibility Addresses how bionics can harmonize with human biology safely

**Aesthetics and Architectural Composition** Ralf Weber, Matthias Albrecht Amann, 2005

**Imaginary Cities** Darran Anderson, 2024-05-31 For as long as humans have gathered in cities those cities have had their shining or shadowy counterparts Imaginary cities potential cities future cities perfect cities It is as if the city itself its inescapable gritty reality and elbow to elbow nature demands we call into being some alternative yearned for better place This book is about those cities It's neither a history of grand plans nor a literary exploration of the utopian impulse but rather something different hybrid idiosyncratic It's a magpie's book full of characters and incidents and ideas drawn from cities real and imagined around the globe and throughout history Thomas More's allegorical island shares space with Soviet mega planning Marco Polo links up with James Joyce's meticulously imagined Dublin the medieval land of Cockaigne meets the hopeful future of Star Trek With Darran Anderson as our guide we find common themes and recurring dreams tied to the seemingly ineluctable problems of our actual cities of poverty and exclusion and waste and destruction And that's where Imaginary Cities becomes more than a mere if ecstatically entertaining intellectual exercise for as Anderson says If a city can be imagined into being it can be re-imagined Every architect philosopher artist writer planner or citizen who dreams up an imaginary city offers lessons for our real ones harnessing those flights of hopeful fancy can help us improve the streets where we live Though it shares DNA with books as disparate as Calvino's Invisible Cities and Jane Jacobs's Death and Life of Great American Cities there's no other book quite like Imaginary Cities After reading it you'll walk the streets of your city real or imagined with fresh eyes

**Introduction to Architecture** James C. Snyder, Anthony James Catanese, 1979 Good No Markup all pages are intact Slight Shelfwear may have the corners slightly dented may have slight color changes slightly damaged spine

*Neoplastic Design* Marcos Cruz, Steve Pike, 2008-12-03 Editorial Helen Castle

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Artificial Evolution A Hands off Approach of Architects Rachel Armstrong Designer Materials for Architecture4re Rachel Armstrong Design for Debate Anthony Dunne Ethics Architecture and Little Soft Machinery Neil Spiller World Expo 2008 Zaragoza Mark Garcia **Art and Science** ,2003 **The Fashion of Architecture** Bradley Quinn,2003 Architecture is making its presence felt in cutting edge fashion The pliable metals membrane structures lightweight glasses and plastics used in building construction are creeping onto the catwalk As they do so their impact on recent textile developments has produced fabrics that enable clothing to act as individual climate controlled environments that can exchange information with embedded sensors resulting in wearable dwellings that act as both shelter and clothing At the same time architects are borrowing the techniques of pleating stapling cutting and draping from traditional tailoring to design buildings that are flexible interactive inflatable and even portable Although the relationship between architecture and fashion was recognized more than a century ago the connection between them has rarely been explored by historians designers or practicing architects The Fashion of Architecture is the first attempt to investigate the contemporary relationship between architecture and fashion in considerable depth by examining the ideas imagery techniques and materials used by visionaries such as Martin Margiela Issey Miyake Alexander McQueen Tadao Ando and Daniel Libeskind As mavericks ranging from Hussein Chalayan and Rei Kawakubo to Rem Koolhaas and Zaha Hadid describe architecture s role in the formation of fashion identities new readings of both areas emerge Probing and far reaching in its content The Fashion of Architecture is the most comprehensive study of this exciting area to date Manmade Modular Megastructures Ian Abley,Jonathan Schwinge,2006-04-07 There will be 8 3 billion human beings on Earth by 2030 and the more the better We have the opportunity to create a world of expansive megacities including one around old London Doing so will advance the art science and processes of manufacturing But to deploy those abilities we must shrug off the dogma of sustainability that insists only small can be beautiful Humanity has come a long way since the first modular mega structure was built at Ur on land that is now Iraq There four millennia ago and by hand the Sumerians built a mud brick ziggurat to their Gods Today the green deities of Nature we have invented for ourselves are worshipped with humility Eco zealots argue against the mechanised megaforming of landscape and the modularised production of megastructures The guest editors Jonathan Schwinge and Ian Abley of the London based research organisation audacity call for development on a bold scale They argue that by rapidly super sizing the built environment society is not made vulnerable to natural or man made hazards and that design innovation surpasses bio mimicry Designers can learn from materials scientists working at the smallest of scales and from systems manufacturers with ambitions at the largest This issue calls for creative thinking about typologies and topologies and considers what that also means for Africa China and Russia Megacities everywhere demand integration of global systems of transport utilities and IT in gigantic structures constantly upgraded scraping both the sky and the ground outward into the sea **Environment and Planning** ,2006 Journal of urban planning and design Publishes research in the application of

formal methods methods models and theories to spatial problems involving the built environment and the spatial structure of cities and regions Includes the application of computers to planning and design in particular the use of shape grammars artificial intelligence and morphological methods to buildings and towns the use of multimedia and GIS in urban and regional planning and the development of ideas concerning the virtual city

**The Culture of Corporeality** Stefan Leonhard Brandt,2007 The Culture of Corporeality outlines a cultural history of the body in the American postwar years 1945 1960 based on contemporary critical theory and exemplified by a variety of films literary works and other documents The book argues that the body as a cultural symbolic and lived

*Pratt Journal of Architecture* ,1988

**Neural Information Processing and VLSI** Bing J. Sheu,Joongho Choi,1995-02-28 Neural Information Processing and VLSI provides a unified treatment of this important subject for use in classrooms industry and research laboratories in order to develop advanced artificial and biologically inspired neural networks using compact analog and digital VLSI parallel processing techniques Neural Information Processing and VLSI systematically presents various neural network paradigms computing architectures and the associated electronic optical implementations using efficient VLSI design methodologies Conventional digital machines cannot perform computationally intensive tasks with satisfactory performance in such areas as intelligent perception including visual and auditory signal processing recognition understanding and logical reasoning where the human being and even a small living animal can do a superb job Recent research advances in artificial and biological neural networks have established an important foundation for high performance information processing with more efficient use of computing resources The secret lies in the design optimization at various levels of computing and communication of intelligent machines Each neural network system consists of massively paralleled and distributed signal processors with every processor performing very simple operations thus consuming little power Large computational capabilities of these systems in the range of some hundred giga to several tera operations per second are derived from collectively parallel processing and efficient data routing through well structured interconnection networks Deep submicron very large scale integration VLSI technologies can integrate tens of millions of transistors in a single silicon chip for complex signal processing and information manipulation The book is suitable for those interested in efficient neurocomputing as well as those curious about neural network system applications It has been especially prepared for use as a text for advanced undergraduate and first year graduate students and is an excellent reference book for researchers and scientists working in the fields covered

**Architecture 2000 and Beyond** Charles Jencks,2000-08-16 This classic of prediction written in 1969 has now been brought up to date the prophecies judges and the omens extended to 2030 The success rate of Jencks forecasts and his method of combining expert prediction with structural analysis make this book an important contribution to the art of conjecture Not only did he predict the a series of innovations that have changed the world such as the Internet but he identified six main architectural traditions that continuously transform over time This provides a method of gauging what are

likely to be the future movements in architecture a useful and fascinating tool for speculation No other book of forecasting is like it a hypertext of retrospection judgement and further prophecy *World Architecture* ,2002

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