

Provides a professional, contemporary, and concise review of the current knowledge and advances in biomimetics

This book covers the field of biomimicry, an area of science where researchers look to mimic aspects of plants or animals in order to solve problems in aerospace, shipping, building, electronics, and optics, among others. It presents the latest developments in biomimicry and gives readers sufficient grounding to help them understand the current, research literature. Different themes are covered throughout and text boxes deal with the relevant physics for readers who may lack this knowledge.

Biomimetics: Nature-Inspired Design and Innovation examines issues in fluid dynamics such as avoiding sonic booms, reducing train noise, increasing wind turbine efficiency, and more. Next, it looks at optical applications, e.g. how nature generates color without dyes and pigment, and how animals stay cool in desert environments. A chapter on the built environment discusses cooling systems for buildings inspired by termite mounds; creating self-cleaning paint inspired by lotus leaves; unobtrusive solar panels inspired by ivy; and buildings that respond to the environment. Two more sections focus on biomimicry for the creation of smart materials and smart devices. The book finishes with a look at the field's future over the next decade.

- Presents each topic in sufficient detail in order to enable the reader to comprehend the original scientific papers
- Emphasises those examples of biomimicry that have made it into products
- Features text boxes that provide information on the relevant physics or engineering principles for biologists who do not have a physics background
- Covers the scientific literature up to July 2019

Biomimetics: Nature-Inspired Design and Innovation is an excellent book for senior undergraduates and post-graduate students in the life sciences, material sciences, and bioengineering. It will also appeal to lay readers with an interest in nature as well as scientists in general.

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