

BIOIMICRY

By Shariffah Nur Alawiyah

biomimicry

/bɪəmɪkri/

noun

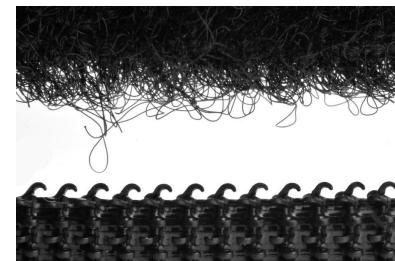
the design and production of materials, structures, and systems
that are modelled on biological entities and processes.

How does biomimicry work?

- Takes inspiration from natural selection solutions adopted by nature & translate the principles into engineering
- Favour choices tested by nature on what works best & what don't with time-tested strategies
- Uses ecological standards to judge the rightness of human innovations
- Allow human productions to be more efficient, resilient & sustainable

Application examples

Inventions	Inspired by
Climbing Pads	Mimic biomechanics of gecko feet
Bullet Trains	Shape of birds' beak
Velcro	Hooks by some plants for their propagation of seeds by animal's coat
Oil Repellents	Lotus flower's superhydrophobicity



Biomimicry in Wearables

By Vollebak

- Using black squid's ability to change their colour & appearance at high speed
- Makes wearer visible to increase safety of runners in bad weather
- Uses lasers, resin & over 2 billion disruptively-structured microscopic glass spheres
- Looks like metal in low light but instantly reflects colours in bright light



Biomimicry in Wearables

By Galina Mihaleva

- (Left) *Palipitation*;

Uses pulse sensors & LED to question social perception of a woman's temperament by giving insight to body's internal working

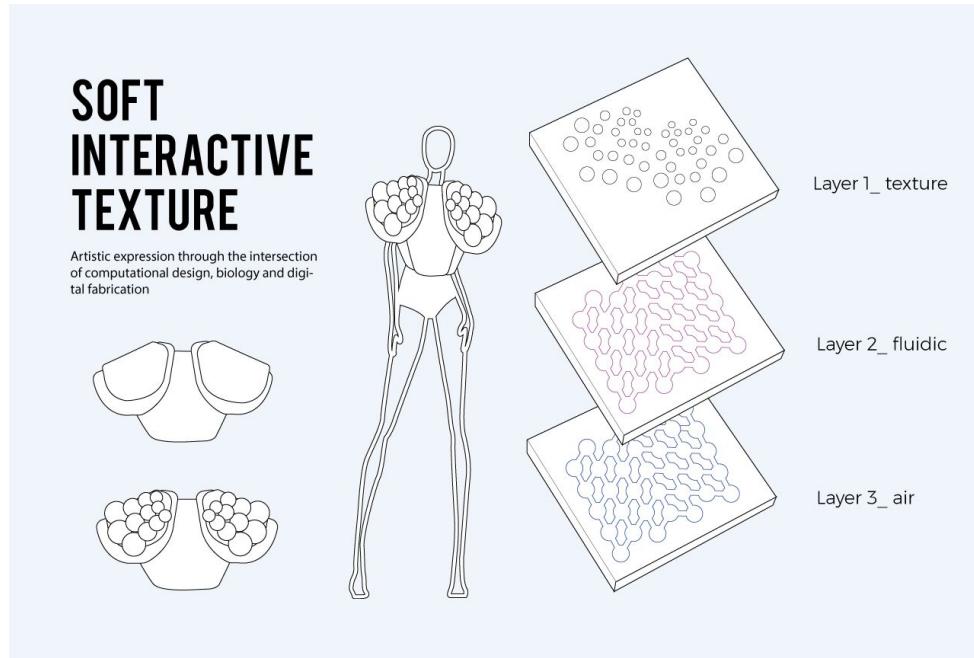
- (Right) *Sense*;

Uses fabrics with sensitive solutions that change colour based on intensity of air pollution around the wearer



Case Studies

Montserrat Ciges



Reacts with movement, imitating animals that are capable of voluntary self-transformation
Used like a second skin through soft robotics & digital fabrication

Montserrat Ciges

MOLDING

Parametric Design, Laser Cut Molds

SOFT ROBOT

Softstructure, Ecoflex Silicon

MECHANICAL CONTROL

Air Pump Motor, Solenoide

ELECTRONICS & CODE

Board Design, Code



Montserrat Ciges



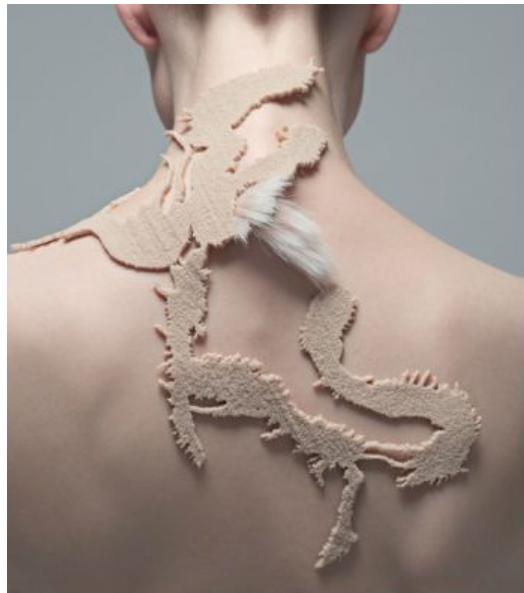
Andreea Mandrescu



"Inlaid Skin" decorates body with insets or offsets with synthetic lace-like soft tissue
Used as accessories or made to fit garment patterns

Andreea Mandrescu

- Using human forms as inspiration
- Body modification
- Mimic real skin with rubber
- New tactile & visual experience
- Versatile surfaces



Other ways biomimicry applies - Sustainability



Leather from Mushroom



Fabric from citrus juice by-products



Fabric Dyes from Bacteria & Fermentation



Fabrics & Dyes from Algae

Other ways biomimicry applies - Textural & Fabric



[Stefanie Nieuwenhuys](#)



Other examples: [Click Here](#)



["Miura Ori" scarf by Diana Eng](#)



References

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