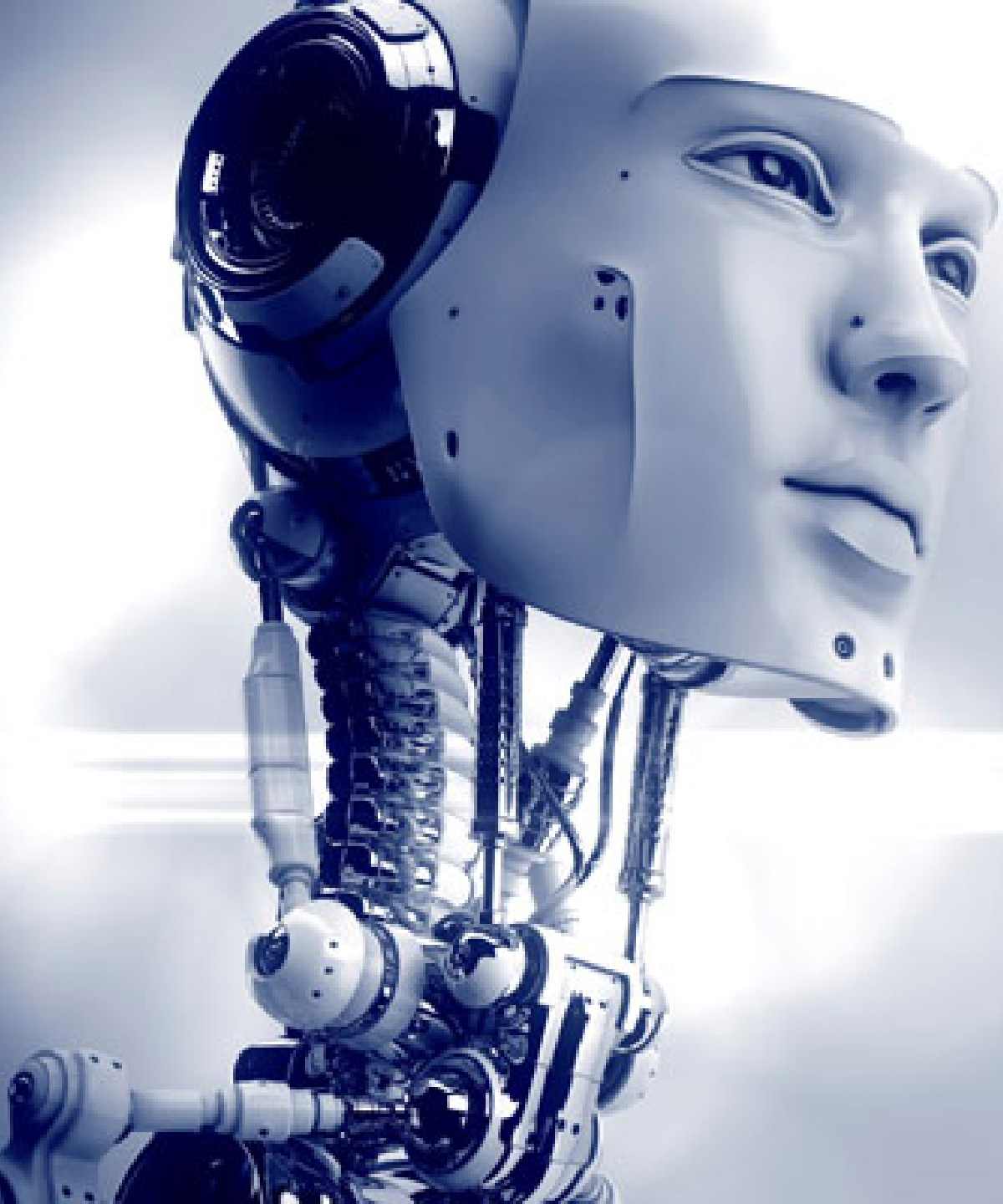


Why Robots Need Smart Bodies

Helmut
Hauser



a great future
with robots

Structure





dynamic
and
unpredictable



Nature is amazing



cats are amazing



... and cute



body is important

physical
properties
help to run



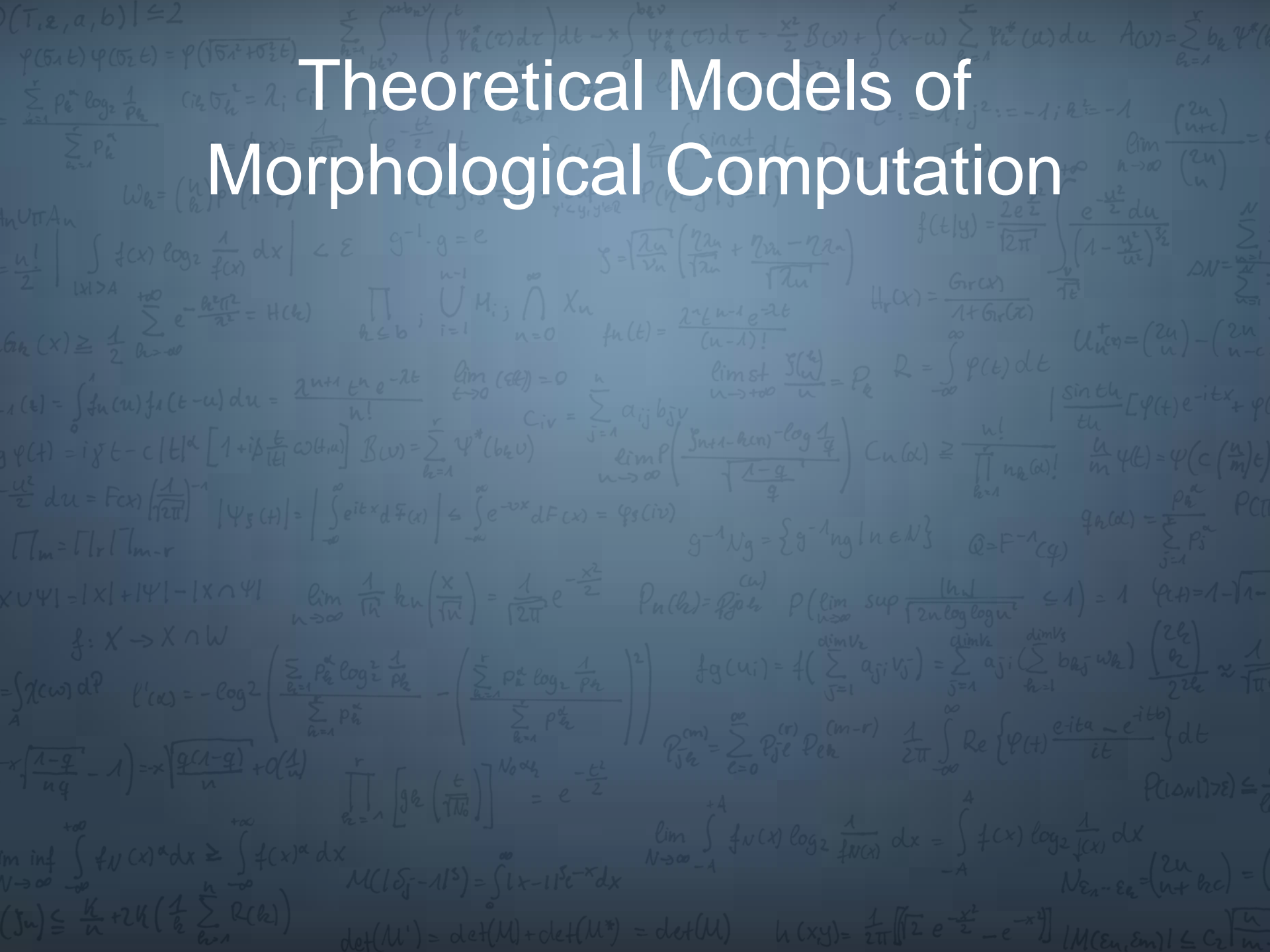
Morphological Computation

Morphological Computation

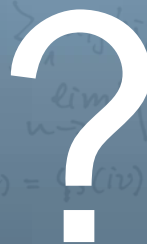


Morphology!

Theoretical Models of Morphological Computation



Theoretical Models of Morphological Computation



to be computationally powerful

- Complex
- Nonlinear
- Soft
- Noisy

to be computationally powerful

✘ Complex

✘ Nonlinear

✘ Soft

✘ Noisy

to be computationally powerful



Complex



Nonlinear




Soft



Noisy

- 
- An octopus is shown swimming in clear blue water. The octopus's body is light-colored with brown spots, and its tentacles are long and brown with white suction cups. The water is a vibrant blue, and the lighting is bright, suggesting a shallow depth.
- ✓ Complex
 - ✓ Nonlinear
 - ✓ Soft
 - ✓ Noisy

A close-up, low-angle shot of a person's legs standing on a wooden staircase. The person is wearing bright green cargo pants and brown leather boots with white soles. The staircase has light-colored wooden treads and dark grey or black risers. The lighting is warm and directional, coming from the side, creating strong highlights and shadows. The text "...take it one step further" is overlaid in the bottom left corner in a white, sans-serif font.

...take it one step
further



adaptive
architecture

⋮

intelligent
interfaces



smart bodies

for

smart robots

Helmut
Hauser