

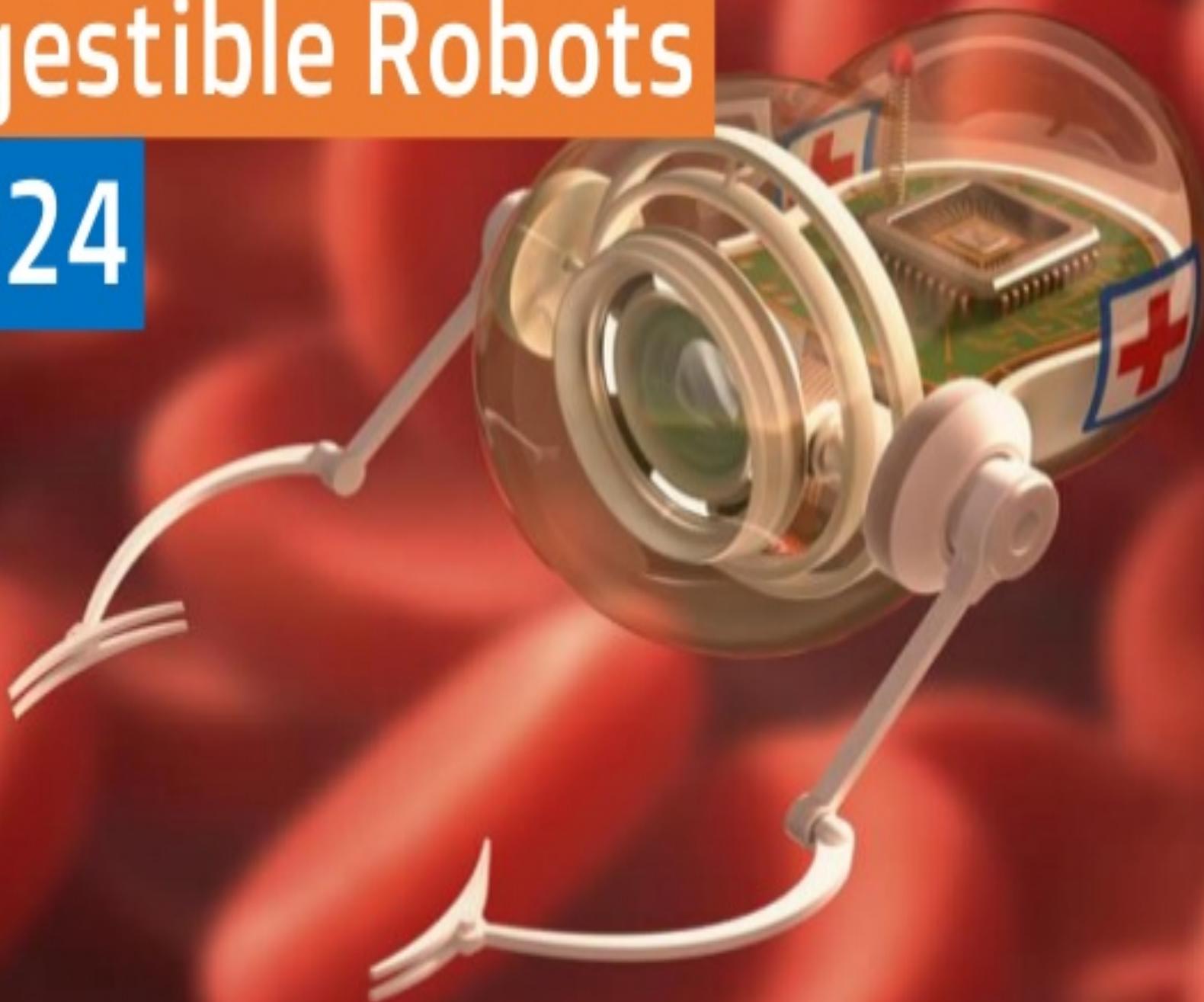
Introduction to Computer Science

Lecture 2

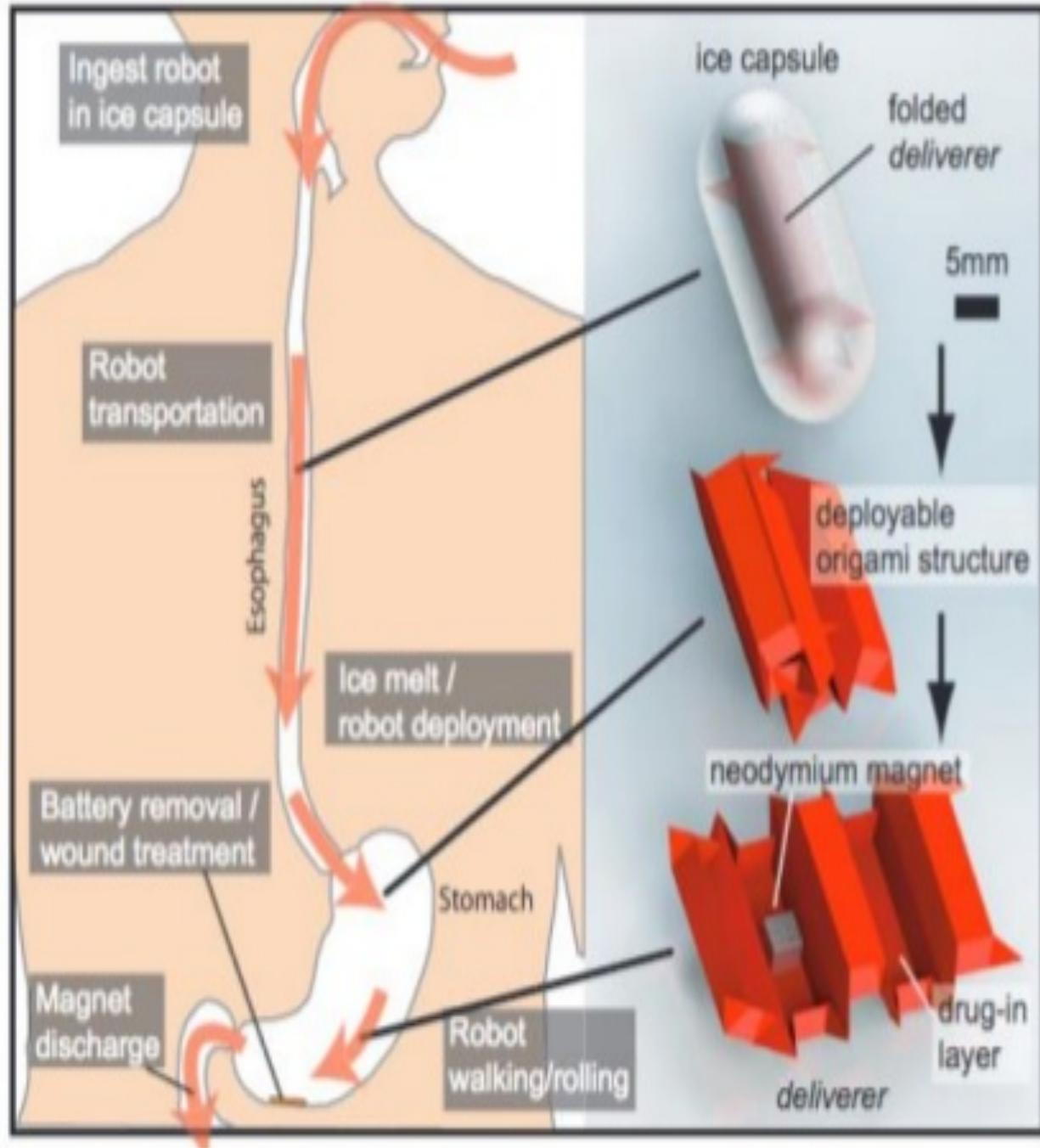
BREAKTHROUGH FUTURE TECHNOLOGIES

Ingestible Robots

2024



Ingestible Robots



A composite image featuring a close-up of a dark, ribbed garment with a metallic button, and a woman wearing a black tank top. Three glowing orange circular sensors are attached to the woman's chest and abdomen, connected by thin lines to three floating digital interface boxes. The top box shows a heart icon and an ECG line. The middle box shows a running figure and a green line graph. The bottom box shows a肺 (lung) icon and a purple line graph. The number '742274' is visible in the top right corner.

Smart Clothing

2026

Smart Clothing

- Smart clothing is still to go mainstream after first popping to the surface in 2015.
- Electronic textiles, also known as smart garments, smart clothing, smart textiles, or smart fabrics, are fabrics that enable digital components such as a battery and a light (including small computers), and electronics to be embedded in them.
- Smart textiles can be broken into two different categories: aesthetic and performance enhancing.
- Aesthetic examples include fabrics that light up and fabrics that can change color.
- Performance enhancing smart textiles are intended for use in athletic, extreme sports and military applications.



The Next Evolution of A.I.

2036

Big data analytics and predictive AI come of age—from weather, to elections, to geopolitics, evolution, and much else, the future has become almost disappointingly predictable.

Computer Science

- The scope of computer science contains mathematics, engineering, psychology, biology, business administration, and linguistics.
- Research for computers :
 - Hardware
 - Algorithm
 - Programming

THE SCIENCE OF ABSTRACTION

Envision Computer Systems

- Today's computer systems are extremely **complex** and can be overwhelming when viewed in all their detail.
- We envision the computer in terms of component
 - ignore the internal details of components
 - concentrate on how components interact with other components

Abstraction

- Abstraction is a simplification technique.
 - extract the external properties for components
 - ignore the internal details
- Use abstract modules to construct more complex function



