Martin Cook

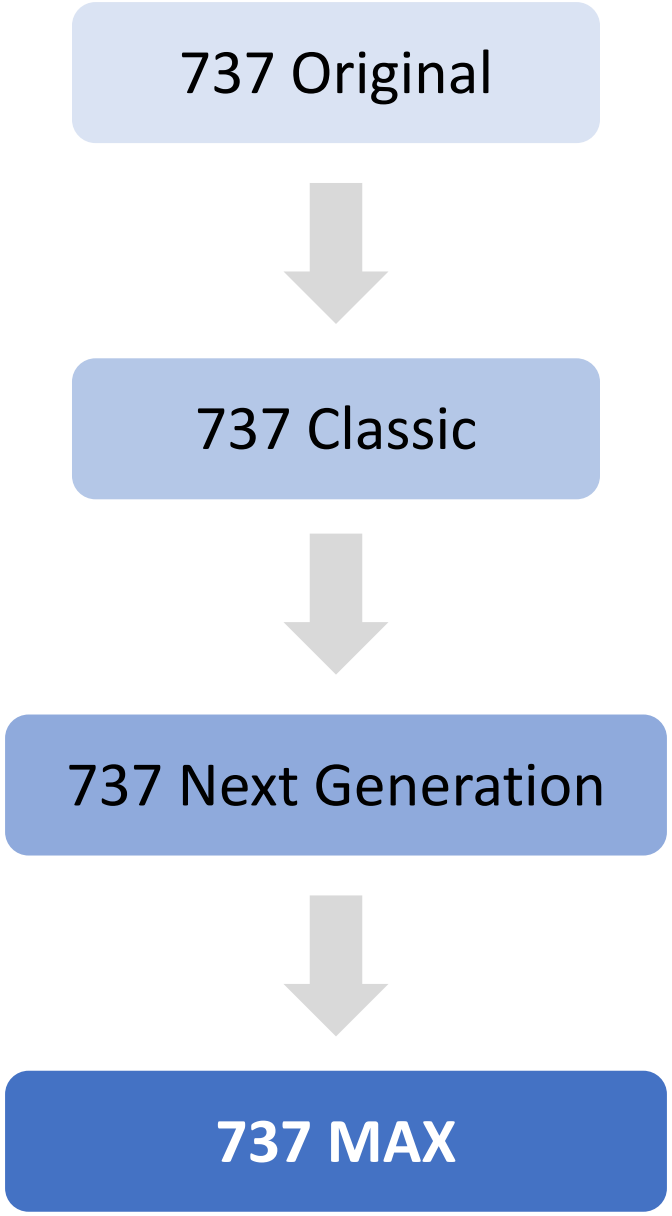
THE CHOICE ARCHITECTS

UNIVERSITY OF JOHANNESBURG

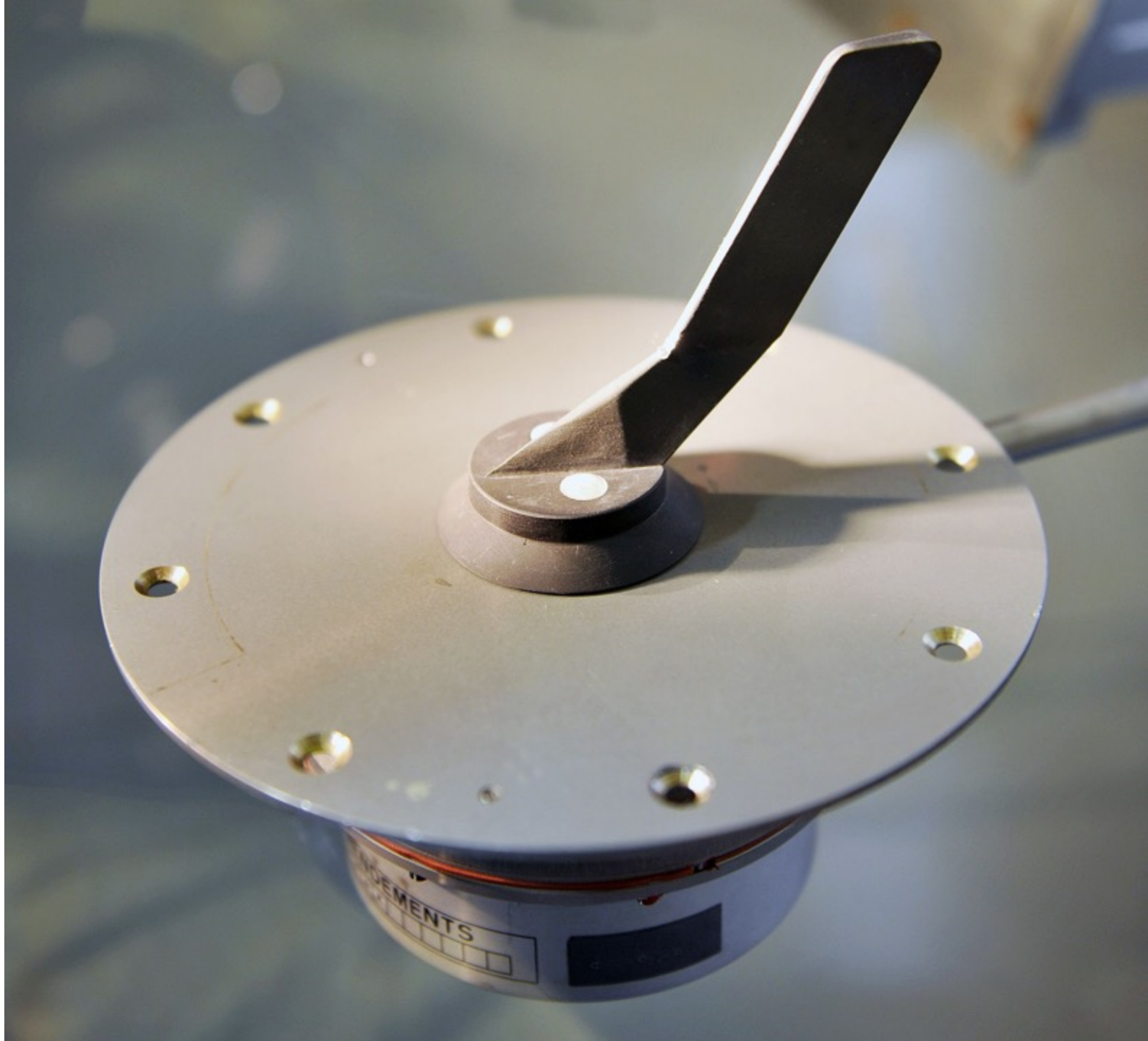
MCAS

Manoeuvring Characteristics Augmentation System

BOEING


737 Original
737 Classic
737 Next Generation
737 MAX

Angle-of-attack sensor



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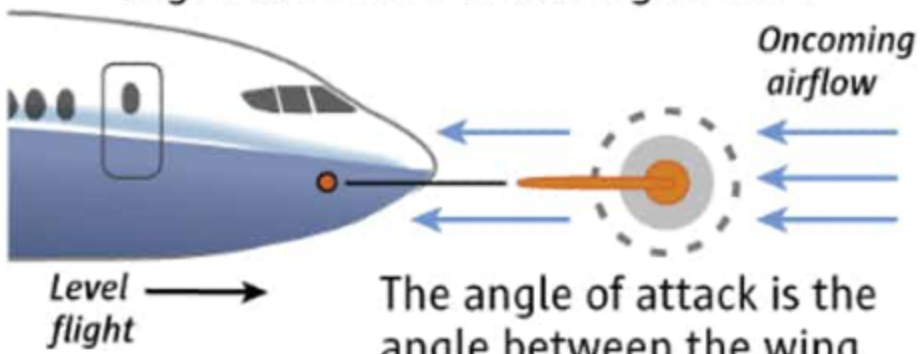
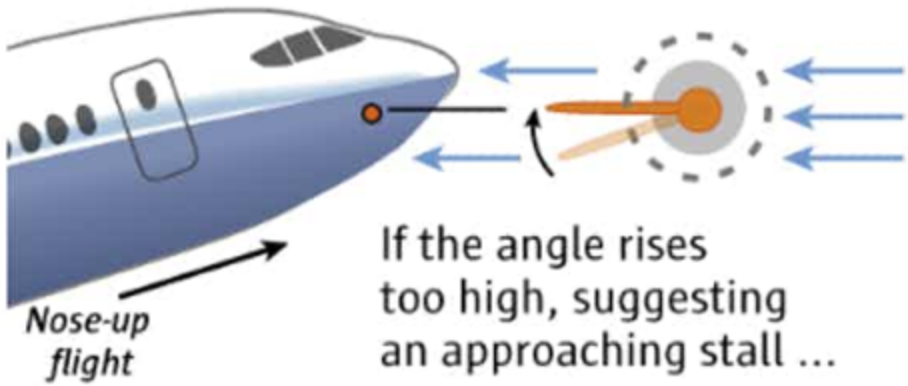
How the MCAS (Maneuvering Characteristics Augmentation System) works on the 737 MAX

1. The angle-of-attack sensor aligns itself with oncoming airflow.



The angle of attack is the angle between the wing and the airflow.

2. Data from the **sensor** is sent to the flight computer.



If the angle rises too high, suggesting an approaching stall ...

... the **MCAS** activates.

3. MCAS automatically swivels the **horizontal tail** to lift the plane's tail while moving the nose down.

In the Lion Air crash, the angle-of-attack sensor fed false information to the flight computer.

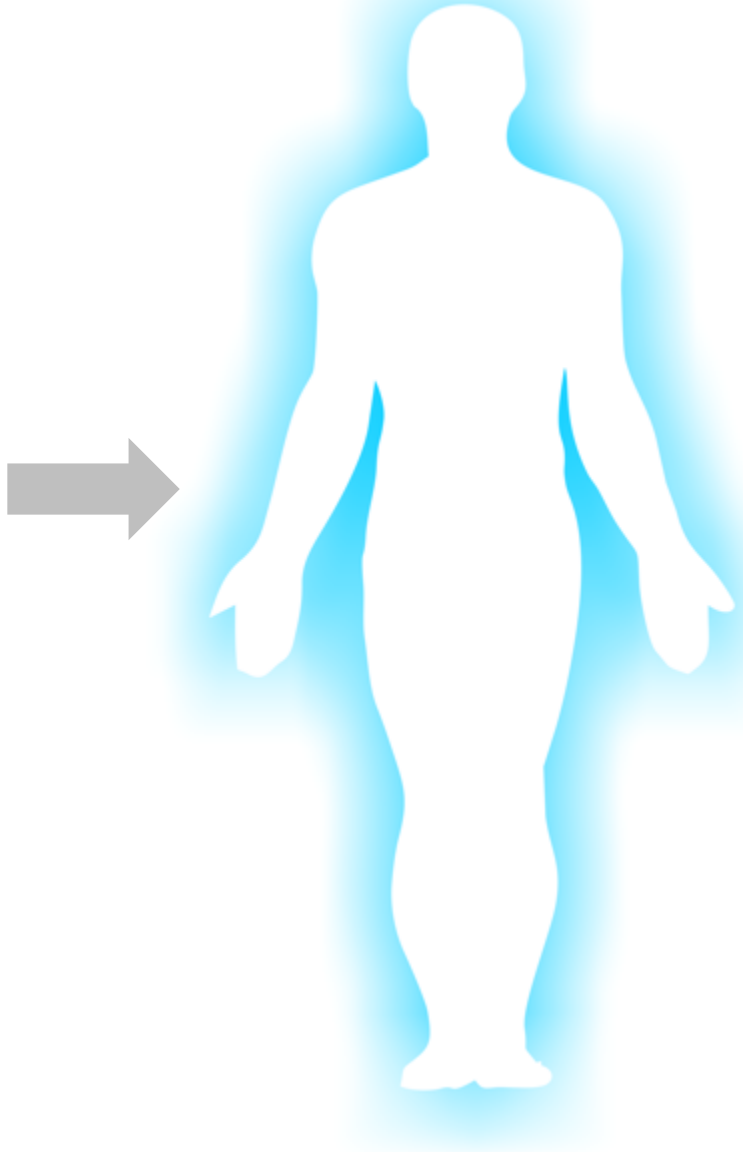
Sources: Boeing, FAA, Indonesia National Transportation Safety Committee, Leeham.net, and The Air Current

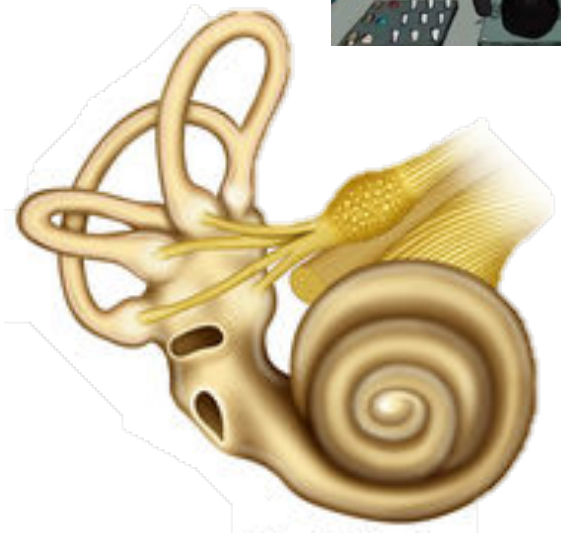
Reporting by **DOMINIC GATES**,
Graphic by **MARK NOWLIN / THE SEATTLE TIMES**

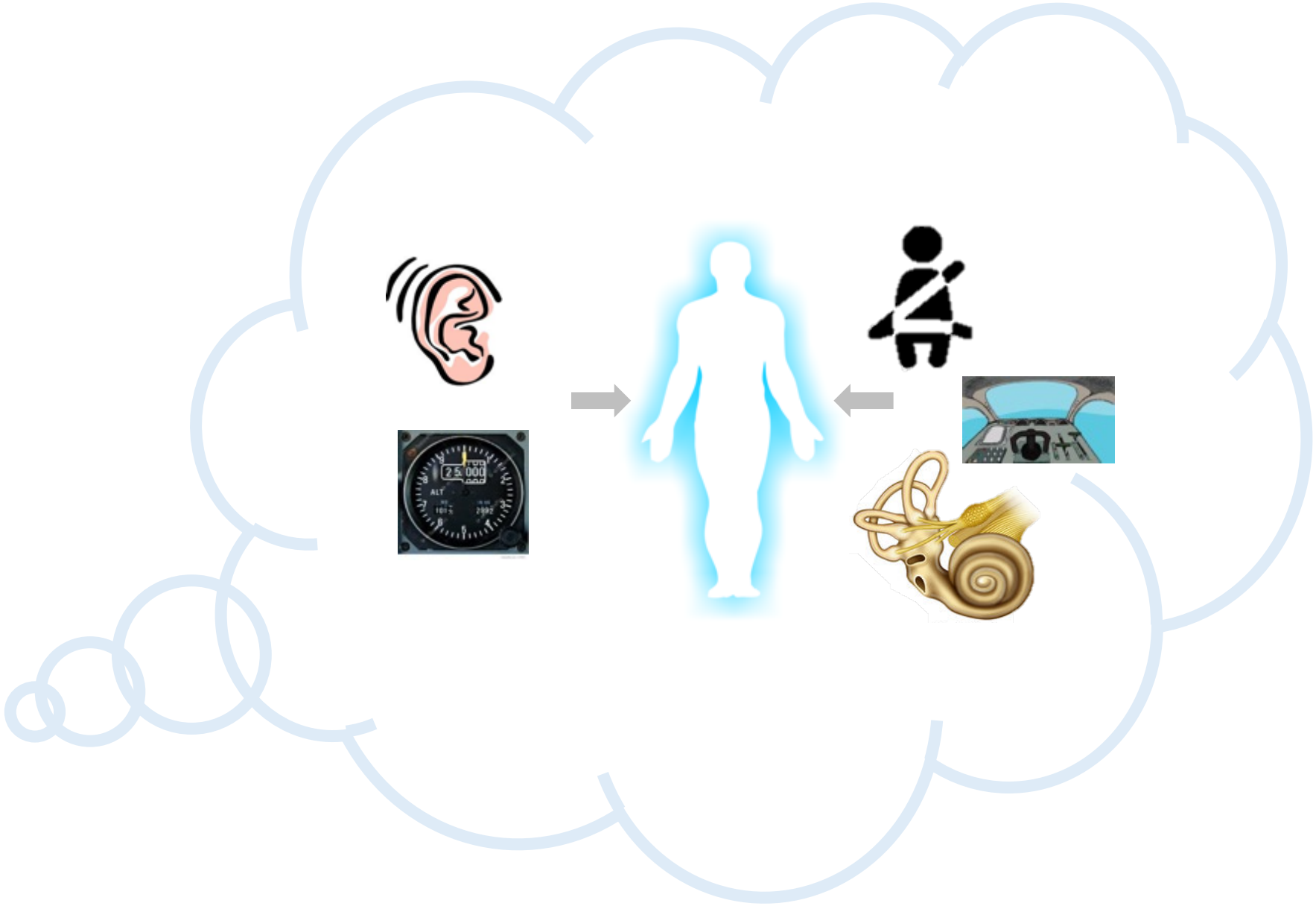
Individualistic

3rd industrial revolution

25,000
ALT
MB
1013
IN HG
2992






25 000
ALT

New paradigm: the only role of sensors is to ensure that your digital twin is in synch with reality.

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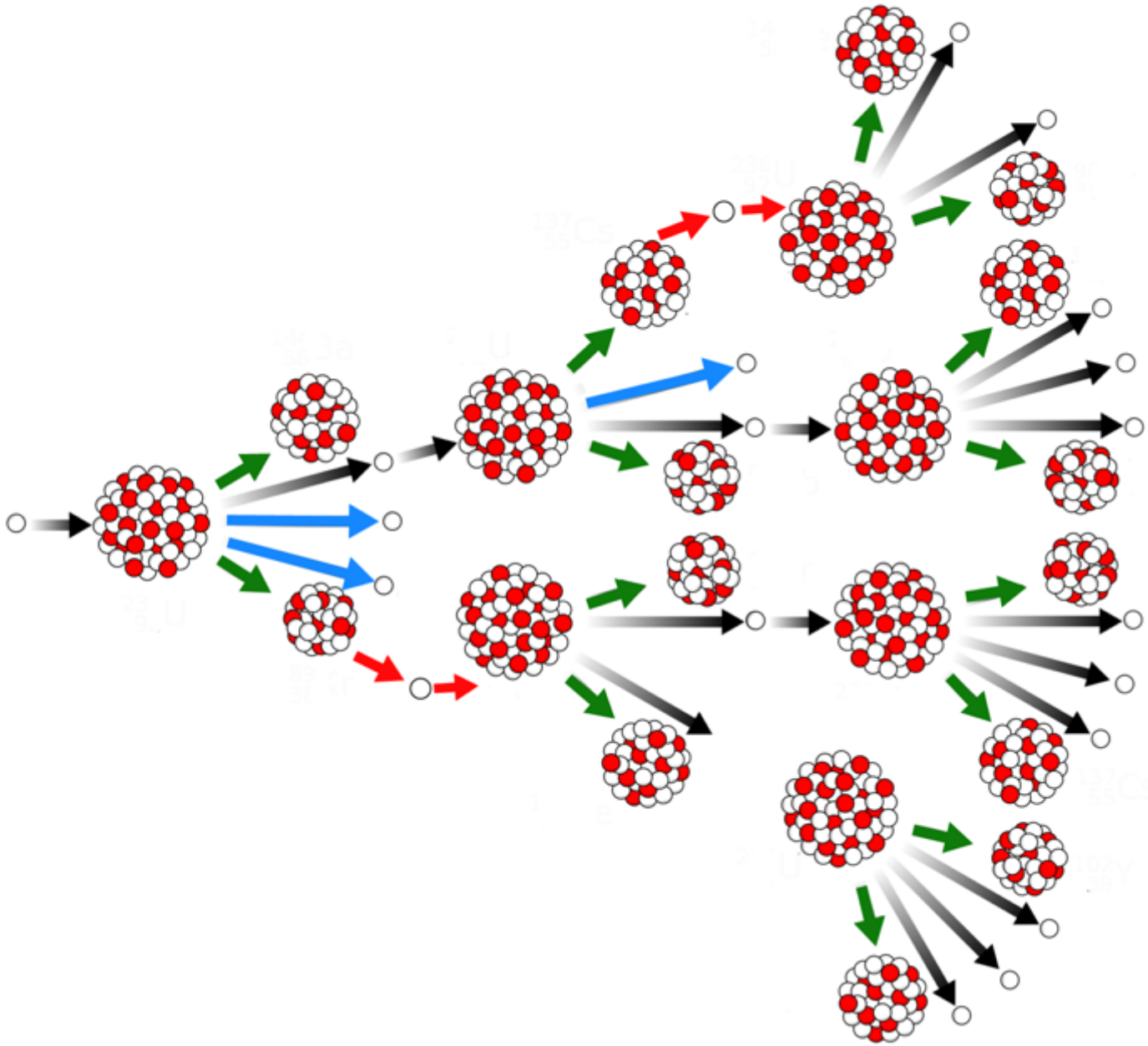
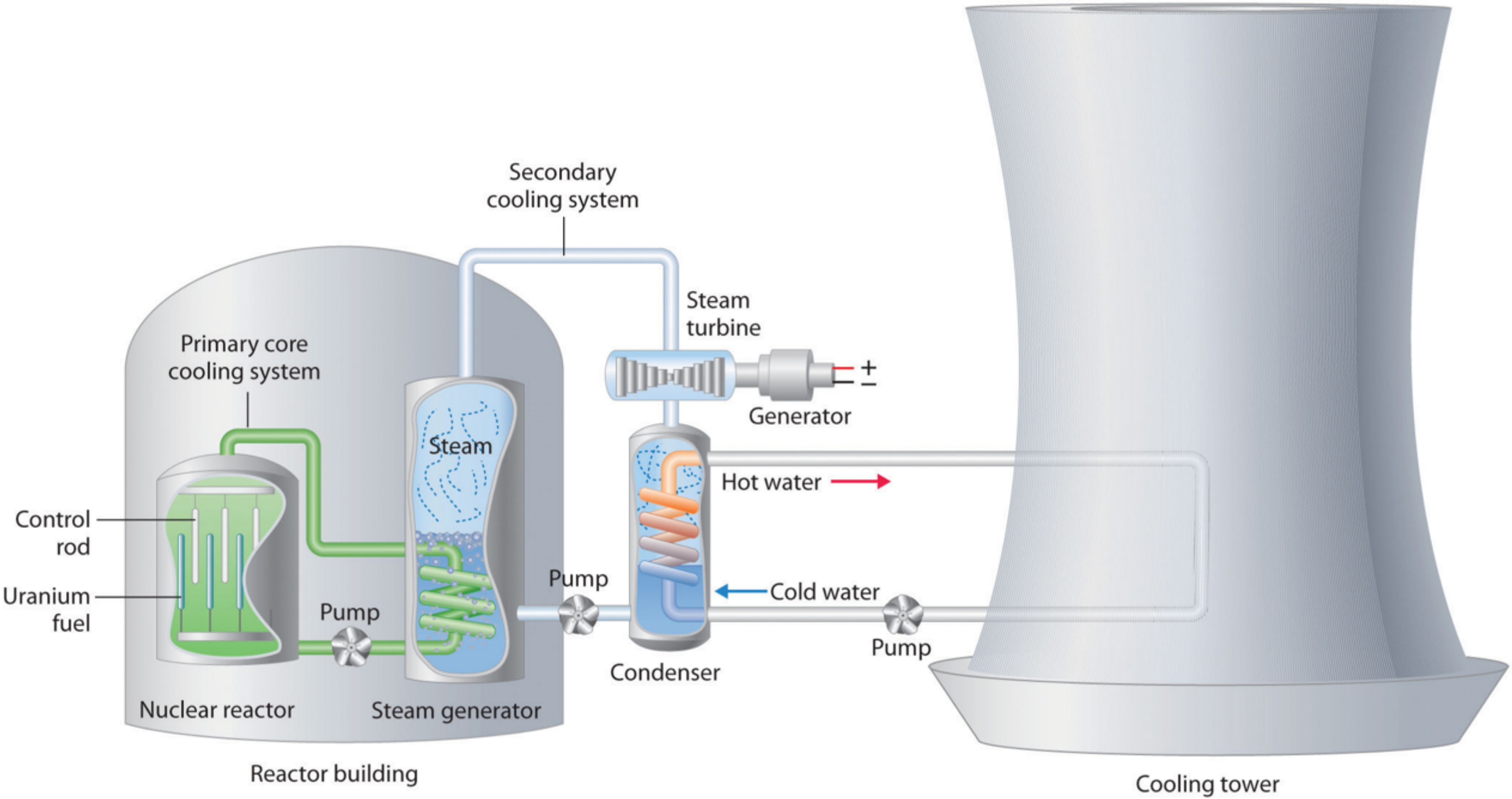
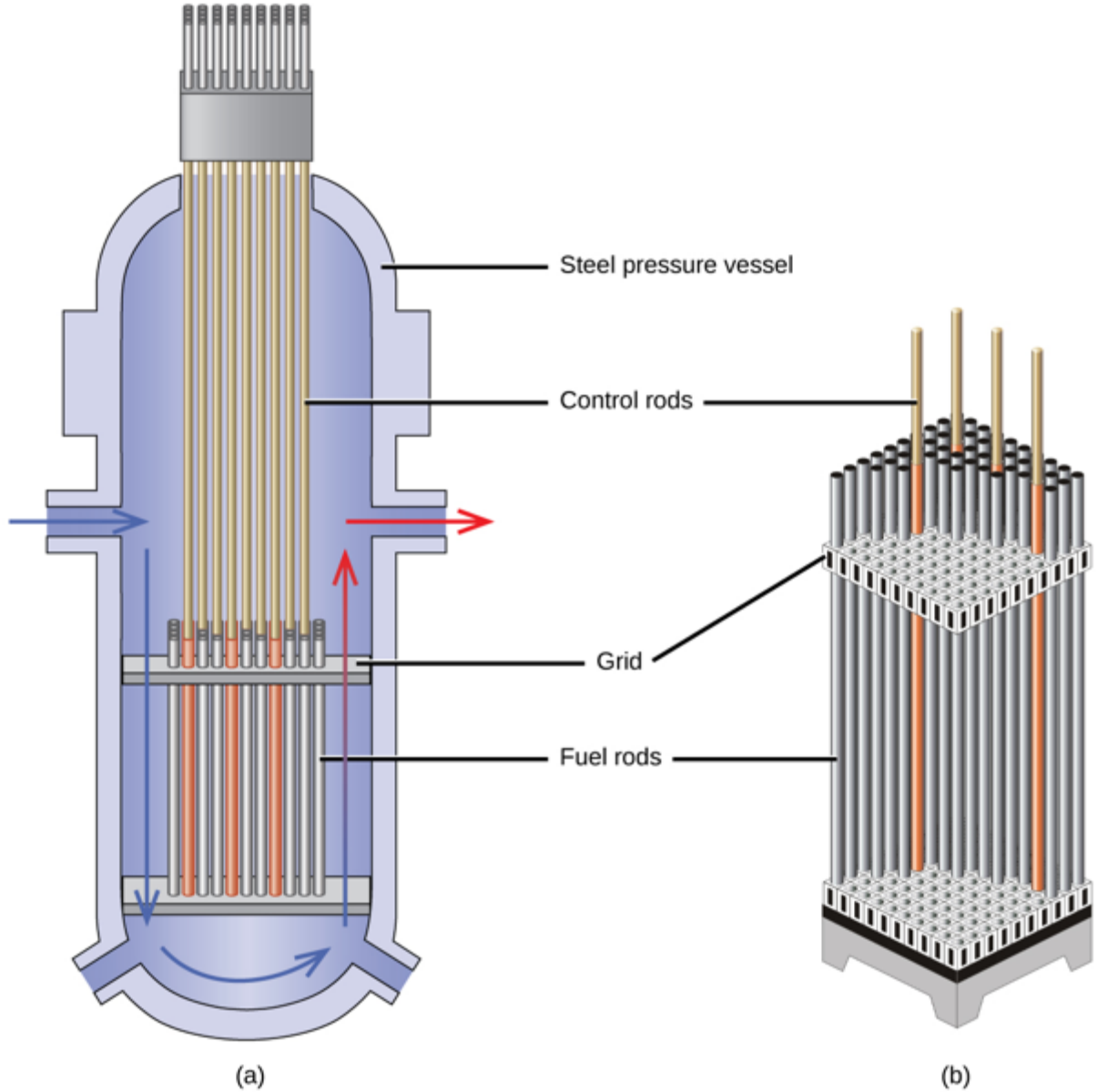
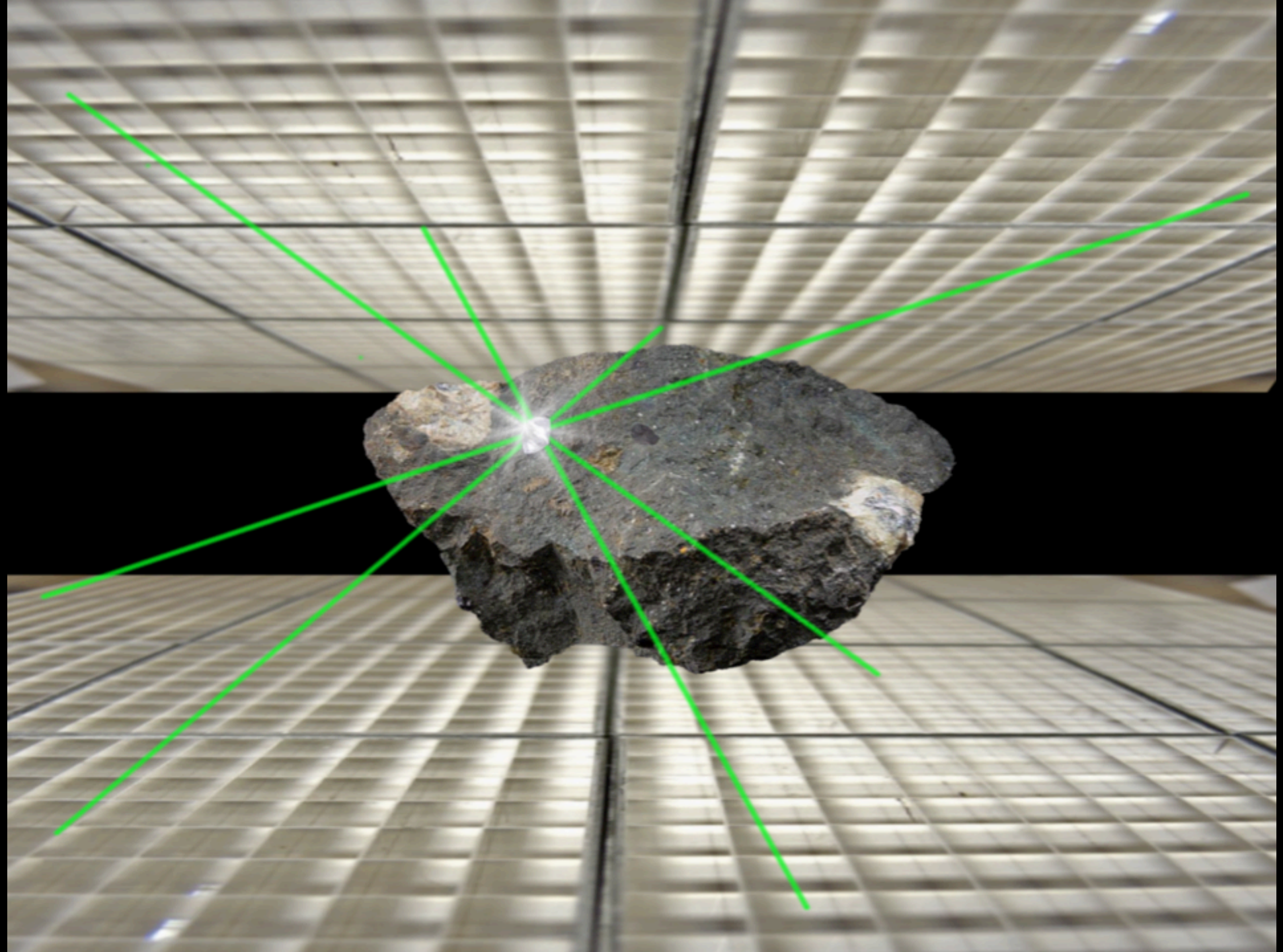
Ubuntu of data. The identity of information is from the community of information.

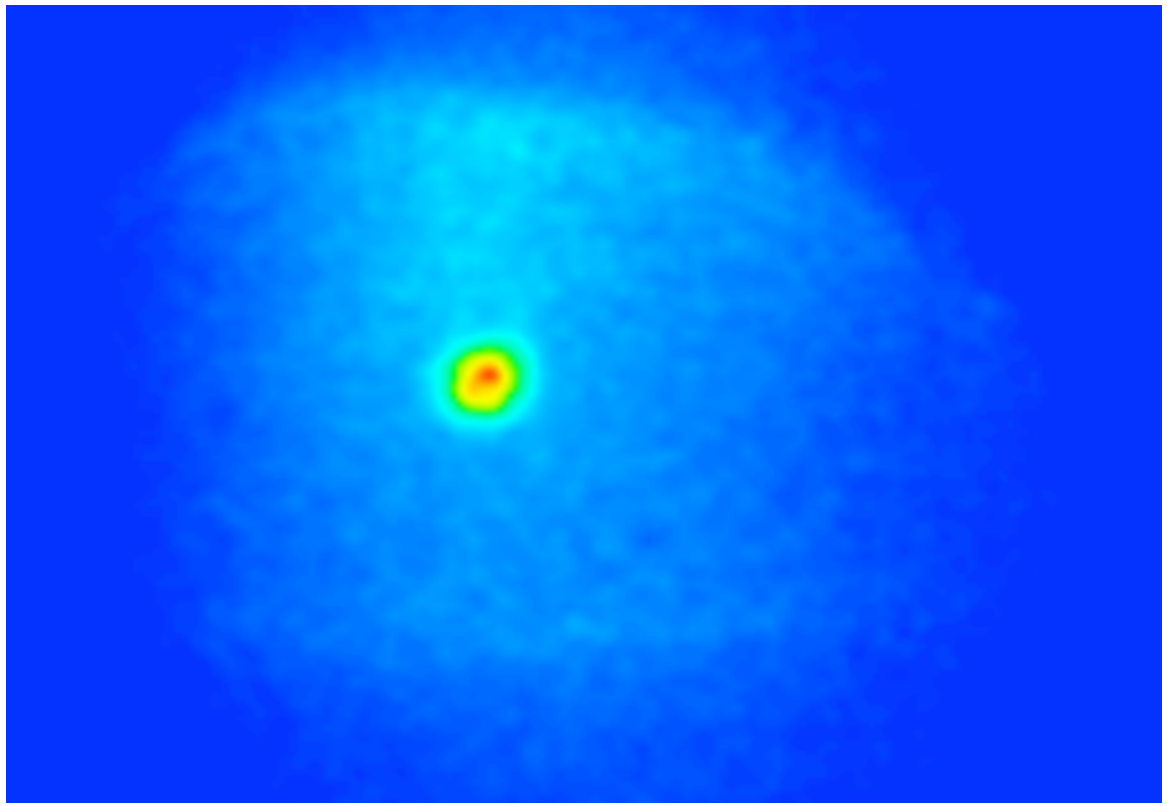
MCAS: don’t ask the angle-of-attack sensor. Ask the digital twin.



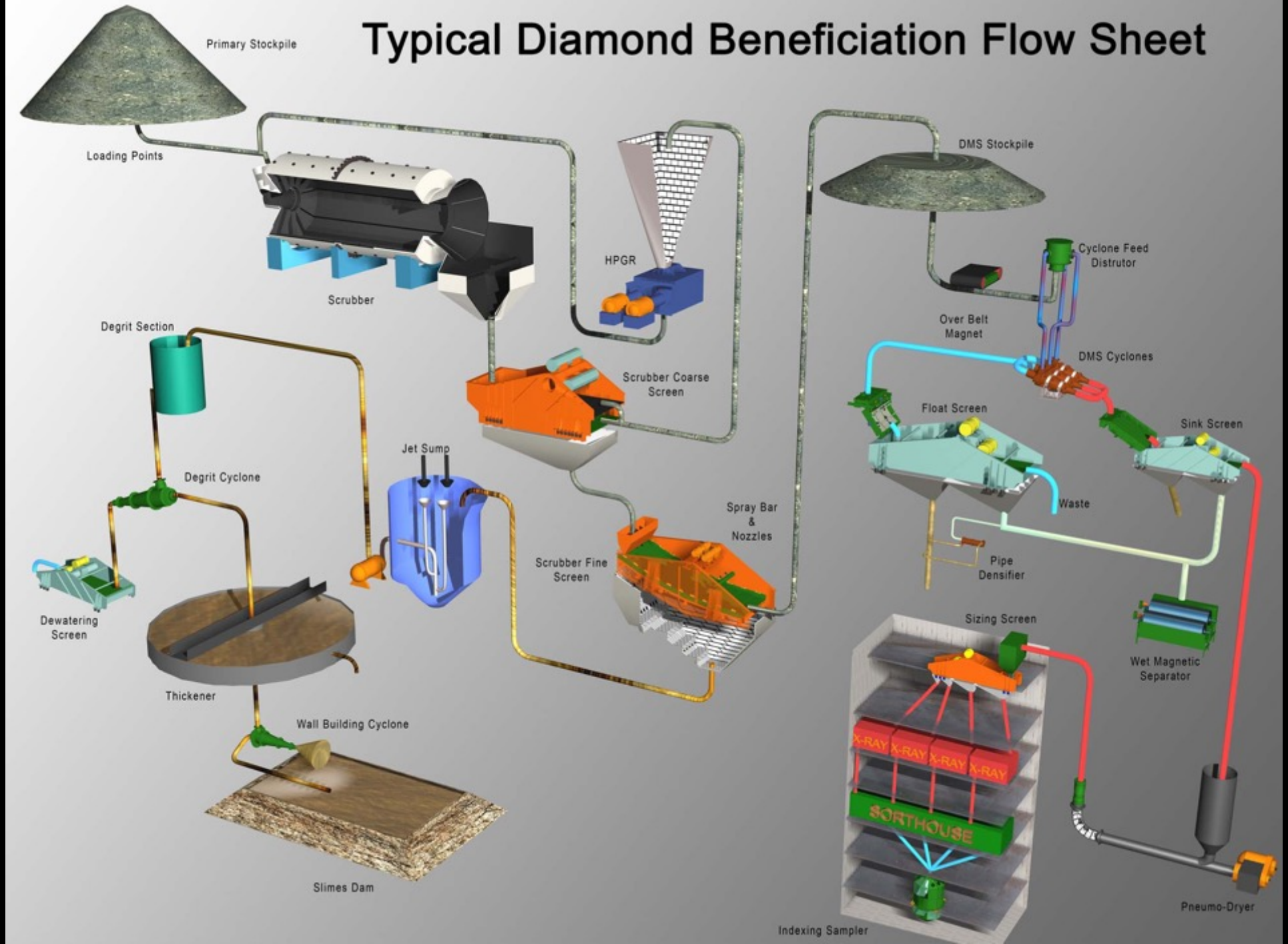

Secondary cooling system
Steam turbine
Primary core cooling system
Generator
Steam
Hot water
Control rod
Uranium fuel
Pump
Pump
Cold water
Pump
Condenser
Nuclear reactor
Steam generator
Reactor building
Cooling tower


Steel pressure vessel
Control rods
Grid
Fuel rods
(a)
(b)





Typical Diamond Beneficiation Flow Sheet



What’s next?

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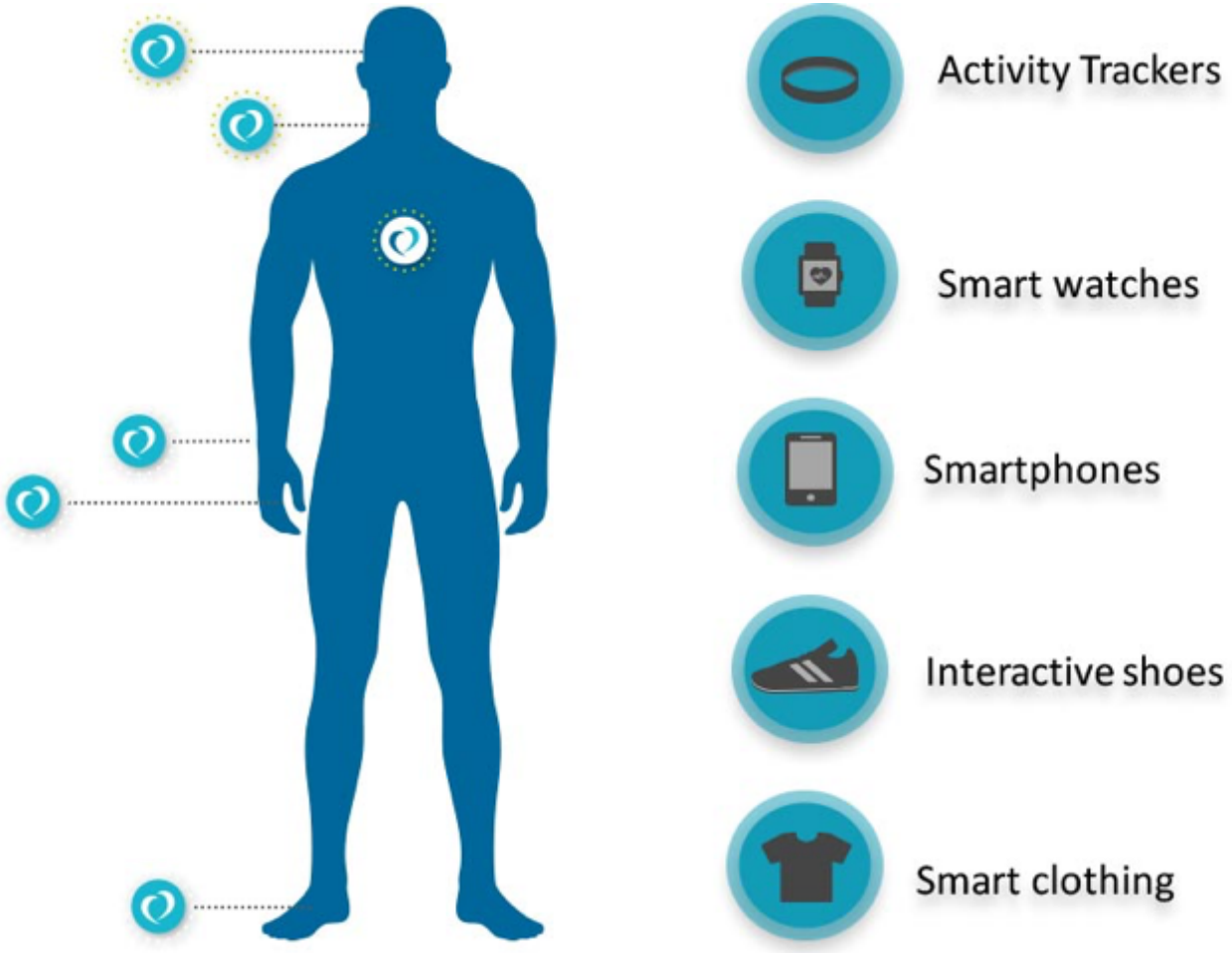
Activity Trackers
Smart watches
Smartphones
Interactive shoes
Smart clothing

What’s next?