

How autonomous systems will provide food in the most extreme environments?

**EUROPEAN PHOTONICS
ROADSHOW SERIES**



Adrián
Navarro Moya

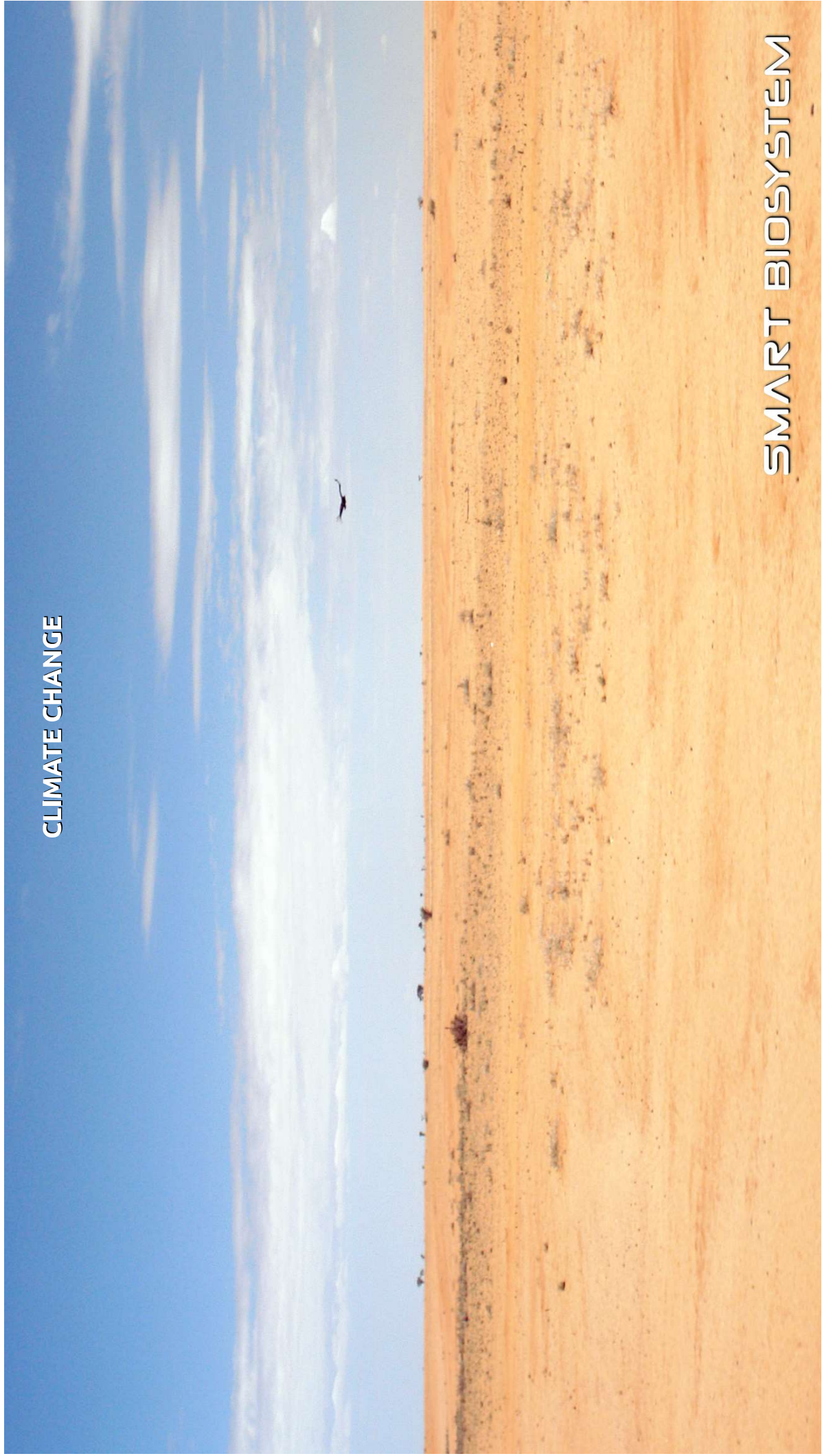


May 16, 2019
Barcelona



SMART BIOSYSTEM

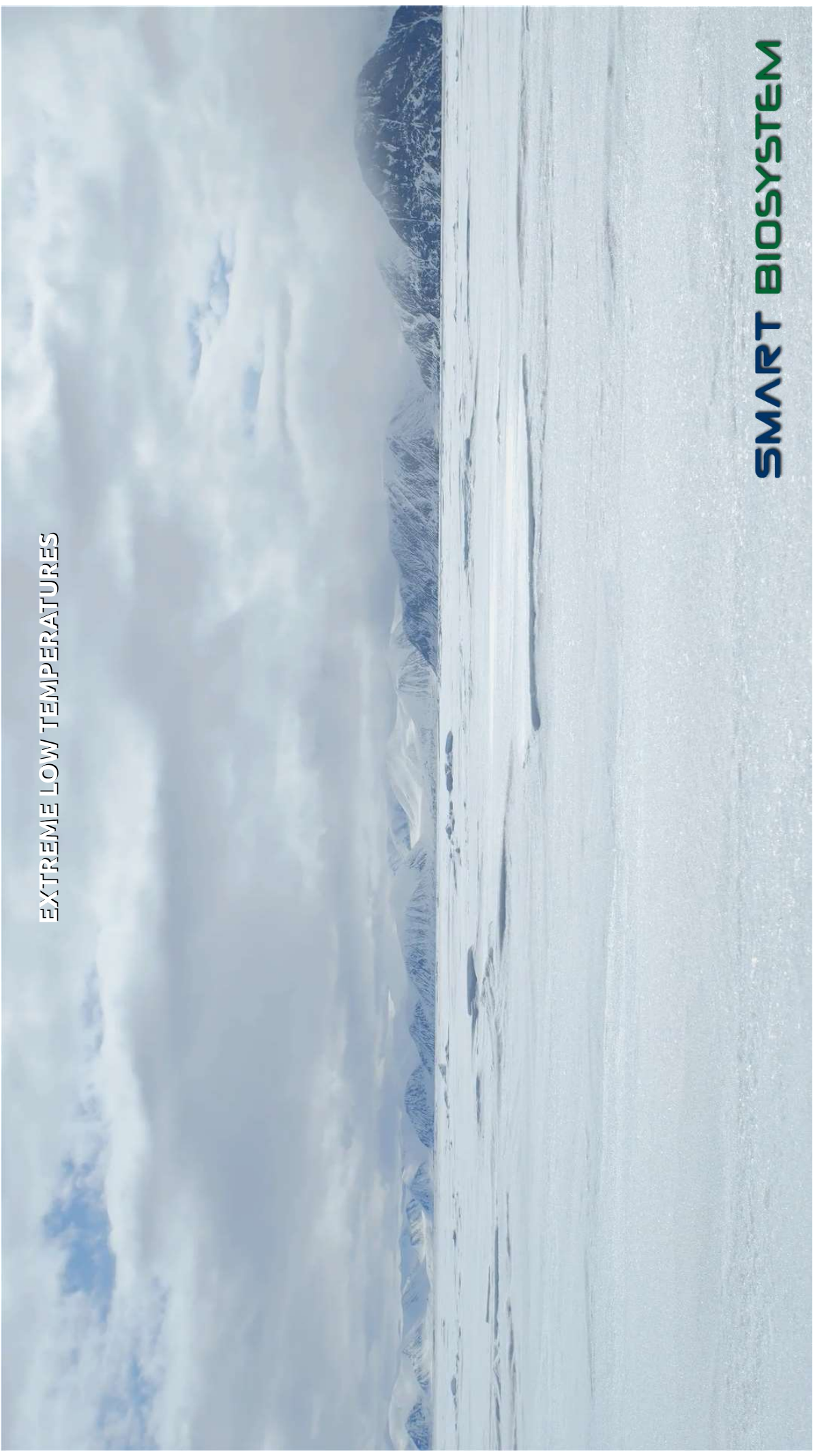
CLIMATE CHANGE



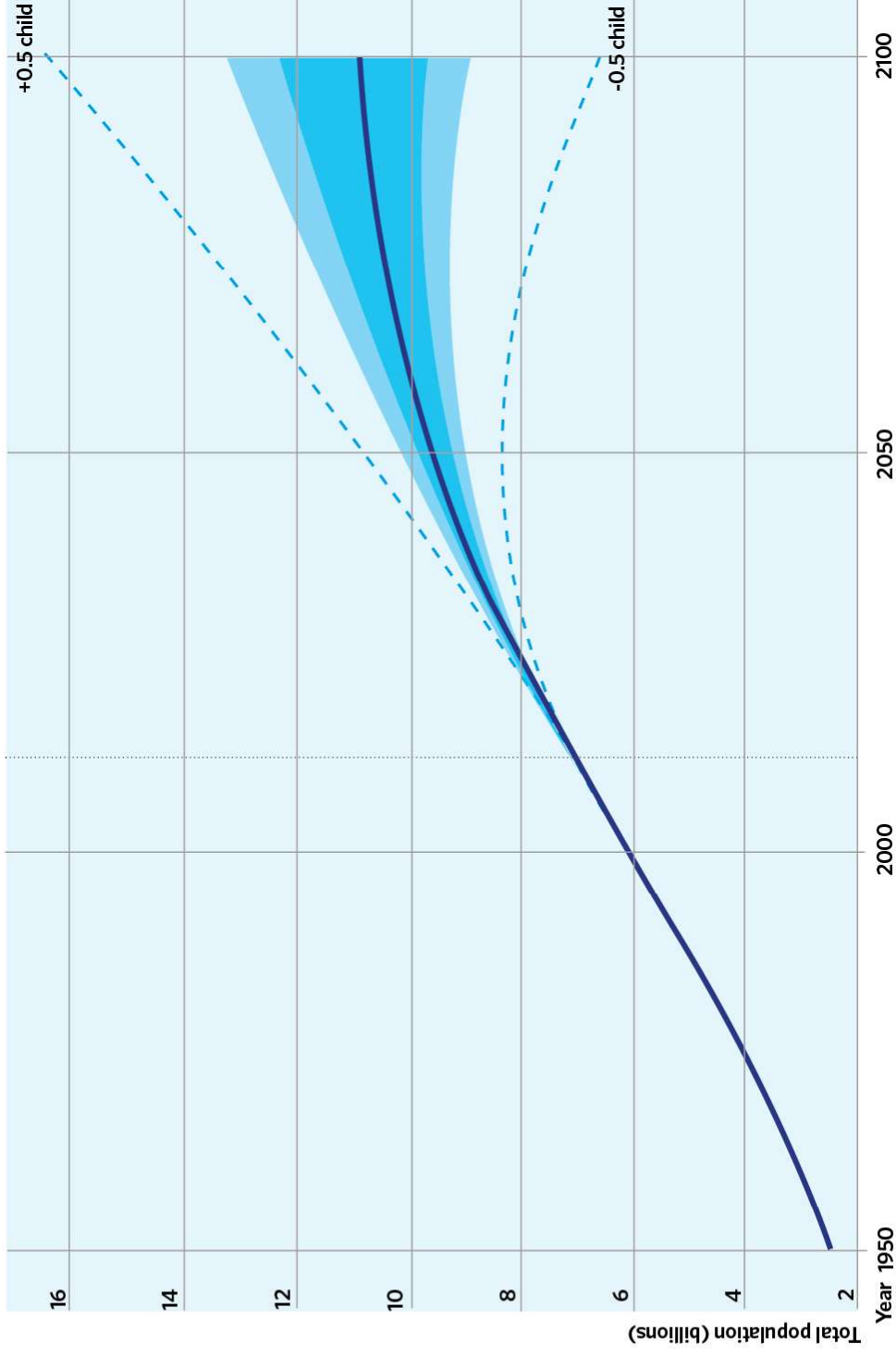
SMART BIOSYSTEM

EXTREME LOW TEMPERATURES

SMART BIOSYSTEM



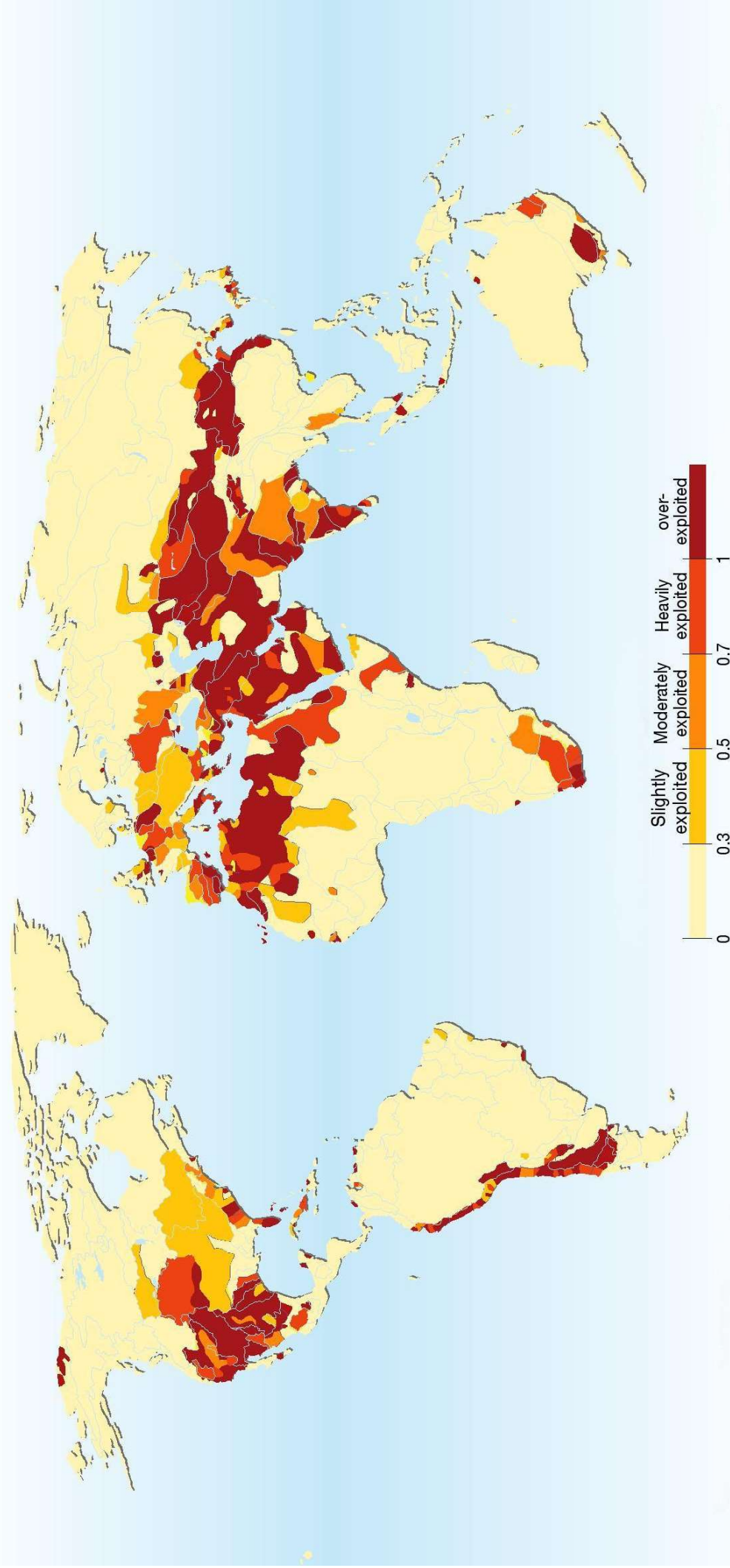
WORLD POPULATION PROJECTION



Source: FSCI

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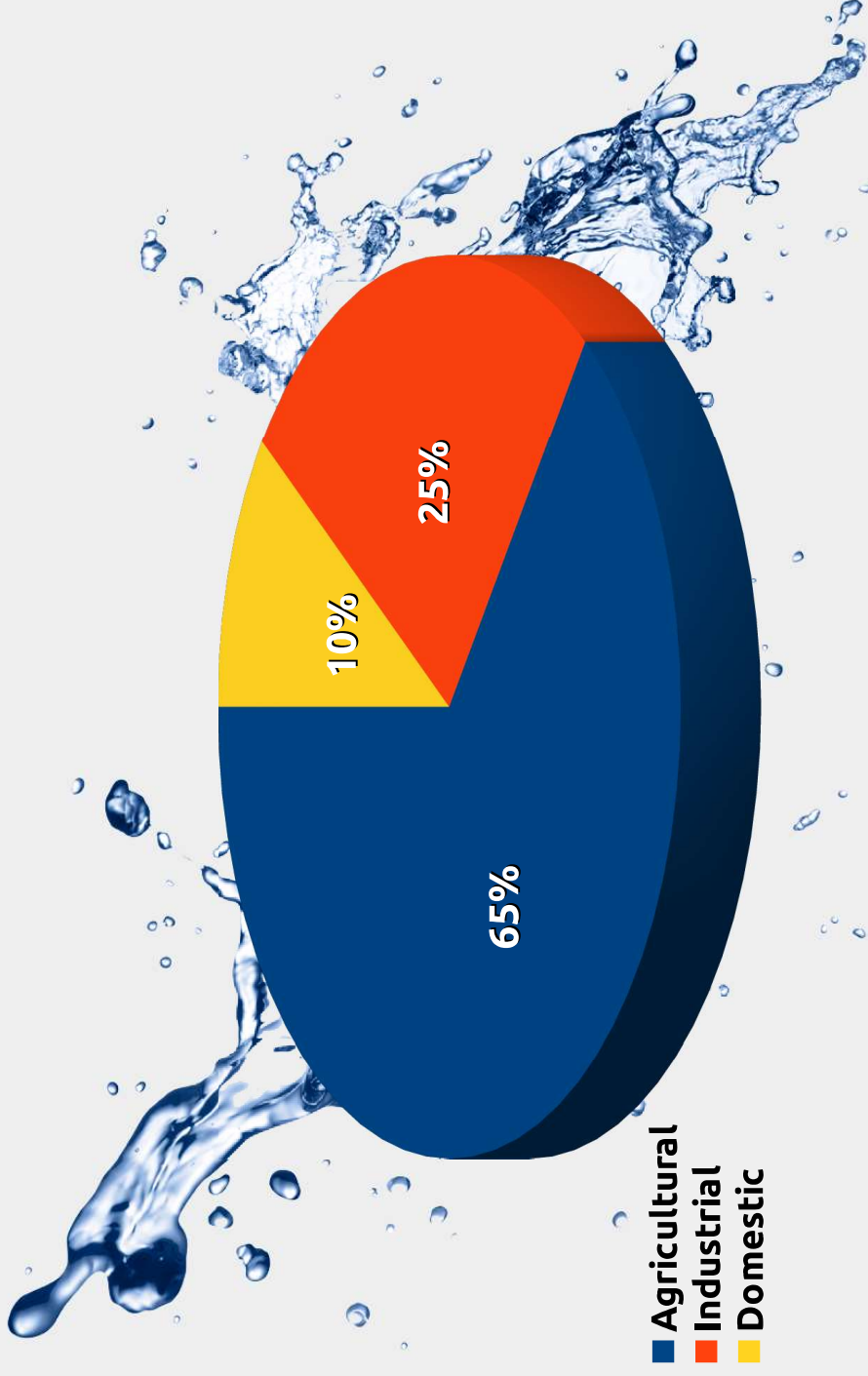
WATER STRESS INDICATOR



Source: Smakhtin, Revenga and Döll, 2004

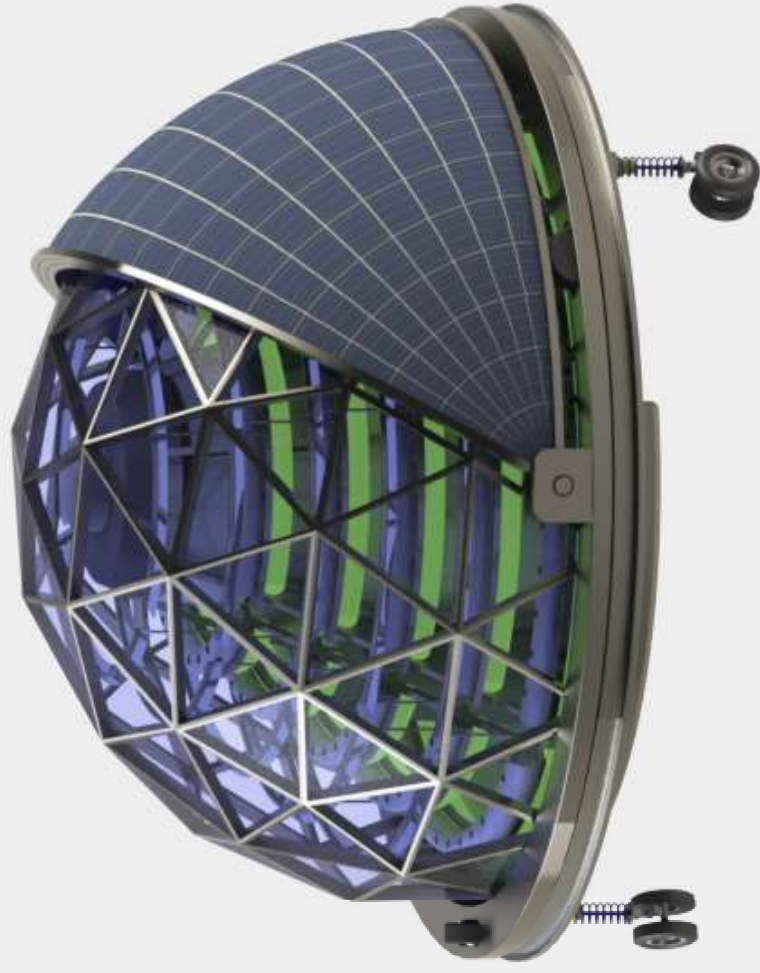
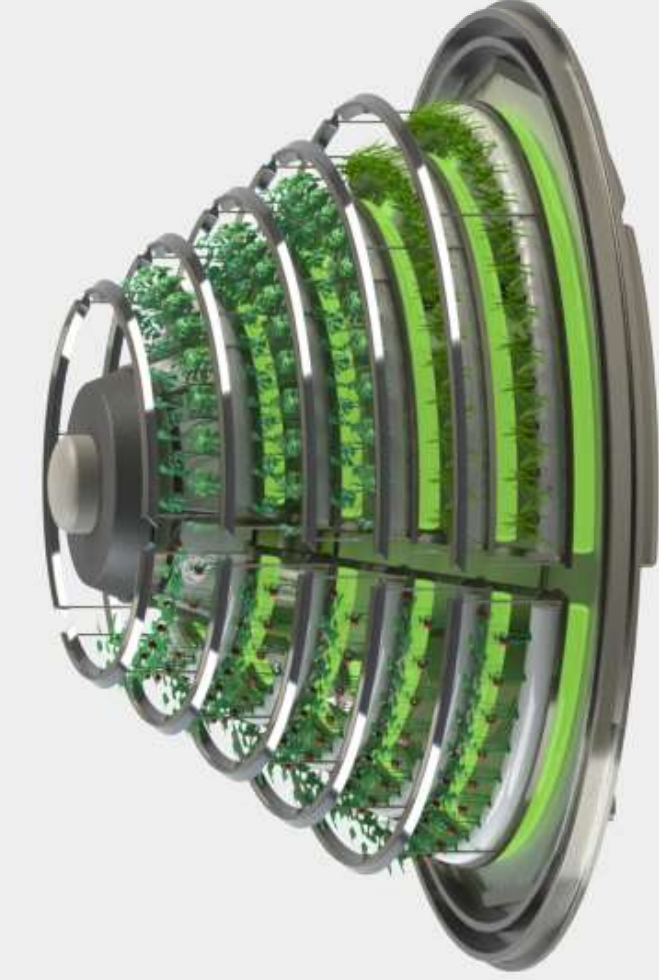
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GLOBAL FRESHWATER USE



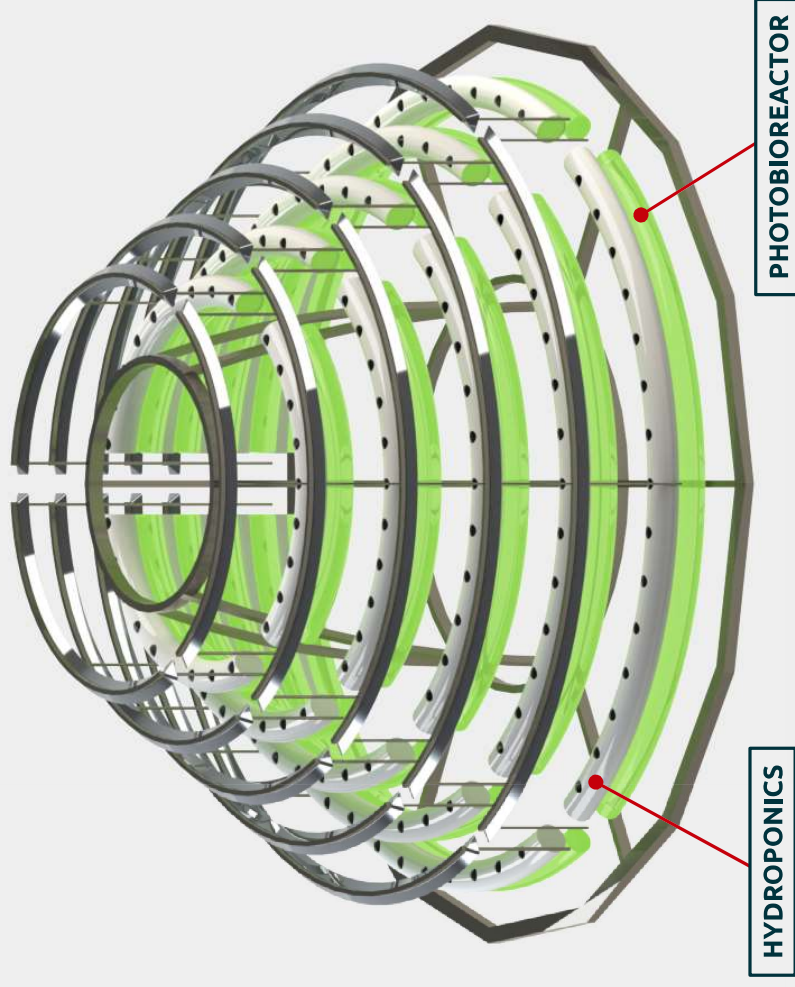
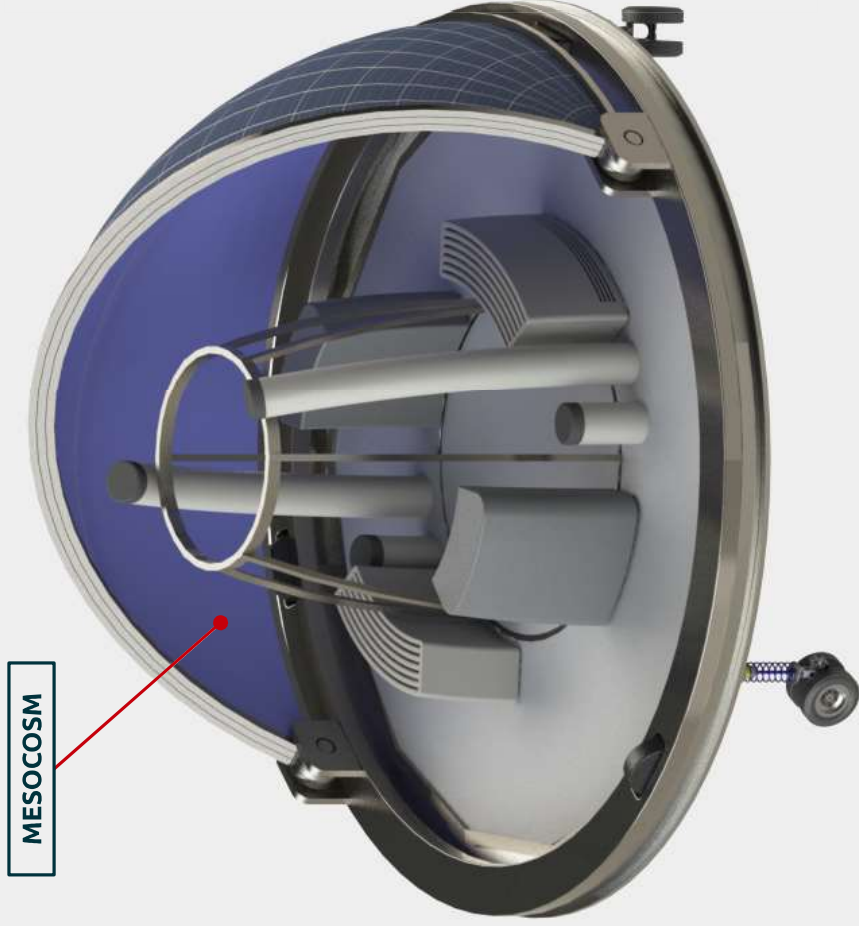
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AUTONOMOUS BIOCLIMATIC GREENHOUSE DOME



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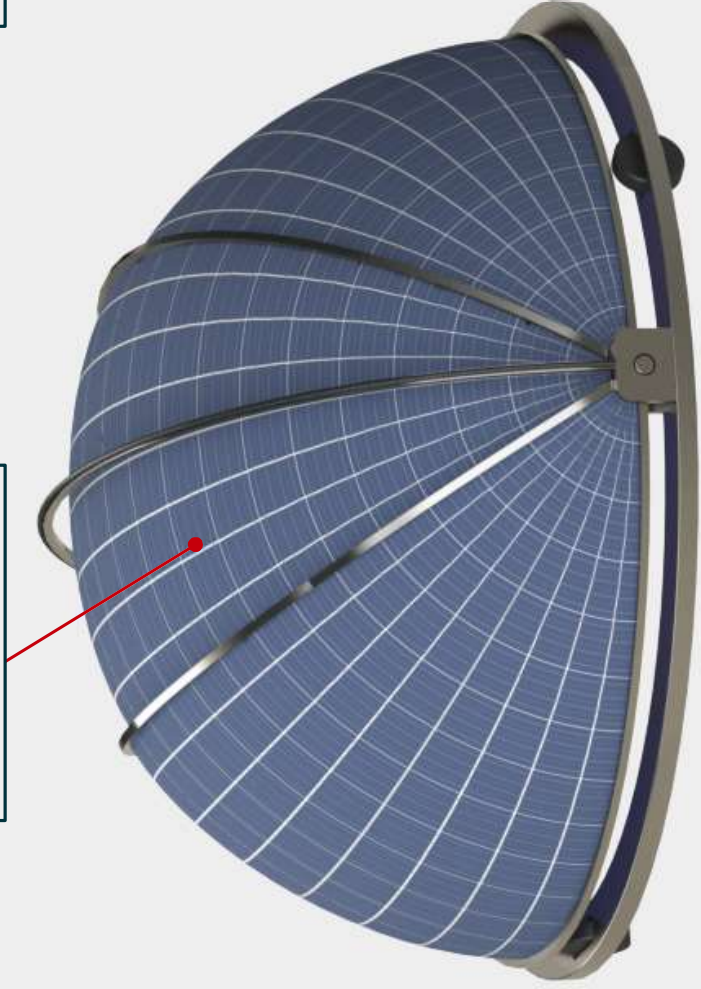
DECENTRALIZED PRODUCTION OF PLANTS AND ALGAE



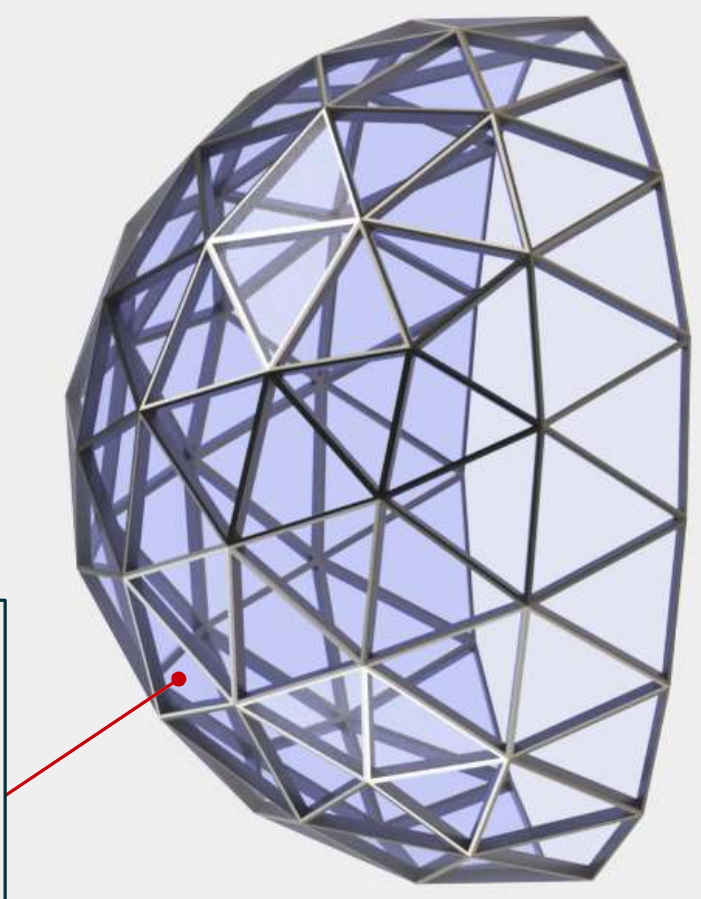
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ADVANCED PHOTONIC TECHNOLOGIES

PHOTOVOLTAIC SHIELD



ELECTROCHROMIC GLASS



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BIG DATA

16-05-2019

16:38:00

0°C

Pyminix & Explorer

● LIVE

Last 1h

Last 24h

Nvidia

System

MinixToMine

System

Uptime

8 days 03:39:18

Uptime

8 days 03:39:28

Server FARM-PC

CPU Usage, %

61%

Memory

61%

Swap

71%

Disk

55%

NET Received / Transferred, KB/s

Received: 1.59 GiB

Transferred: 1.69 GiB

Server FARM2-PC

CPU Usage, %

61%

Memory

61%

Swap

71%

Disk

55%

NET Received / Transferred, KB/s

Received: 1.59 GiB

Transferred: 1.69 GiB

GPU1

45 °C

43% 78 W

GPU2

47 °C

44% 78 W

GPU3

43 °C

43% 78 W

GPU4

44 °C

43% 78 W

GPU1

48 °C

44% 78 W

GPU2

49 °C

44% 78 W

GPU3

48 °C

44% 78 W

GPU4

50 °C

45% 77 W

GPU1

48 °C

44% 78 W

GPU2

49 °C

44% 78 W

GPU3

48 °C

44% 78 W

GPU4

50 °C

45% 77 W

Running Time

03:35:00

Miner

PhoenixMiner 4.1a

Hashrate

14 139 / 1 / 1

20.3 MH/s

20.3 MH/s

20.3 MH/s

20.3 MH/s

Running Time

03:35:00

Miner

PhoenixMiner 4.1a

Hashrate

16 724 / 0 / 0

24.1 MH/s

24.4 MH/s

24.4 MH/s

23.6 MH/s

Switches

0

Running Time

03:35:00

Miner

PhoenixMiner 4.0b

Hashrate

16 724 / 0 / 0

Switches

0

Running Time

03:35:00

Miner

PhoenixMiner 4.0b

Hashrate

16 724 / 0 / 0

GPU1

45 °C

43% 78 W

GPU2

47 °C

44% 78 W

GPU3

43 °C

43% 78 W

GPU4

44 °C

43% 78 W

GPU1

48 °C

44% 78 W

GPU2

49 °C

44% 78 W

GPU3

48 °C

44% 78 W

GPU4

50 °C

45% 77 W

GPU1

48 °C

44% 78 W

GPU2

49 °C

44% 78 W

GPU3

48 °C

44% 78 W

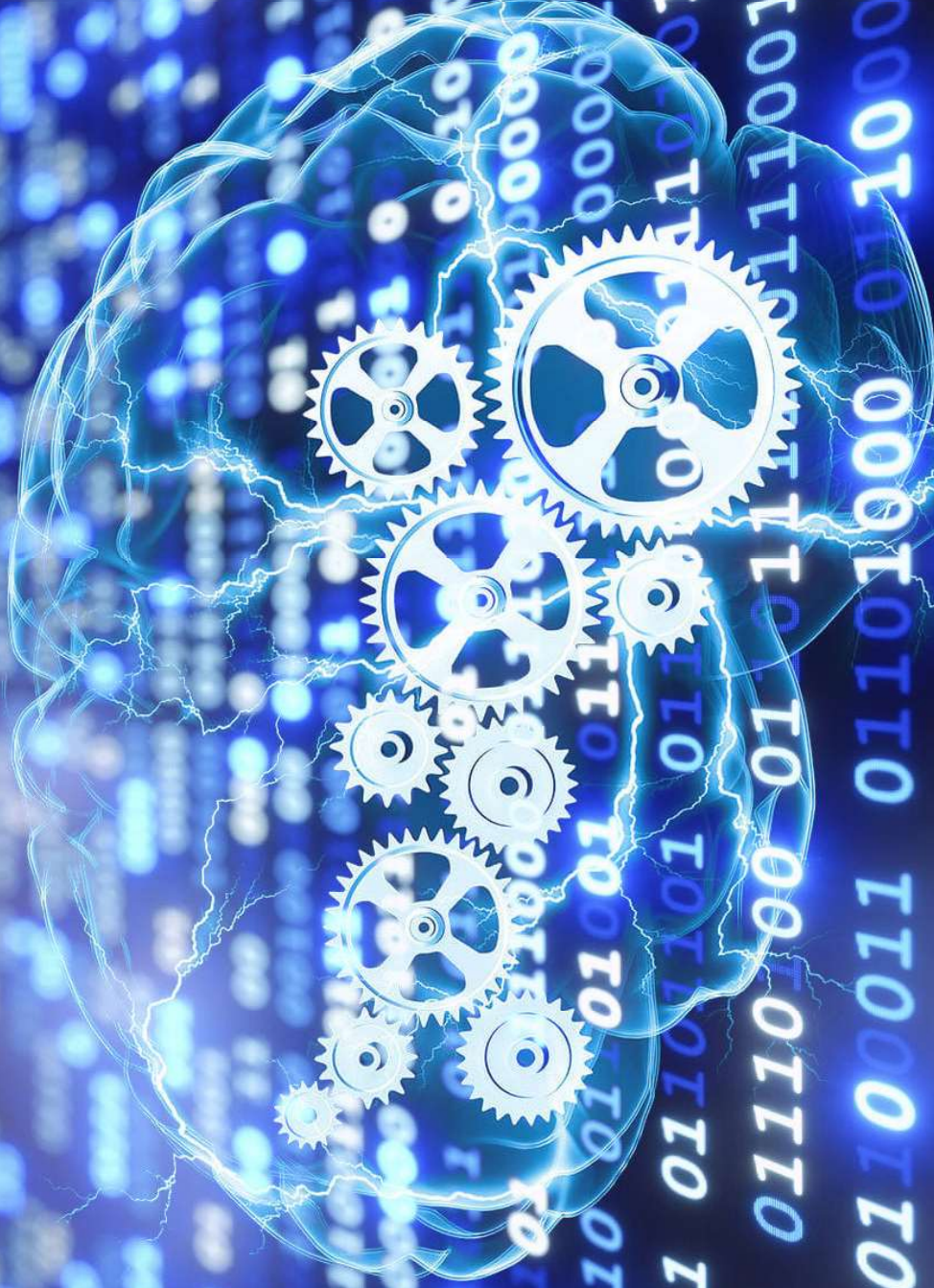
GPU4

50 °C

45% 77 W

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ARTIFICIAL INTELLIGENCE



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GROWING FOOD IN THE MOST EXTREME CONDITIONS... EVEN IN MARS



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