



Copyright Artificial Intelligence Systems Ltd.

# Quantum for Climate Action

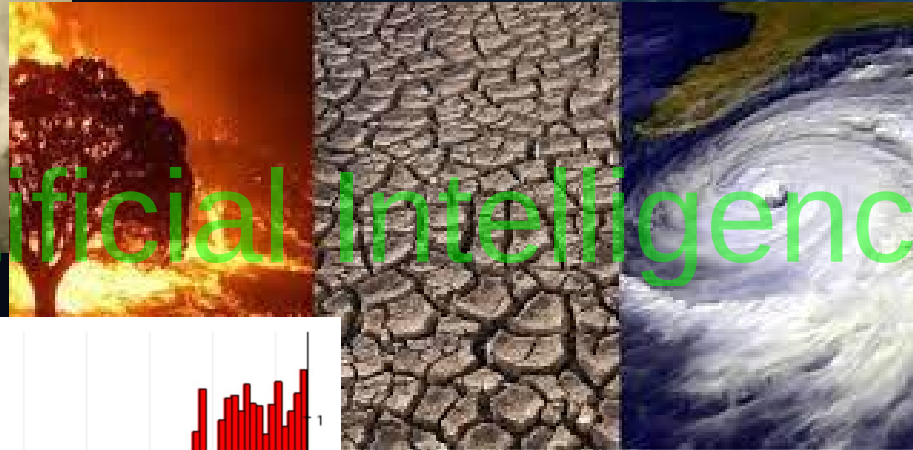
Climate Action Through Technology

# Our survival is on the line

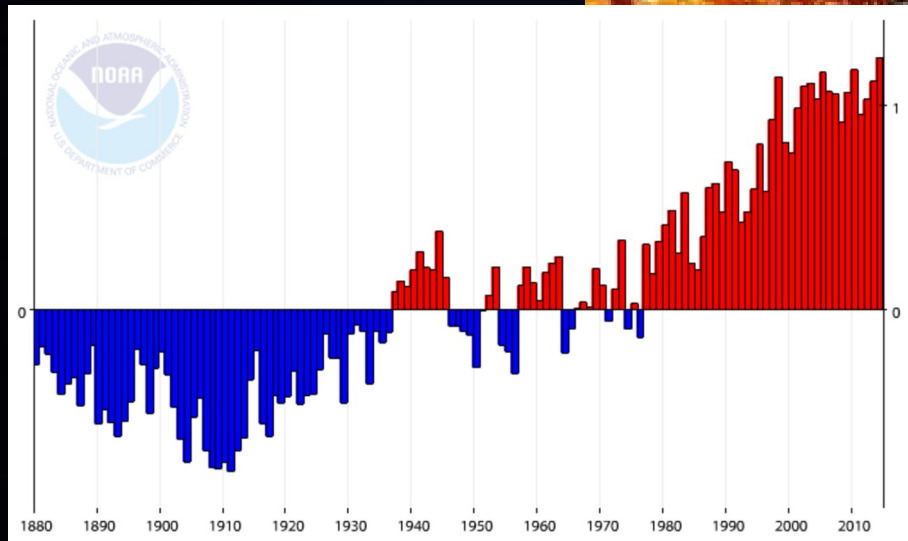
## Wildfires



## Increased storm activity



## Flooding



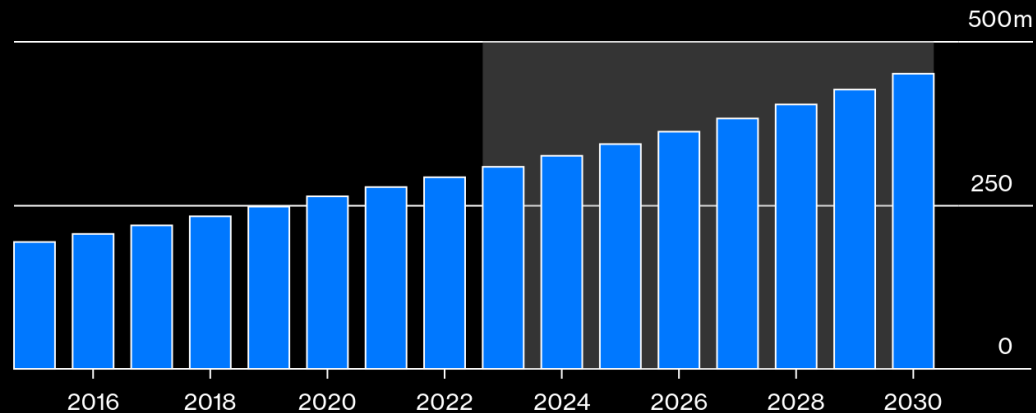
# Electronic computing is inefficient

Billions of litres of water are cooling computing servers every day.

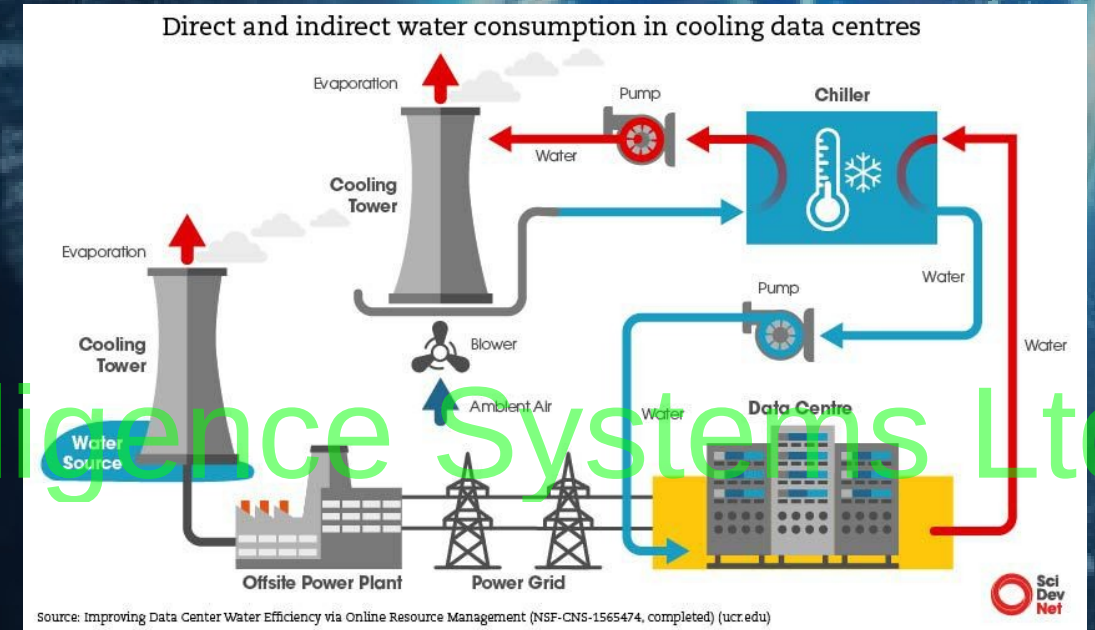
**Global Data Center Water Consumption**

In gallons per day

□ Forecast



Source: Bluefield Research



Data centres expected to use 15% of global power within the next few years.

# Cost to humans

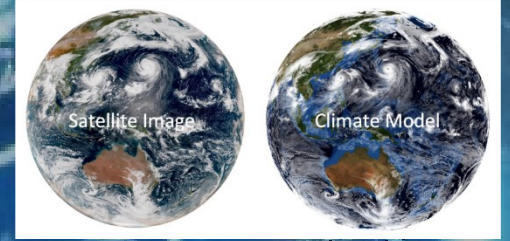
The cost of not addressing the climate issue is believed to be, extinction. So beyond any financial cost to fix, making out planet uninhabitable.

The human body requires temperature regulation to survive. Health risks begin when the core is above 38°C.

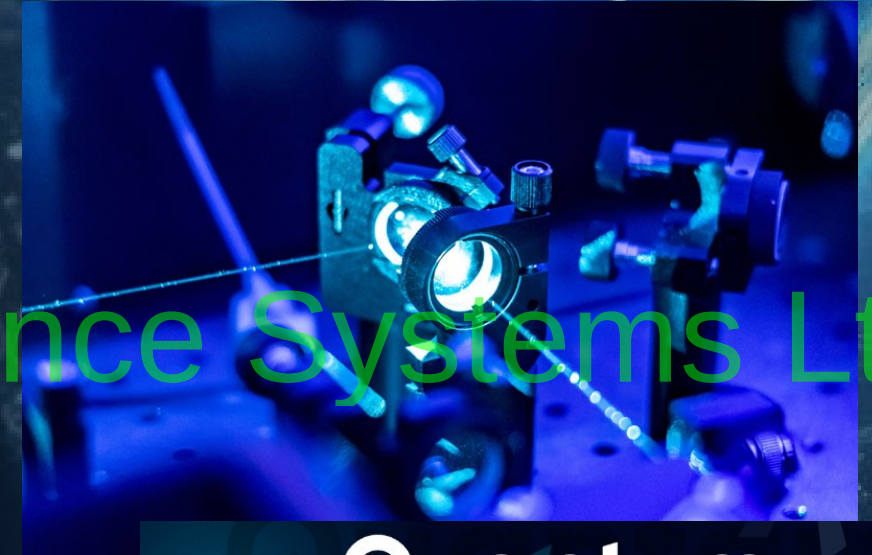
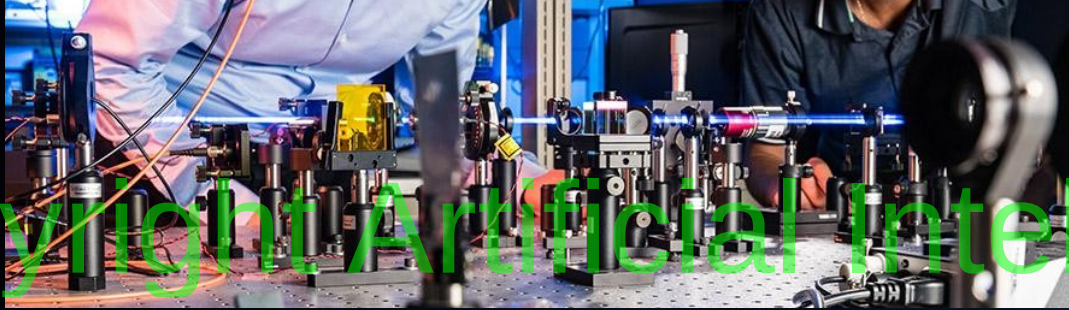
Copyright Artificial Intelligence Systems Ltd.



# Advanced Simulation using Photonics



Computing that offers unparalleled accuracy



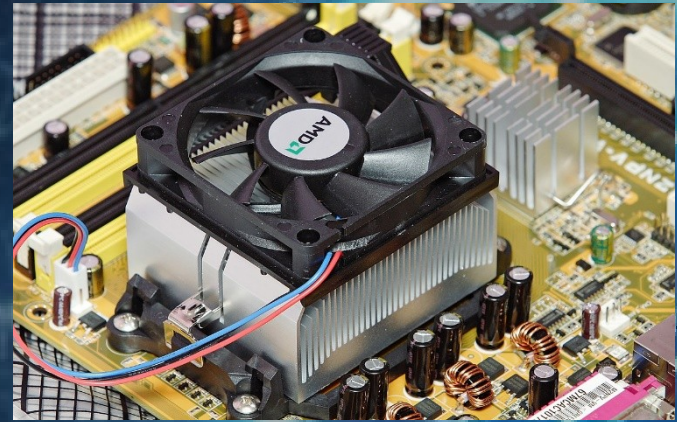
Copyright Artificial Intelligence Systems Ltd.

Advanced simulations of climate prediction  
**full stack** development, from software,  
through to hardware, we will develop our  
own quantum processors.

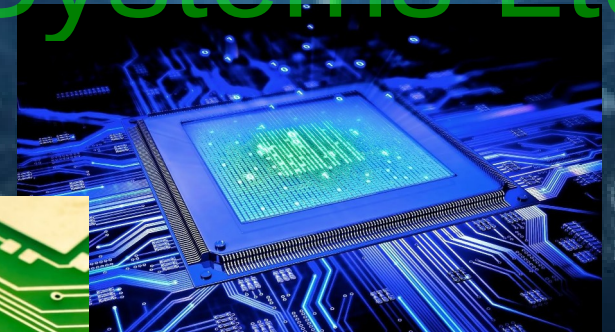
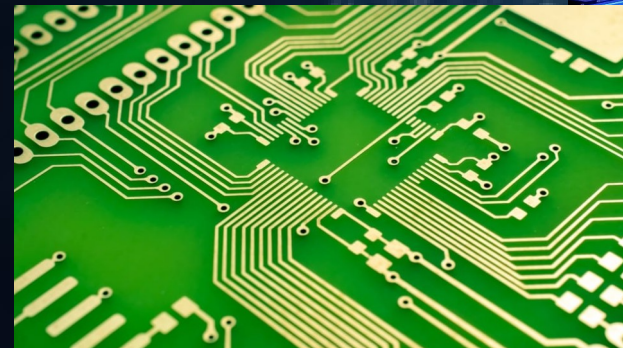
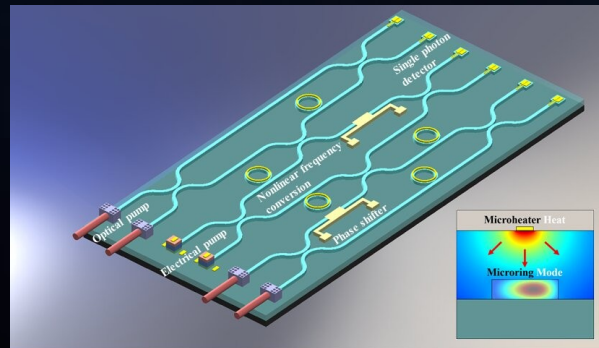


# Key Differences

- Photonic memory – new technology and IP.
- Photonic computing – light speed, power efficient, cool.
- Parallel and analogue computing – lends itself to neural networks (AI).
- Open source.
- Primary focus are global issues.



Copyright Artificial Intelligence Systems Ltd.





# Minimum Viable Product

By 24 months:

Shor's algorithm achieved by optical equipment on lab bench

By production:

Functioning chip that uses AI to simulate the climate

# Use Cases

- Assuming global emissions remain constant;
  - What does this mean for global temperatures in 5 years time?

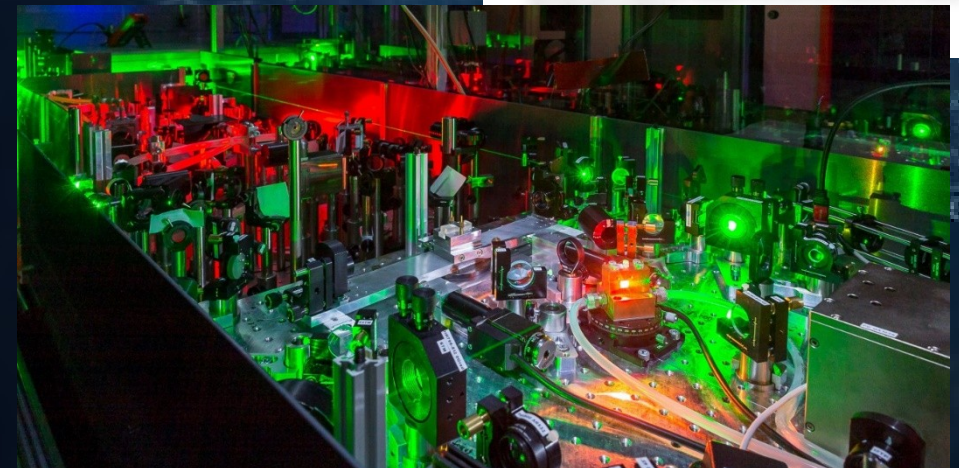
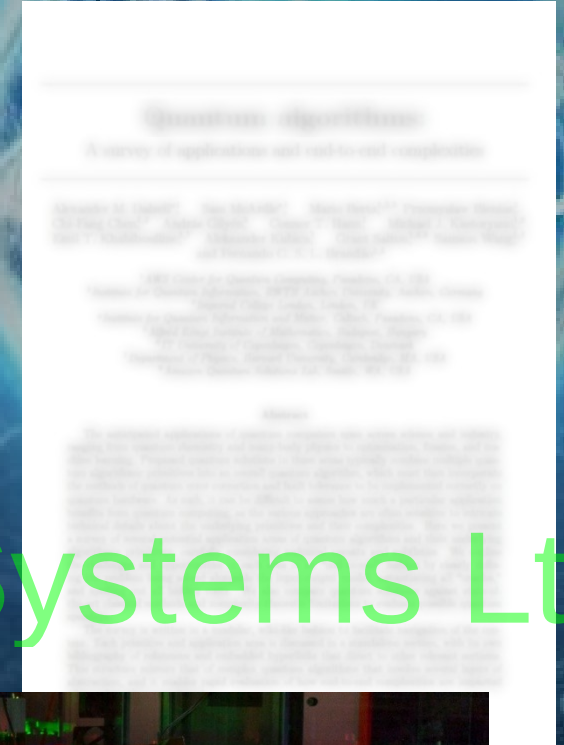
Copyright Artificial Intelligence Systems Ltd.

- A new chemical process is being commercialised;
  - What is the effect of that product on the environment and ecosystem?
- A large solar flare leaves the Sun towards Earth;
  - What will the effect be?



# Technology

- The technology used is taken from the latest quantum computing publications.
- Designs and theories are both derived from publications and built on from a diploma course in optical engineering.
- We will develop our own IP by filling in the gaps of knowledge and advancements made by current research



Copyright Artificial Intelligence Systems Ltd.

# Competitor Analysis

- Current competitors include:

- IBM: Full stack
- D-Wave: Hardware
- Quantinuum: Full stack
- PSI Quantum: Hardware
- Xanadu: Design and software

The maturity of our competitors is of varying natures. Most have started to publish their company details online as they have already reached a stage of functional maturity. There is limited progress in the selection of technologies that we are interested in however.

Copyright Artificial Intelligence Systems Ltd.

# Market

- P&S Intelligence estimates the quantum technology market will be over \$5Bn by 2030.

Copyright Artificial Intelligence Systems Ltd.

- We wish to start with climate solutions, such as simulation as a primary venture, but have every intention to proceed onto other ventures as part of our process.



# Financial projections

- We project this venture will produce a small revenue over the next 2 years as this will be a research and development phase.

Copyright Artificial Intelligence Systems Ltd.

- This revenue will be through software and education material for schools and education institutions.
- Given the simulations will be for climate, it will be governments that will likely fund the RoI until other solutions for business and consumer customers is further developed.

# Funding request

Request for £3m for a 24 month project:

- Staff costs (£1m)
- Optical software and hardware (£1m)
- Secure building costs (£0.5m)
- Unforeseen project blockers and emergency fund (£0.5m)

Copyright Artificial Intelligence Systems Ltd.

# Questions

- For comments and questions:

- Erik Clark

- Email: [erikjclark@icloud.com](mailto:erikjclark@icloud.com)

- Mobile: +44 (0) 7552 167 441

Copyright Artificial Intelligence Systems Ltd.