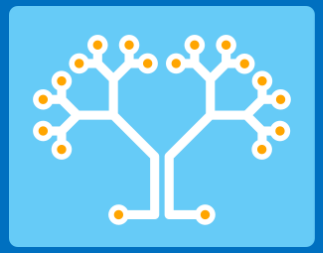


ENTERPRISE NEUROSYSTEM

Introduction

- The IPCC AR6 identifies digitalization as one of the reasons to expect a rapid energy transition, and cited as one of three megatrends (with personalization and sustainability) that are transforming the delivery of services in new and innovative ways
- Emerging digital technologies like AI/ML can unlock and accelerate global actions toward the Paris Agreement and the SDGs
- Digital platforms can also play a significant role in accelerating innovation and the use of green technologies
- Green technology databases and green AI application catalogs, for example, can provide a way to develop, distribute and license green technologies - from prototype to field production use

Enterprise Neurosystem – Members' Parent Organizations

The Enterprise Neurosystem – Introduction and Mission

- AI research community for climate change
- AI engineers, scientists and infrastructure experts - 160 volunteers from numerous countries around the world
- Objective: A unified global neurosystem for climate change
    1. Open source AI software, sensors and global infrastructure
        - Sensors and AI software for analysis of Acoustics, Satellites Images, Methane, etc.
        - Secure network connectivity, IT infrastructure, and mobile communications
        - Using neuroscience research to inform federated AI architecture and network design
    2. Knowledge and expertise
        - Partnerships with government, academic, public and private sector organizations
        - Webinar series on AI and climate change
        - Support and mentoring of students
        - Workstreams on gender equity and balance, and inclusion of communities in all nations – members from Armenia, Canada, Chile, China, Ghana, India, Israel, Qatar, New Zealand, United Kingdom, USA, etc.
    3. Innovation Contests and Grand Challenges
- Free to all nations and participants

AIM FOR CLIMATE

United Nations
Framework Convention on
Climate Change

Policy and Political Engagement

Global AI Infrastructure

AI Application Distribution

Welcome to our community - and the global AI network

Fish farmers requested our assistance in Ghana, to offset population declines in tilapia and catfish

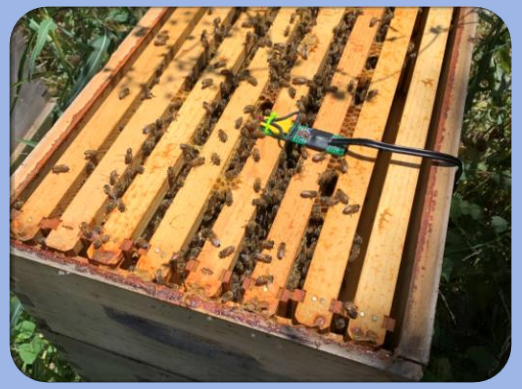
We are building AI sensors for various species, and will make a new one to detect and locate their fish, and analyze habitat health

We will eventually integrate this community with others, linking AI sensor networks and satellites

And provide a complete AI climate neurosystem for the planet

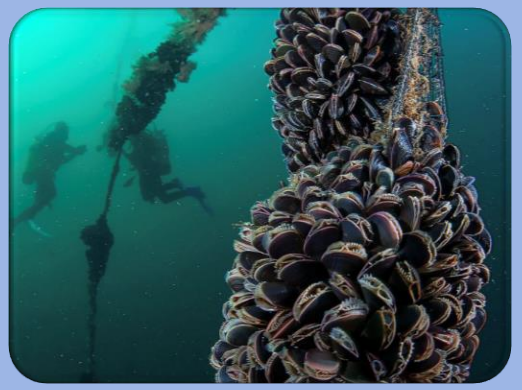
We will reach the earth, the sky and the oceans – but to make a difference, we must engage the communities of the world – and you!

Sensor Networks In Nature



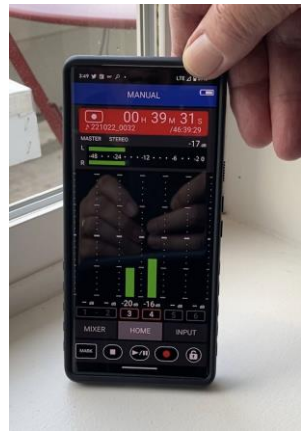
- Beehives are natural environmental sensors
- Bees communicate distress and direction through acoustic and physical cues
- Pollutants are caught in propolis and honey
- AI analysis of acoustic, chemical and methane sensors located in hives
- Soil analysis to follow

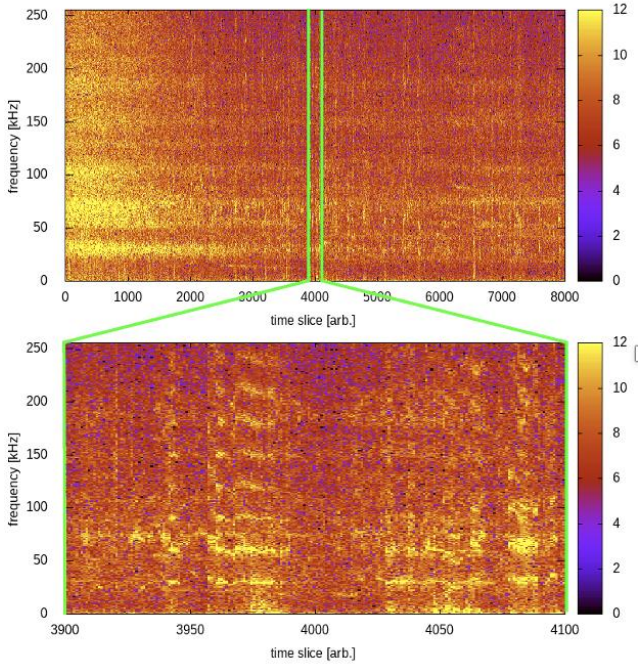
- Mycorrhizal networks are considered the internet of the forest, and can extend for miles
- Trees use these networks to share resources, and warn of environmental threats
- Rudimentary electric signal patterns have been observed, and require further study



- Mussels are natural filtration systems that catch pollutants, found in many coastal regions
- Sensors have been planted in mussel farms in rivers and tributaries in the past
- Various water quality sensors can be connected to a secure AI/ML network fabric

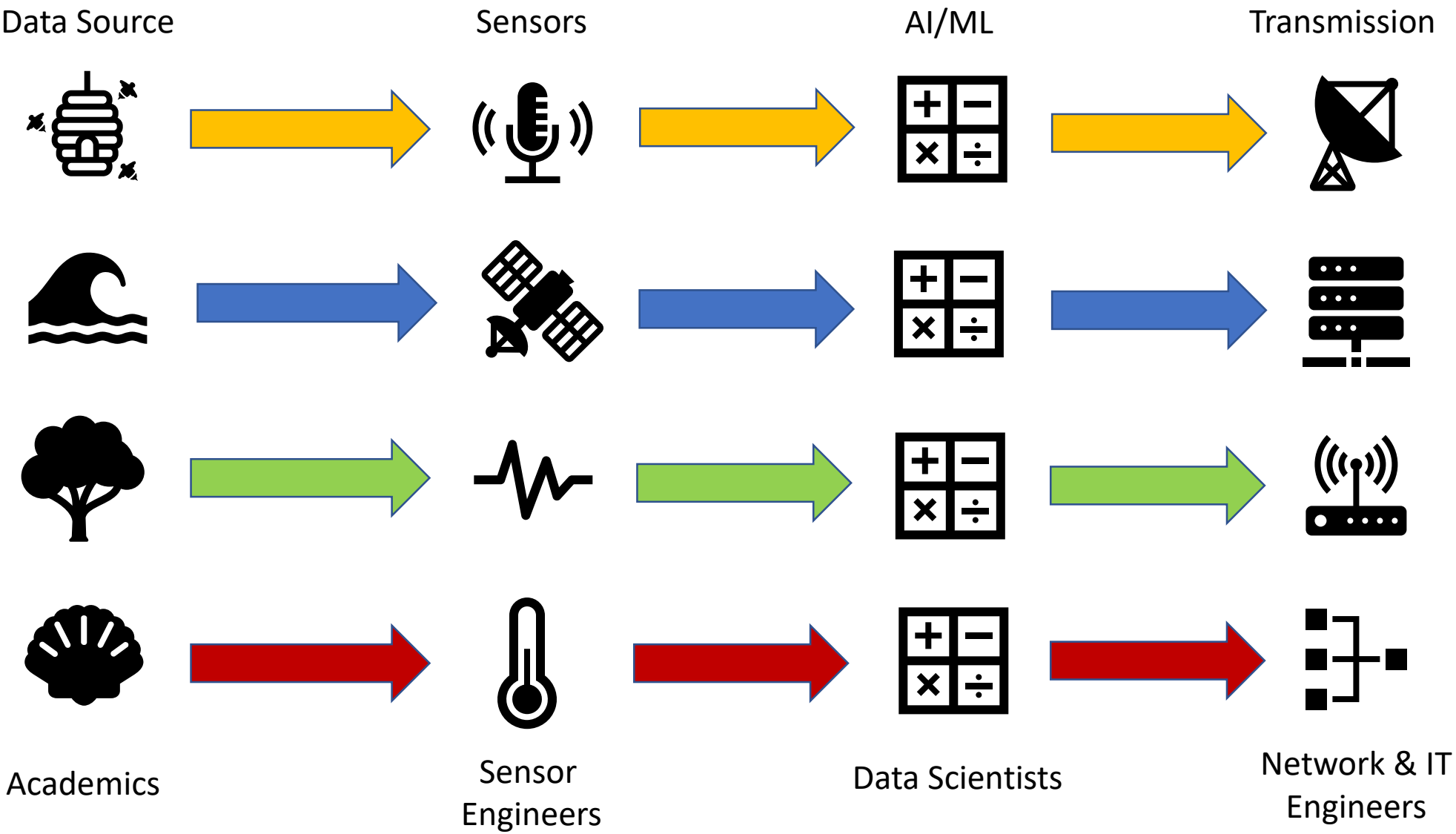
AI Bee Population Analysis





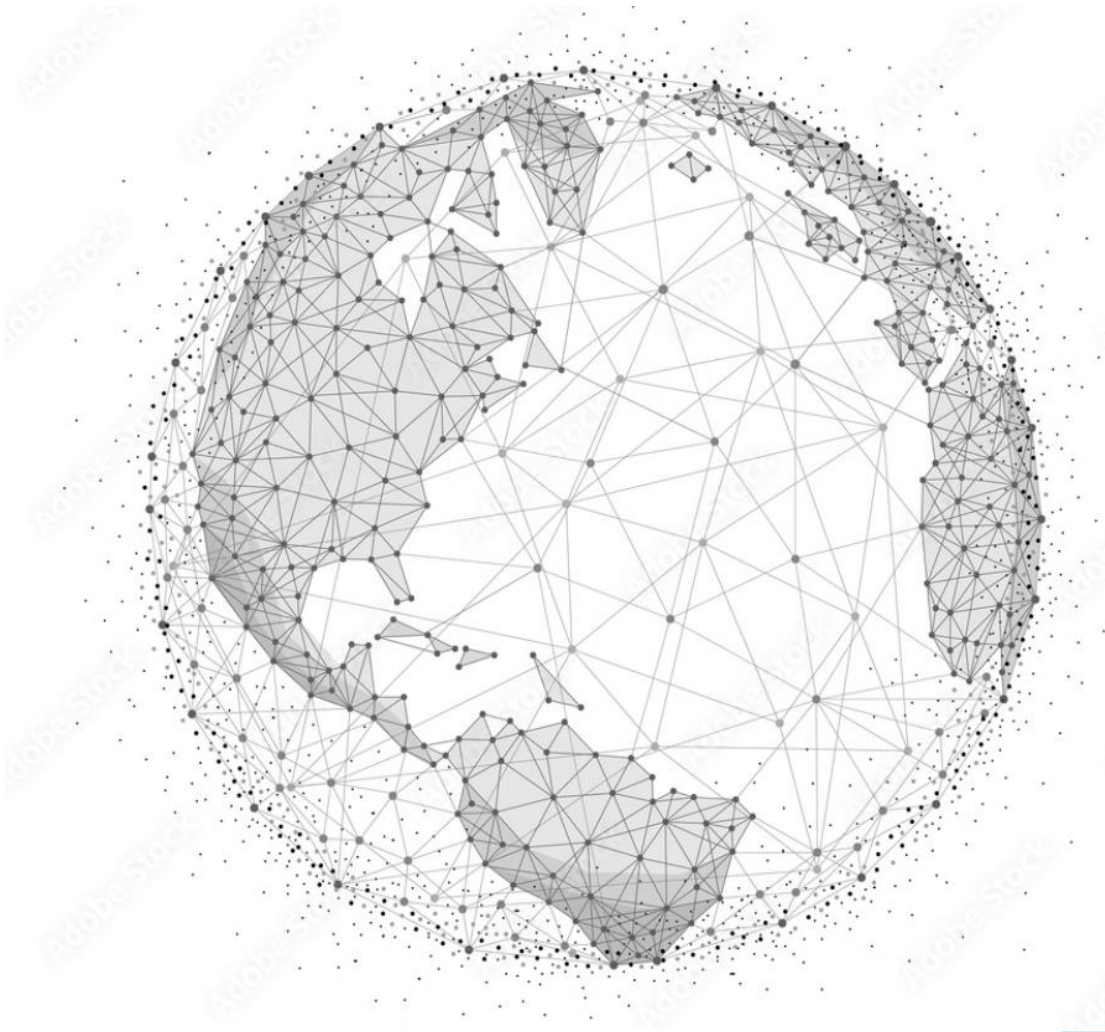
- AI Acoustics software and low cost ultrasonic sensors
- Detects changes in bee communications, to determine health of hive and related environmental changes
- Hives can then act as an environmental sensor
- New sensor version incorporates methane and CO2 detection, with soil analysis to follow
- AI software donated by IBM Research for free distribution to all nations

How can we help nature? Directly.



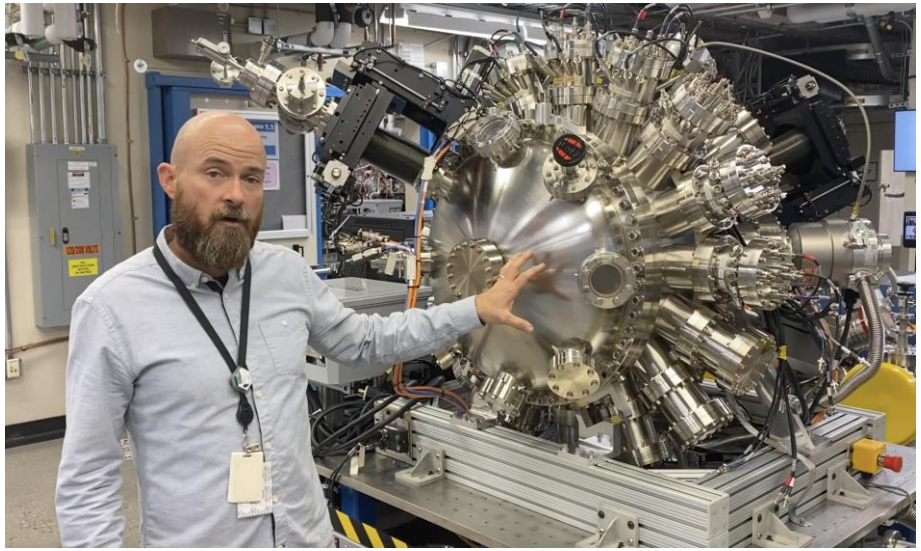
Our Mission – Global AI System for Planetary Health and Equity

- A global AI neurology to link climate change projects and sensors across every region and country of the world
- Establishes an **early warning system** that can reach further into the future, to detect climate disasters
- AI and sensor networks are incorporated in a single system - enables **deeper AI pattern analysis** and detection of new climate change impacts
- Elevates humanity's awareness of our fragile ecosphere, and provides insight into our collective influence on the planet
- **Equal access for all nations** - to global sensor analysis, AI software, advances in technology, historical data, and indigenous knowledge



Innovation Grand Challenge

- AIM For Climate partnership with Enterprise Neurosystem announced at COP 27 by US Secretary of Agriculture Tom Vilsak
- Innovation competition designed to drive technical advances in resilient agriculture
- 39 entries, 20 semifinalists and 5 finalists
- Winner to be announced at AIM For Climate Summit in May 2023 and at COP 28
- Project support and infrastructure via Enterprise Neurosystem
- Similar Grand Challenge proposed for UNFCCC



Next step activities:

- Early Warning System Design
- Water, Energy and Food Systems
- Digital Technologies
- UNFCCC and Enterprise Neurosystem Grand Challenge
- Joint TEC / Enterprise Neurosystem COP 28 event
- Proof of concept – Global Neurosystem

Thank You