

Focus 3: Tech innovation & commercialization



amatech



Digitized carbon credit marketplace



IP generation for global markets

Focus 3: Tech innovation

Imperial College
London



Project 1: AI generated Rainforest Music (phase 1 complete)

This project will aim to create a non-tangible 'Rainforest Music' NTFR that can assist in raising awareness and money for rainforest conservation. The project will take the form of a platform where users can subscribe to immerse themselves in a live feed of natural rainforest scenes and listen to calming music generated from those scenes, to add emotional value to those scenes, allowing the user to develop a deeper connection and a sense of belongingness with the rainforest from a remote location, leading to social pressure to preserve the rainforest.

The music will be generated using an AI framework using the rainforest scenes as inputs and sounds from the rainforest as building blocks; the music will also be able to learn to adapt in real-time to a user's specific preferences. This can potentially generate an income source for content providers from the local communities as an alternative to logging, for example.

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Project 2: Sensor design for energy-constrained nature-based deployments

Sensor data is critical for the evaluation of the status of the physical world. Many sensors in use today, especially in agricultural contexts, are not suitable for long-term and mass-scale deployment when used for tracking progress in remote natural environments (such as forests).

This is because forest environments are less controlled and consistent than agricultural ones, and access to deployed sensors is usually quite limited. Thus, the sensors need to be self-managing, robust and long lived, and degrade well beyond their end of life, i.e., not leave behind a toxic residue to pollute the soil.

Sensors may make different trade-offs between energy usage and lifespan. For example, in the context of reforestation, active medium- lifespan sensors (e.g., spectroscopy for measuring soil quality) used during sapling establishment could be deployed alongside passive long-lived sensors designed to last for the expected lifetime of the trees (e.g., temperature and humidity via chipless RFID).

Additional sensors will need to be considered outside of those normally associated with agriculture, for example to account for dead organic matter, estimate carbon content of soil and litter, and to monitor for poaching, theft, vandalism, and possible fraud. Thus, there is ample scope for research into appropriate sensor system design.

Once the sensors are deployed, we must also consider how to integrate the diverse spatial and temporal field/point measurements of biodiversity and ecosystem functioning with remote sensing data.

This project will therefore additionally investigate how to integrate the results from ground-based sensors to establish ground truth for remote sensing imagery, and conversely how to use remote sensing to tie together ground based sensors.

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Project 3: “Commend” – student visioning project (complete)

With the number, frequency and intensity of forest fires in the Amazon being projected to increase significantly by 2041, and the forest ecosystem transitioning to become more susceptible to their damage, this project aims to develop a solution to address these disastrous predictions.

Taking advantage of advancements in climate research and technology, as well as wider international eco-consciousness, it will be crucial to design and collaborate with various stakeholders in the Brazilian Amazon, from organisations interested in conserving the rainforest, to the farmers that cause these fires. The focus will be on improving the safety and stability (economic and health) of local non-indigenous communities and protecting the broader rainforest ecosystem and biodiversity.

A physical Hub will be placed in each of EBCF’s 15 communities. This acts as a central location that the locals can visit to receive sustainable recommendations for generating income, and cultivates collaboration not only within the communities, but also between these communities.



https://www.youtube.com/watch?v=c_-k7qPmAdA&t=1s

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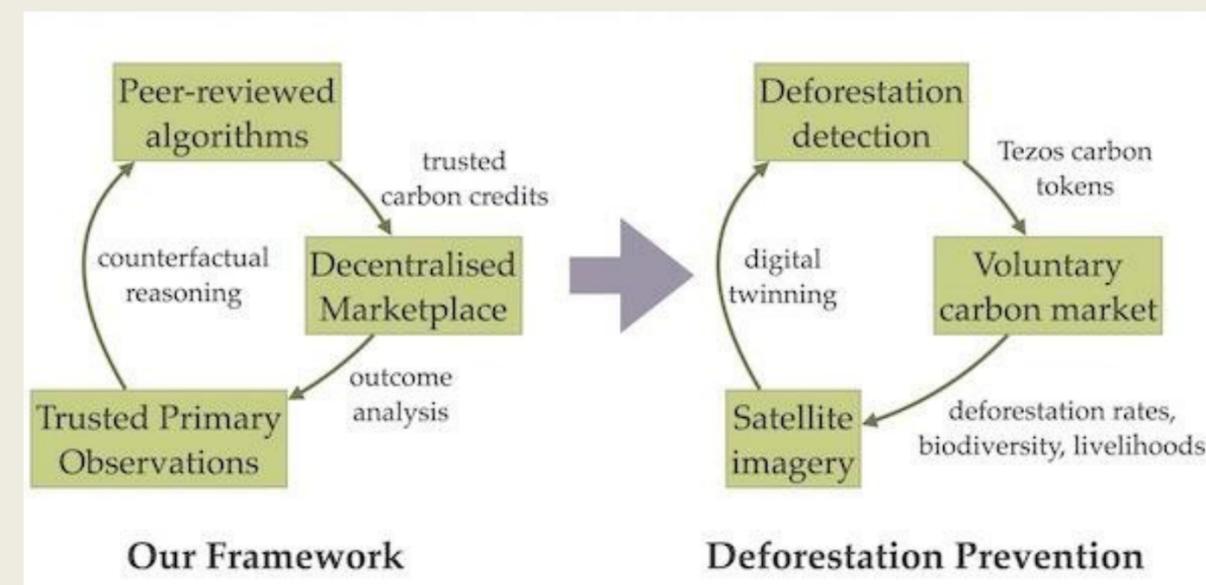
Project 4: MRV & Digitised Carbon Credits

AMATECH is working with the Cambridge Centre for Carbon Credits (4C), which is creating a trusted decentralized marketplace where purchasers of carbon credits can confidently and directly fund trusted nature-based projects that ties together corporate funders to conservationists via automated and transparent global oracles.

Earth Capital manages over \$2.8bn in Sustainable Private Equity assets globally and has developed the market-leading Earth Dividend™ investment metric.

Ultimately, there is little point in channelling funds towards nature-based solutions if there is no resultant outcome that improves the outcomes. Therefore, we are putting into place a framework that:

- combines trusted primary observations with peer-reviewed algorithms to quantitatively measure interventions
- assigns a value to each project in the form of carbon credits that are tied back to the quantitative algorithms, and lets them be traded in a global marketplace
- allows both quantitative and qualitative outcomes to be fed back to decide the future price, based on the intervention. This is vital to ensuring that projects stay on track once initial financing is raised. It is also not sufficient to apply a purely quantitative approach when judging outcomes, as some co-benefits such as biodiversity gains and local justice cannot be assessed purely remotely at present.



For a video summary of the approach:

https://www.youtube.com/watch?v=CNzBfS1UmkI&feature=emb_logo

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Redpill Group.

Insight. Innovation. Impact.



Project 5: IP generation for global markets

Working with our global innovation partners, RedpillGroup, AMATECH is the IP generation engine of AMA Group, developing new IP for sale via channel partners or licensing into multiple sectors. The attraction of PE and VC funds to a growing pipeline of high-growth businesses also opens up the possibility of an EBCF / AMA Group technology fund for co-investment.

AMATECH is the hub of an international innovation ecosystem that brings together industry partners, universities and investors for the development, launch and scaling of science and technology to tackle the climate emergency, habitat loss and the need for climate justice.

AMATECH R&D nodes will be established with each of our international university partners, beginning with Imperial College London, Cambridge University and the National Institute of Amazon Researches (INPA), Brazil. AMATECH R&D nodes will be AMA Group's innovation and investor presence across every continent on the planet –taking AMATECH innovation to the world.

The AMATECH Impact Fund I will be a \$100m venture fund for high-potential companies spinning out from one of our university partnerships or global corporate network.

