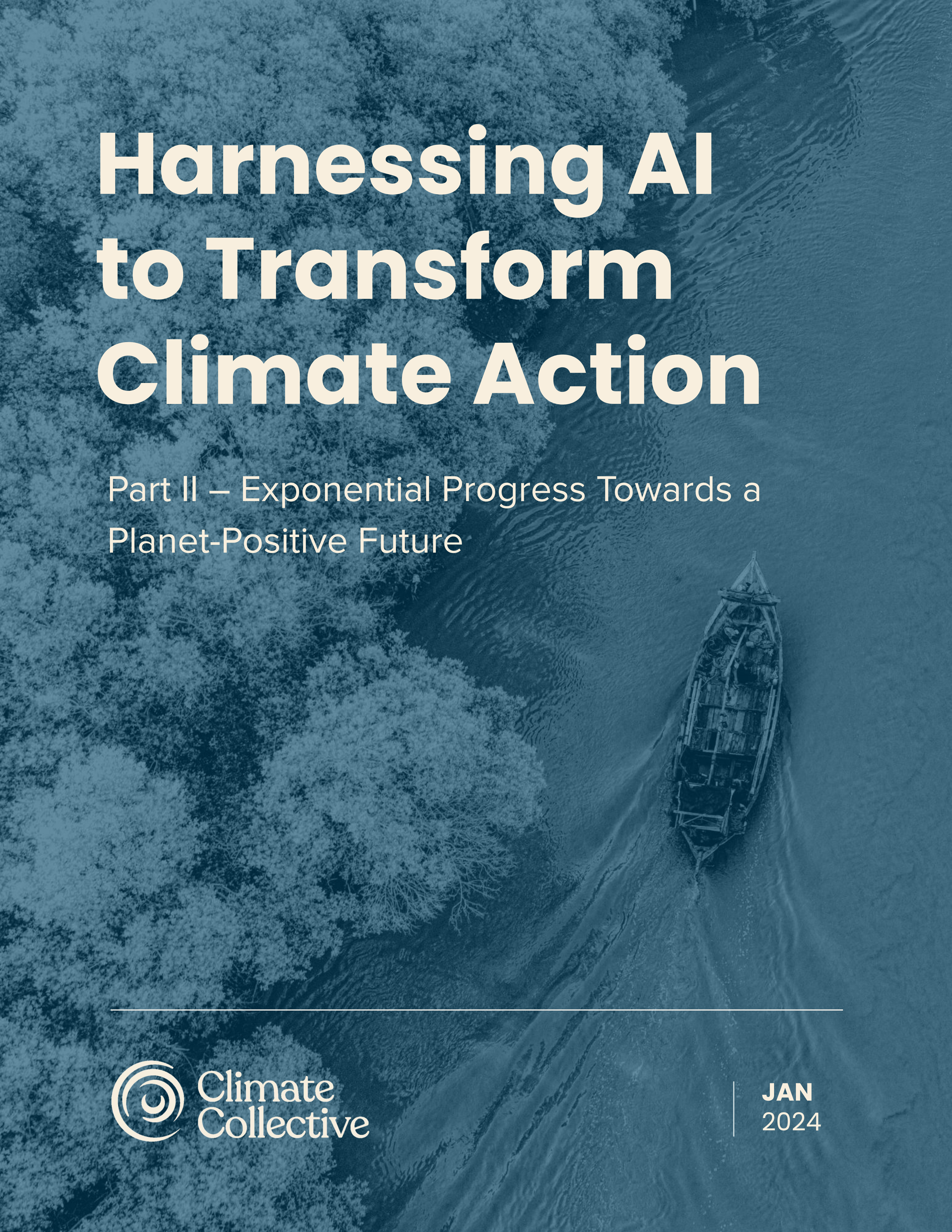

Harnessing AI to Transform Climate Action

Part II – Exponential Progress Towards a Planet-Positive Future

Climate Collective

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Introduction

In December 2023, COP28 concluded with a landmark declaration that states a global ambition to transition away from fossil fuels in an effort to stave off the worst risks of climate change and stabilize the Earth system. While that deal represents a milestone in our civilization's journey towards a sustainable and resilient future, one of the most challenging aspects of such broad and sweeping deals is the difficulty in translating those high but vague ambitions into concrete, effective, long-term plans and strategies. This act of turning aspiration into reality is particularly challenging given the extreme scale, complexity, and speed of the transformations needed; the high levels of uncertainty and ambiguity involved; the presence of significant economic, social and environmental cascading effects; and the lack of operational and strategic "muscle memory" available to ensure effective decision-making and execution.

"Innovation is the key to getting the most out of every dollar spent. And artificial intelligence is about to accelerate the rate of new discoveries at a pace we've never seen before."

Bill Gates

At Climate Collective, we believe that exponential progress of the sort required to overcome these challenges is possible – but only if we wisely and effectively deploy and scale a range of advanced technologies, supported by appropriate policy and financial mechanisms. This maximization of impact and investment over a short period of time is particularly important to bridge the gaps within climate and nature finance. Similarly, we think technology innovation and its impact will be more equitable if it takes place within a diverse and decentralized ecosystem. We see artificial intelligence (AI) as a foundational technology to guide and aid everyone – policy makers, entrepreneurs, investors, non-profits, scientists, and more – in creating the appropriate supporting mechanisms, and governing such a decentralized ecosystem.

The goal of this report is to share a high level vision of where we think AI can take our sector. This is not a 101 type tutorial; for that we recommend our first primer, Harnessing AI to Transform Climate Action Part I: A Paradigm Shift, where we show how AI is, and will be, critical to power transformative climate and nature action. Part I: A Paradigm Shift also covers what AI models do, the main challenges in their applications, and outlines a blueprint for how to create an AI-powered climate ecosystem. Another great resource that has aggregated high-quality learning content is Climate Change AI. Painting this positive vision of future possibilities is also an attempt to grow our community of mission-aligned companies and organizations, who - like us - are interested in making sure that this technology will bring more positive contributions to society and climate change than its potential drawbacks.

In addition to detailing a future vision for what an AI-powered climate ecosystem can enable humanity to accomplish, this paper looks at some inspiring examples of existing projects and companies that are already spearheading that vision; and it discusses how you can get involved and take advantage of the abundance of opportunities to bridge AI innovation with climate and nature impact.

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The Future of AI-Powered Climate Action

Industry experts have made it clear that in the very near future, AI will enable us to plan, coordinate, and implement climate action at a planetary scale, with a degree of confidence, reliability, and fairness that would have been hard to imagine just a few years ago.

Broadly speaking, AI will transform climate and nature action in the following ways:

- **Supercharged and holistic science:** Breaking through today's scientific siloes and replacing the slow, brittle creation of "integrated assessment models" with a network of live, scientifically rigorous, and dynamically updated "digital twins" of the entire global system at all scales – climate, nature, economics, geology, etc.
- **Reliable observation and forecasting:** Using digital twins for relevant ecosystems and networks, reliable and interpretable estimates of historical and future Earth states will become accessible to the public. Corporates, investors, governments and members of civil society will be able to use these digital twins in "simulation mode" to visualize the consequences of action (or inaction).
- **Democratized decision-making co-pilots:** Leaders will be able to make more data-informed decisions, or defer these decisions to AI-generated recommendations for win-win strategies, which can help to negotiate tradeoffs between multiple actors. These solutions could enhance transparency and predictability of markets and policy processes.

Here's a brief vision of how climate and environmental action may be transformed through AI. Although the technological capabilities required (more on these later) either exist today or are being actively built by a cohort of innovators and technology companies, much of the below is still under development and needs to have its feasibility and value proven in the field, as well as undergo careful safety and ethics vetting. The paths to scale these solutions need to take into account local contexts, trade-offs, interdependencies, and fairness concerns, as discussed in Part I.

Case studies: How AI is already transforming climate and nature action?

These boxes highlight particularly notable or promising cases where the impact of AI is already being felt across the various domains discussed below. They are far from exhaustive, however. Many highly impactful and scalable applications of AI to climate and nature have already been developed, and the pace of development is accelerating exponentially. Learn more at Climate Change AI.

Agriculture

An AI-powered agricultural revolution could help stabilize the supply and price of food, providing billions of people around the world with greater food security and increasing our societal resilience to growing climate shocks. AI can be pivotal in optimizing not only farm output and market logistics, but the entire agrifood value chain. This would mean that AI-powered smart farms become the norm, and data-driven insights and pre-programmed and autonomous decision-making would guide every aspect of agricultural practice. Imagine farmers working alongside robots, equipped with sensors and AI algorithms, meticulously monitoring soil nutrient levels, detecting pests and diseases, precisely applying the right fertilizers and pesticides, providing real-time data and recommendations, and ensuring optimal crop growth and rotation, while minimizing or even reversing environmental harm. AI-powered irrigation systems can intelligently manage water resources, ensuring crops receive the precise amount of moisture they need at the most optimal time, conserving precious water resources. Predictive models will forecast weather patterns and crop health, enabling farmers to proactively adjust their practices and mitigate the risks of drought, pests, and disease outbreaks. And end-to-end, predictive agrifood models can help value chain stakeholders plan for the right combination of crops and regenerative practices, for a combination of minimized crop failure risk, positive local ecological impact, high-quality nutrition, reduced waste, and other key factors.

Case studies: Hortiya and Agremo

Hortiya is enhancing agricultural productivity, resilience, and sustainability through innovative, AI-driven greenhouse technology. Focused on Northern Europe, Hortiya's key offerings include intelligent greenhouse lighting control and advanced AI tools to help plant researchers increase crop yields while conserving resources.

Agremo is an AI-powered field analytics software suite for precision agriculture. It combines computer vision and recommendation algorithms trained by expert agronomists and scientists to process imagery from drones and mobile phones, generating actionable insights and knowledge for farmers, researchers and other stakeholders. Already adopted in over 440,000 acres across six continents, Agremo exemplifies the ability of AI to drive fast and scalable improvements in crop loss and return on investment.

Protecting Biodiversity

Directing AI's capabilities towards conservation and biodiversity could help us meet, and then surpass, the Global Biodiversity Framework's "30x30" target, which calls for 30% of the world's terrestrial, inland water, and coastal and marine areas to be under effective protection and management by 2030. AI-powered drones can patrol vast landscapes and ocean depths, alike, surveying biodiversity levels, identifying invasive species, and detecting signs of habitat degradation. Real-time data from these drones can feed into sophisticated AI algorithms, creating a comprehensive picture of ecosystem health. This data will be used to guide conservation efforts, enabling us to protect endangered species, restore degraded habitats, and prevent the loss of precious biodiversity. AI-powered predictive models can forecast the impact of climate change on ecosystems, allowing us to proactively adapt conservation strategies and protect vulnerable habitats from extreme weather events and climate shifts on the land, as well as ocean-specific challenges such as managing acidification and microplastics.

Case studies: EarthRanger

EarthRanger is a sophisticated, AI-powered software solution that assists protected area managers, ecologists, and wildlife biologists in making informed operational decisions crucial for wildlife conservation. The application addresses challenges such as deforestation, community encroachment, poaching, climate change, and illegal wildlife trade. By collecting, integrating, and displaying historical and current data alongside field reports, EarthRanger provides a comprehensive view of collared wildlife, rangers, enforcement assets, and infrastructure within protected areas. This system is highly effective in monitoring and studying wildlife movements across ecosystems, from specific areas to continent-wide migrations. It has been deployed at scale in parks and protected areas in Kenya, Zambia, Zimbabwe, Croatia, and many other countries, garnering a significant track record of positive impact.

Cities

Cities are already undergoing a significant digital transformation. With ubiquitous connectivity and increased deployment of decentralized and connected AI infrastructure, cities can be reimagined as regenerative hubs, optimized for sustainability, resilience, and equity. Cities can be powered by AI-driven infrastructure that helps us proactively optimize energy consumption, reduce waste, and enhance the quality of life for urban dwellers. AI-powered smart grids can distribute energy efficiently, dynamically adjusting power generation and consumption based on real-time demand patterns. AI-powered traffic management systems can optimize traffic flow, reducing emissions and improving travel times.

AI-powered waste collection systems can identify and route waste disposal vehicles efficiently, minimizing waste collection costs and environmental impact. Intelligent building management systems can optimize heating, cooling, and lighting, ensuring energy efficiency and reducing carbon footprints. And AI-powered sensors can monitor air and water quality, providing real-time data to address pollution issues promptly and protect public health. These hyper-efficient cities could also become engines of change for the wider national context, and potentially become meaningful catalysts for accelerating decarbonization.

Case studies: PassiveLogic

PassiveLogic is developing AI technology for automating the built environment. One of their solutions, which combines IoT-enabled HVAC hardware and deep learning-based control software, is being used in a US Department of Energy-funded project to perform autonomous building retrofits on public buildings in small cities, enabling these buildings to autonomously track zone and equipment parameters to determine optimized operating schedules for maximum energy efficiency. This exemplifies the power of AI to deliver the benefits of technology to smaller communities with tight budgets that haven't yet had the opportunity to benefit from the latest upgrades.

Energy

The ongoing transition to a sustainable energy future will become even more dramatically accelerated. AI will play a pivotal role in accelerating this transition, enabling us to harness renewable energy sources efficiently, optimize energy storage, and create a smart, resilient energy grid. AI-powered algorithms can optimize the placement and operation of renewable energy sources, such as solar panels and wind turbines, maximizing energy generation and reducing reliance on fossil fuels. AI-powered energy storage systems can intelligently manage energy demand and supply, ensuring a stable and reliable grid, even during periods of intermittent renewable energy generation. Smart grids can dynamically distribute energy across the grid, ensuring efficient energy consumption and minimizing losses. Predictive models can forecast energy demand and supply patterns, enabling proactive adjustments to optimize energy generation and distribution.

Case studies: Batteryze

Batteryze uses machine learning and physics-based modeling to monitor and predict battery aging, enhancing battery performance, reliability, and economic value. Their cloud-based battery digital twins offer real-time insights into a battery's health and aging process. This enables optimal battery utilization, predictive maintenance, and battery reuse in various applications, promoting sustainability and circularity in the battery industry.

Transportation

An increasingly globalized economy will mean greater movement of people and goods. In the future, this mobility won't come at the expense of the planet. Electric autonomous vehicles – not just cars, but buses and trains – will be the cornerstone of this transformation, reducing accidents, improving traffic flow, and dramatically reducing emissions. But the impact of AI on transportation will extend far beyond personal mobility. AI-powered traffic management systems will have reduced congestion and travel times, and AI-powered logistics and freight systems will intelligently manage the movement of goods across the globe, reducing transportation costs, emissions, and the overall environmental impact of moving goods.

Case studies: Sentient Hubs

Sentient Hubs has developed a master planning platform for integrating simulation and analysis across large-scale complex systems, allowing the managers of global infrastructure systems to better understand, forecast, and develop more resilient strategies. Sentient Hubs' trade forecasting solution has been adopted by ports to plan infrastructure projects and operations using a range of 50-year projections against global macro factors, including climate change.

Manufacturing

AI may enable the material economy to be completely reinvented, mimicking nature's reliance on the Sun's bountiful energy and on dynamic, interconnected networks of circular flows, instead of our current wasteful and static systems. AI-powered manufacturing systems can optimize production processes, reduce waste, and minimize energy consumption. AI-designed genetically engineered microbes can replace energy-intensive chemical processes, producing materials sustainably. And AI-optimized solar power can become the primary energy source for manufacturing facilities, reducing reliance on fossil fuels.

Case studies: IBM Research

IBM Research's initiative in developing sustainable battery materials heavily relies on an AI-assisted workflow to expedite the discovery of safer and more efficient electrolyte materials. This innovative approach uses high-throughput screening, automated quantum chemical simulations, and novel deep learning models to establish the relationship between material structure, composition, and performance. The AI workflow significantly reduces the volume of experiments needed, accelerating the development of less flammable and higher-performing electrolyte systems. This method exemplifies the pivotal role of AI in advancing the field of sustainable battery technology. The impact from this initiative is still early but could be profound: these batteries don't use costly heavy metals like cobalt and nickel, which have significant environmental and health impacts, but instead use more sustainable cathode materials (like iodine extracted from brine), and have shown an ability to surpass conventional batteries in terms of power and charging speed.

Disaster Response and Resilience

Extreme weather events are already increasing as a function of climate change, and they will likely continue to do so for the next few decades, even in the most optimistic climate action scenarios. Thankfully, AI will also revolutionize disaster response and preparedness, enabling us to anticipate, mitigate, and respond to natural disasters more effectively. AI-powered algorithms can analyze vast amounts of data from satellites, sensors, and weather models, providing real-time forecasts of natural disasters, such as hurricanes, floods, and wildfires. These early warning systems can alert communities at risk, providing ample time for evacuation and disaster preparedness. AI-powered disaster response platforms can coordinate and optimize relief efforts, ensuring that aid reaches those affected quickly and efficiently. Predictive models can assess the potential impact of natural disasters on infrastructure, enabling us to proactively reinforce structures and minimize damage. And simulations can help disaster responders plan and execute rescue operations, ensuring the safety of both responders and victims.

Case studies: FloodMapper

FloodMapper bolsters flood resilience by providing technology that helps support flood response measures. Floods are the most common type of natural disaster on Earth and kill more people each year than tornadoes or hurricanes. Extreme flood events cost nearly $5 billion on average, and around three billion people were affected by floods between 1980-2009. The prevalence and magnitude of this problem is increasing as a consequence of climate change; for example, during early 2022 almost 2,000 kilometers of Australia's eastern seaboard was flooded due to prolonged heavy rainfall. The sheer scale of this disaster made mapping the extent highly challenging - even with modern satellite technology. Existing flood-mapping tools struggle to analyze the large volumes of data and simply can't deliver timely and accurate water extent maps. In contrast, FloodMapper was able to generate highly accurate maps of the East Australian floods from satellite imagery in only a few days, enabling a far faster response.

The Future of Policy and Market Mechanisms

In the face of climate change and other environmental challenges, there is an urgent need for effective and innovative policy and market mechanisms to drive sustainable development. AI has the potential to play a transformative role in this regard, by enabling the development and implementation of more efficient, transparent, and equitable mechanisms.

Trustworthy end-to-end measurement & attribution of emissions and other impacts

Accurate and reliable measurement of emissions and other environmental impacts is essential for effective climate action. However, traditional monitoring, reporting, and verification (MRV) and carbon accounting approaches are often ad hoc, costly, and prone to errors. AI-powered solutions can address these shortcomings by providing a more rigorous, transparent, and cost-effective approach to emissions measurement and attribution. AI algorithms can analyze vast amounts of data from sensors, satellites, and other sources to provide real-time insights into emissions and other environmental impacts. This data can then be used to inform policy decisions, track progress towards reduction targets, and hold actors accountable for their environmental footprint.

Case studies: Climate TRACE

Climate TRACE uses AI to track greenhouse gas (GHG) emissions worldwide with unprecedented detail and speed. This project leverages satellites and other remote sensing technologies to detect emissions from various economic activities, including those that were previously difficult to observe. By integrating data from multiple sources, including satellites, direct measurements, and artificial intelligence, ClimateTRACE builds accurate models to estimate emissions directly at their source. The information gathered is continuously updated with incoming data from global sensors, enhancing the accuracy of emission estimates. As an example success story, ClimateTRACE conducted a study on the impact of the COVID-19 pandemic on cruise ship emissions. The pandemic's unprecedented drop in travel led to an estimated avoidance of around 9 million tons of CO2 emissions, demonstrating the potential impact of reduced cruise activities on the environment. However, by August 2021, a rebound occurred with emissions surpassing pre-pandemic levels by almost 6%, highlighting the dynamic nature of the industry's environmental impact. Furthermore, ClimateTRACE's analysis revealed emission hotspots in the Caribbean, where cruise ships congregated during the pandemic, raising concerns about local air quality and human health.

Highly targeted and credible incentive and financing schemes with machine-verifiable integrity mechanisms

Traditional crediting schemes for emission reductions or environmental protection have often been criticized for a lack of effectiveness and credibility. AI can help to address these concerns by enabling the development of highly targeted and credible incentive and financing schemes with built-in, machine-verifiable integrity mechanisms. Causal AI models can analyze data on emissions reduction potential, cost-effectiveness, and environmental co-benefits to identify projects and activities that are most likely to achieve desired outcomes. AI-powered monitoring systems can then be used to track progress and ensure that commitments are met. These capabilities of data-driven targeting and machine-verifiable enforcement are being further combined with decentralized ledger technologies (DLT) such as blockchain, allowing for the creation of high-integrity environmental assets. This combination of technologies can help us finally demonstrate real environmental progress, and the increased confidence can help attract orders of magnitude more capital towards climate and environmental incentives where they are most needed.

Case studies: ixo and Arva

ixo's AI-powered clean cooking solution aims to transform access to modern cooking solutions, a critical problem in emerging economies. This technology enables more precise measurement of the usage and impacts of clean cookstoves, allowing for accurate, real-time data collection and impact assessment. The platform's causal AI capabilities are crucial for ensuring the effectiveness and efficiency of clean cooking projects, particularly in areas where traditional energy sources are scarce or harmful. This approach not only promotes sustainable cooking practices but also enhances the transparency and credibility of impact claims, crucial for impact financing and digital carbon credit issuance and trading. The first implementation of this solution is operated by SupaMoto in Zambia.

Arva is one of a new crop of AI-powered decision support solutions that add value to the data collection and analysis cycle by closing the incentive and monetization loop. Arva does this for agriculture with its decision platform, which helps farmers monetize the impact of their sustainable practices, specifically carbon reduction and removals, through the creation of digital environmental assets. Their platform is being deployed to drive impact in schemes such as Nestlé Purina's $1.5 million incentive program for sustainable rice growing in the US.

Parametric insurance, risk management, compensation, and resilience finance

Climate change is increasingly causing loss, damage and risk, particularly in vulnerable communities and in directly nature-dependent sectors like agrifood. AI can help to address these challenges by enabling the development of parametric insurance, fine-grained risk analysis, and targeted resilience financing mechanisms. Parametric insurance products use AI algorithms to automatically trigger payouts based on the occurrence of predefined climate or environmental events. This can provide much-needed financial assistance to communities affected by environmental loss and damage, without the need for complex claims processes. AI can also be used to target financial resources to areas most at risk of climate and environmental impacts. AI algorithms can analyze data on vulnerability, exposure, and adaptive capacity to identify communities that are most in need of support, as well as natural capital assets with material risks that need to be mitigated or otherwise managed. Causal AI can also help develop targeted strategies that guide decision-makers through tradeoffs and critical paths. This targeted approach can help to ensure that resources are used effectively to address the most urgent needs.

Case studies: SustGlobal

SustGlobal has developed a novel AI-driven approach to wildfire risk modeling, combining empirical learning from historical data gleaned from high-volume, high-resolution satellite datasets with theoretical predictions for future conditions. This model is vital as the world experiences unprecedented weather patterns due to climate change, making traditional models based on historical data inadequate for future predictions. Given the current trajectory of global warming, SustGlobal's model predicts a more significant increase in wildfire risk than other models. For instance, it forecasts a 450% increase in the burned area in the US under a scenario where the world is 5 degrees Celsius hotter by 2100, a stark contrast to the much lower increases predicted by other models. This science-driven AI approach provides a more realistic, fine-grained and contextual assessment of future fire risks. This makes it a powerful ally for the finance sector, public policy makers and asset owners themselves, who can plug into this intelligence to develop informed, defensible decisions about wildfire resilience investments, collaboratively plan adaptation measures such as community relocation, and correctly price financial instruments such as parametric insurance.

Simulation-enabled capacity building and mechanism design

Whether in government, business, finance, or civil society, actors struggle to understand and evaluate the complex ramifications of proposed strategies and market mechanisms. This lack of key capacity across decision-making and advisory roles is considered by economists and political scientists to be an important limiting factor in the adoption of more effective policies and mechanisms. AI-enabled sandboxes, educational tools and simulators can help by guiding individuals and groups through interactive learning experiences and scenario-driven future narratives that are realistic, highly personalized, and compelling.

Case studies: CarbonSim

CarbonSim is an AI-powered carbon market simulation tool developed by the Environmental Defense Fund to enable smarter market design and capability building. It does this by demonstrating the principles of emissions trading and the functioning of carbon markets in the context of a multiplayer gamified simulation experience. It targets both administrators of emission trading systems (ETS), who can better understand the connections between policy makers' design choices and program results, and industry actors, who can glean valuable insights into the implications of ETS programs for their own carbon portfolio management strategies.

AI-Powered Breakthroughs: Unleashing Large-Scale Solutions

While the previous sections have discussed the potential for AI to make existing industries and institutions more planet-positive, a growing number of influential voices argue that large-scale, high-impact solutions will be needed in order to course-correct our climate trajectory and simultaneously manage the harmful effects of already locked-in climate change and ecosystem degradation on communities and economies. These large-scale solutions range widely: from scaling deployment of existing practices and technologies like nature-based solutions or technology enabled climate mitigation, tripling renewable energy deployment and transitioning away from coal and fossil fuel dependencies, to big bets on technologies that are nascent or still in conceptual stage, like nuclear fusion, geoengineering and advanced carbon removal solutions.

However, all such solutions are the object of significant controversy, even among experts. A key cause of this controversy is the lack of clear, shared understanding of the true impacts and potential negative consequences of these solutions, given both the uncertainty about technological and economic feasibility, and the immense complexity of the Earth system they are intended to affect. This complexity and uncertainty leave many people hesitant to pursue these novel ideas based on the potentially significant and irreversible risks. This complexity becomes even greater considering the potential interplay between different large-scale interventions and the multifaceted interests of national governments, multinational bodies, and other stakeholders.

AI will play a pivotal role in enhancing our ability to develop coordinated, science-based, yet timely and effective strategies around such large-scale solutions. Through an AI-enabled accelerated cycle of scientific understanding, prediction, simulation and action, based on globally integrated networks of “digital twins” as discussed previously, stakeholders will be able to explore, de-risk and coordinate the safe and accountable implementation of such large-scale, high-tech projects. For instance, AI-enabled tools may enable scientists and policy makers to design experiments around solar radiation management or ocean iron fertilization that minimize negative risks and allow us to obtain more consensual estimates of their potential for large-scale impact.

AI Technologies and Capabilities for Climate Action

Across all areas of application we've discussed so far, the transformative potential of AI in addressing climate change and building a sustainable future hinges on the advancement of several key AI technologies and capabilities. These include:

- **Causal AI**, also known as causal discovery and inference: a branch of AI that focuses on understanding the cause-and-effect relationships between different variables. This capability is crucial for climate action as it allows us to identify the root causes of environmental problems and develop targeted and effective solutions. For instance, causal AI can help us determine the precise impact of different human activities on greenhouse gas emissions, enabling us to prioritize mitigation efforts.
- **Physics-based AI**, also known as physics-informed machine learning: this integrates knowledge of physics into AI algorithms to improve their ability to model and predict complex natural systems. This capability is essential for climate modeling, as it allows us to develop more accurate and reliable simulations of climate change and its impacts. Physics-based AI can help us predict extreme weather events, assess the risks of sea-level rise, and evaluate the effectiveness of different adaptation strategies.
- **Decentralized AI**, also known as distributed AI: this refers to AI systems that operate without the need for a central authority. This capability is particularly valuable for climate action as it allows for collaboration and coordination among multiple stakeholders, even in the face of uncertainty and communication disruptions. Decentralized AI can be used to optimize energy grids, manage supply chains, and coordinate disaster response efforts.
- **Explainable, verifiable, and reproducible AI**: this refers to AI systems that can provide explanations for their decisions and predictions, where those explanations can be formally or empirically shown to be valid (the solution complies with the user's requirements) and can be reproduced deterministically. These capabilities are essential for building trust in AI-powered solutions for climate action, and can help policy makers, stakeholders, and the public understand the reasoning behind AI-driven recommendations and ensure that decisions are fair, unbiased, and aligned with ethical principles.

- **Policy search and prescription techniques**, such as decision trees, evolutionary AI and Monte Carlo Tree Search (MCTS), enable AI systems to explore different policy options and identify the most effective solutions for addressing climate challenges. These techniques can be used to optimize energy policies, design sustainable urban infrastructure, and develop effective disaster preparedness plans.
- **Decision intelligence (DI)** involves the integration of AI algorithms with human decision-making processes to enhance decision quality and consistency. Visual interpretability techniques allow AI systems to explain their decisions in a way that humans can understand, fostering trust and collaboration. Interactive simulation tools enable stakeholders to explore different policy scenarios and their potential consequences, facilitating informed decision-making.

Planet-Positive AI: A Highly Connected Web of Action

Last but not least: the future Earth will be even more interconnected than its present, which means all of the AI applications, mechanisms, and capabilities we discussed are mutually interdependent. This creates a system that is too big and complex for any single centralized infrastructure or organization to design or manage. Hence, the future of AI-powered climate and environmental action may resemble the Internet of Things (IoT): completely decentralized, yet connected by common protocols, standards, and public datasets that allow interoperability and reusability. This technology-driven dynamic has the potential to translate into more democratic governance institutions and more just and equitable outcomes.

Bridging the Gap Between Innovation and Impact

With the field evolving at an increasing pace, and given the complexity and scope of the impacts and challenges involved, it's easy for potential investors and beneficiaries of these technologies to become overwhelmed. Meanwhile, individual innovators and founders in this space often struggle in telling their story, finding their niche, building win-win partnerships and getting the support and resources they need to achieve their impact.

Climate Collective is building an ecosystem of organizations developing these tools and demonstrating their impact in real-world projects. We believe this ecosystem-driven approach to innovation is the pathway to a planet-positive and ethical future. To learn more about market developments, bodies of evidence, and the teams building these cutting-edge applications, reach out to our team and get involved.

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