

Preprints: A Permissionless Platform for Human-AI Co-Creative Research

HaAI Labs

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1 Overview

- *Preprints* is a blockchain-based platform that aims at transforming how academic research is produced, preserved, accessed, and utilised.
- *Preprints* supports the permissionless and immutable publication of research manuscripts as NFTs stored on IPFS and distributed through the Ocean Protocol, guaranteeing the long-term availability of valuable ideas.
- With associated AI services, the platform goes beyond being a static repository; it acts as a conduit for a co-creative relationship between human and artificial intelligence — where research contributes to AI advancement, and AI offers insights that propel research forward.
- The PRNT token incents community-led development and decentralized governance, propelling *Preprints* as a self-sustaining Human-AI research ecosystem.

2 Background

2.1 Human-augmented Artificial Intelligence

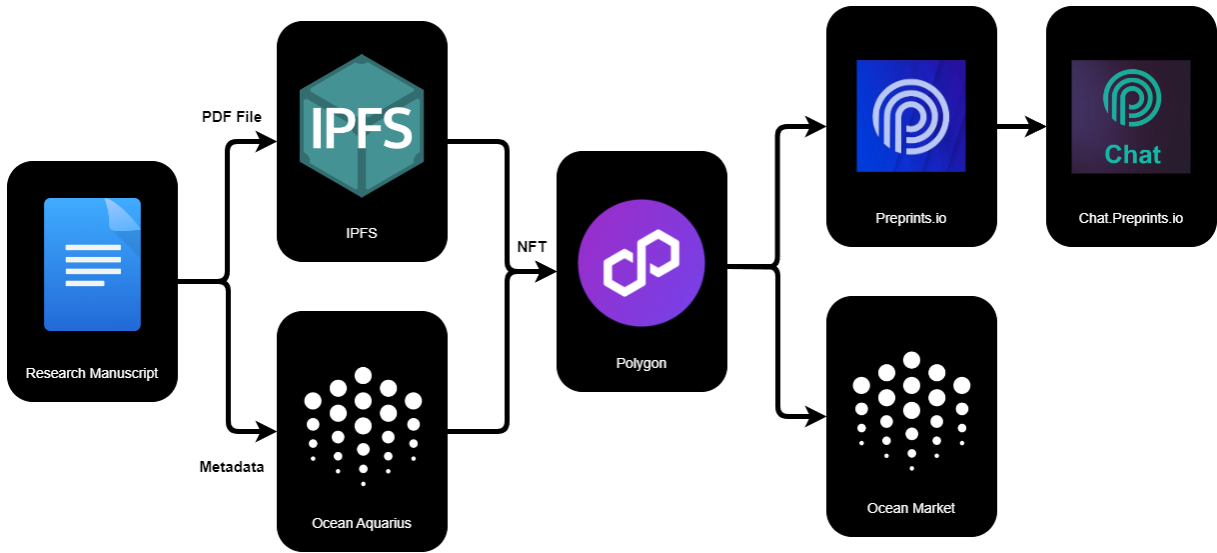
The founding of HaAI Labs in 2021 was rooted in the recognition that we are living in the prelude to AGI/ASI times, making notions such as plagiarism obsolete [1] and accentuating the value of quality human expert data [2]. In this era, the role of human knowledge work is increasingly oriented towards training and enhancing AI systems. HaAI Labs recognizes the critical role of quality human data in today's AI-focused era, where 'Small Data'—nicely curated data with deep insights—becomes key. We view the exchange between human knowledge and AI as a circular, beneficial process and have released [open-source software](#) to make this vision tangible.

2.2 Research Preservation

The preservation of research faces critical challenges as the volume of scholarly work expands rapidly. A study examining over seven million digital publications reveals that over a quarter of scholarly articles are at risk of vanishing from the internet [3]. The findings, published in the *Journal of Librarianship and Scholarly Communication*, stress the urgency for more effective systems to safeguard the expanding body of scholarly knowledge.

2.3 Decentralized Science (DeSci)

The traditional model of academic research funding and publishing is facing a crisis, marked by centralised control, lack of transparency, and accessibility issues. Dominated by a few organisations, this model often dictates research agendas and introduces biases and inefficiencies. The decentralised science (DeSci) movement aims to address these problems by leveraging blockchain technology, offering a more transparent and equitable approach. For DeSci to fully realise its potential and bring about a significant change in the academic landscape, it's essential to onboard traditional researchers into this new paradigm [4]. Encouraging their participation will be crucial in overcoming the current system's limitations

Figure 1: Current Architecture of *Preprints*

3 Our Solution

3.1 Research Publications as NFTs

Preprints is a permissionless publication platform, initially focused on blockchain research, which lacks formal publication venues, resulting in many valuable papers being dispersed across the internet with little visibility. Additionally, there’s a significant amount of informal research by practitioners that remains unpublished. The platform will progressively expand to other research disciplines. To ensure their preservations, manuscripts on *Preprints* are recorded as NFTs and stored on IPFS, guaranteeing immutable recording. Authors have the flexibility to set their work’s accessibility, as open-access or paid, using the Ocean marketplace. Figure 1 describes this workflow and the infrastructure of *Preprints*.

3.2 The First Preprint Server You Can Chat With

The I/O in [Preprints.io](https://preprints.io) stands for Input/Output. Research manuscripts on *Preprints* are the output of human and artificial intelligence co-creation, but also an input to a unified knowledge base. Our vision is to forge a powerful symbiosis between human researchers and AI systems, with *Preprints* serving as the foundational stone. A key feature is *Preprints Chat*. New manuscripts automatically enrich our knowledge base, with an opt-out option for authors. For readers, *Preprints Chat* synthesizes knowledge across various sources, offering precise citations and streamlining literature reviews. For authors, *Preprints Chat* enhances the visibility of their work and interconnects it with related publications. This initiative marks our commitment to leading the charge towards a new era of human-AI co-creation in science.

3.3 A Self-Sustaining Human-AI Research Ecosystem

Our vision extends towards establishing a self-sustaining human-AI research ecosystem, centred around *Preprints* as the foundational platform and PRNT as the incentive system. This ecosystem aims to cultivate a powerful co-creative relationship between human researchers and AI [5]. To achieve this vision, over the next 18 months, we aim to deploy the following features, covering the whole research lifecycle:

Table 1: Innovative Features and Their Priorities in the Next-Gen AI Platform

Type	Feature	Priority
Identity	Account Abstractions	High
Identity	Proof of Humanity	Medium
Identity	L-index Reputation	Medium
Identity	'Link in Bio' Service for DeSci	Low
Funding	Microgrants and Mentorship Program	High
Primary Data	Cognitive Tasks Marketplace [5, 6]	High
Literature Review	Preprints Search Engine	High
Writing	AI-assisted Manuscript Preparation	Medium
Peer Review	AI-assisted Peer Review	Medium

4 Team

The HaAI Labs core team includes the following members, as well as temporary contractors and community volunteers:

- Nassim Dehouche, Ph.D. Computer Science
- Som Meesakulthaworn, MSc. Human-Computer Interaction
- Rajiv Gupta, Ph.D. Computer Science

5 Tokenomics

The PRNT token directly incentivizes peer review and survey responses, encouraging community participation and ensuring the quality and relevance of content on *Preprints*. It also plays a crucial role in funding, providing liquidity for microgrants that support research and development within the platform. As a governance token, PRNT enables decentralization of the platform's governance, allowing token holders to participate in decision-making processes.

- **Token:** Preprints.io Token
- **Ticker:** PRNT
- **Blockchain:** Polygon
- **Smart Contract Address:** 0x1d3c629ca5c1d0ab3bdf74600e81b4145615df8e
- **Max Total Supply:** 50M tokens
- **Emission schedule:** No more than 10% of total supply (5M tokens) per year for subsequent 9 years
- **Distribution:** See Figure 2

6 Risks and Challenges

Launching a platform like *Preprints* at the intersection of the two rapidly evolving fields of decentralized science (DeSci) and artificial intelligence (AI) comes with its unique set of risks and challenges. Here, we outline some of the primary concerns we anticipate and our strategies for addressing them.

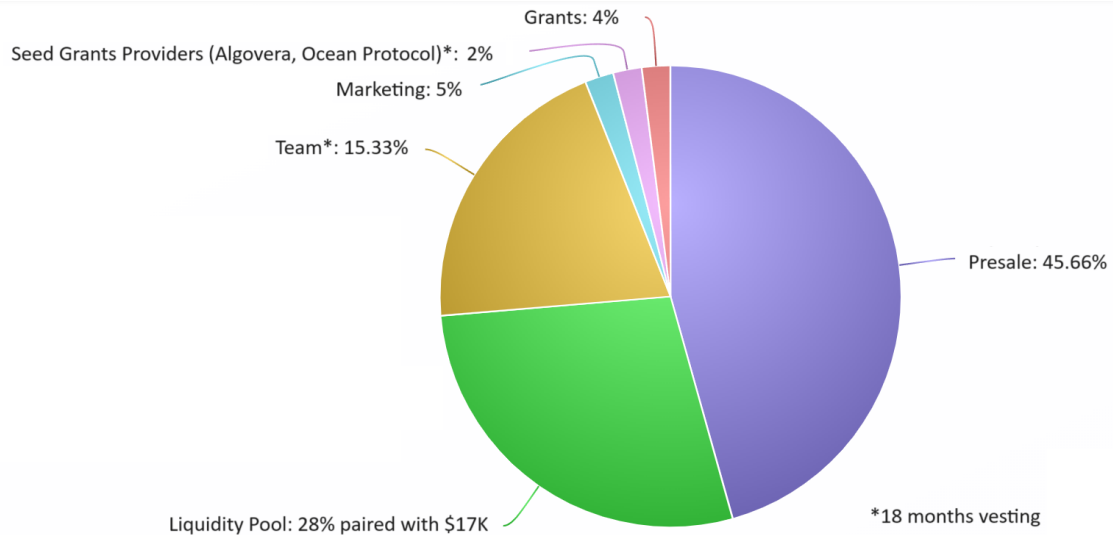


Figure 2: PRNT Distribution

- A significant risk we face is the pace of technological innovation, particularly in artificial intelligence. The risk here is the emergence of next-generation AI technologies that could render our current software solutions obsolete. Our approach to mitigate this technology risk involves maintaining a flexible and agile development process, allowing us to pivot and adapt our software to incorporate the latest AI advancements, ensuring our platform remains at the cutting edge.
- Another challenge is attracting and onboarding researchers to our platform. This is a common issue within the DeSci space, as transitioning from traditional research dissemination methods to decentralized platforms requires a cultural shift. To overcome this, we are committed to extensive outreach efforts aimed at traditional researchers. Our strategy includes educational programs to highlight the benefits of decentralized publication and collaboration, thereby broadening our user base and fostering a more inclusive scientific community.
- Finally, the project is currently built and maintained by a small, dedicated team, which exposes it to a risk of centralization. The project's success could be jeopardized by personal circumstances impacting key team members, such as illness or injury. To address this, we plan to decentralize the governance of the platform and open-source the code. This approach will not only increase resilience and reduce dependency on any single individual but also encourage community involvement and contributions, leading to a more robust and self-sustaining project.

References

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