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Prediction Market Platform

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Using Prediction Markets to Motivate Public Participation in Patent Examination

[Extended Abstract]

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ABSTRACT

The United States Patent and Trademark Office (USPTO) is overwhelmed with a large volume of patent applications while having limited resources to conduct patent examinations. The patent examination process is too long and the quality of issued patents is questioned by the public. I propose to alleviate these problems by setting up prediction markets for each pending patent. In these prediction markets, traders buy and sell bets for the outcome of the patent examinations. These proposed prediction markets can create social value in two ways. First, they generate forecasts about the likelihood of the pending patents being granted. Before the USPTO completes the examination, decision makers in need of information about the outcome of the patent examination can use these forecasts to make strategic decisions about research and development plans, or investments in the technologies being patented. Second, our proposal creates explicit incentives for public participation in the patent examination process. The proposed prediction markets reward traders with insights into the pending patent, potentially motivating traders to independently perform prior art search — a central task in evaluating patentability. The USPTO can then collect these prior art for reference by giving small rewards to traders who submit relevant prior art.

Categories and Subject Descriptors

H.4 Information Systems Applications: Miscellaneous

General Terms

Design

Keywords

Intellectual Property, Patent, Markets

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1. INTRODUCTION

The patent system was set up to foster innovation by granting the inventor exclusive rights to extract monopolistic profits from their own inventions for a limited length of time (Article I, Section 8 of the United States Constitution). Fundamentally, the patent system was based on the promise that patents were truly "inventions" that deserve such privilege. If a patent which was not truly innovative was granted by the USPTO, the system would impose a dead weight loss of efficiency on society due to the unjustified monopoly. Over the recent decades, the USPTO's performance in patent examination has come under sharp criticism, especially the long delays in the examination process and the low quality of the patents granted.

Patent examination takes a long time, and the time it takes has increased in recent years. In the last fourteen years, the average pendency — the time in months from filing to either issuance or abandonment — has been above 18 months. In 2008, the average pendency across all technological fields reached 22.2 months. In the field of Software & Information Security, it has reached 42.4 months — more than three years.¹ The long pendency of patent examination exacerbates the patent hold-up problem, which occurs when a firm has invested in developing a technology before it discovers it infringes on another firm's patent. As patent examination has been largely a secret process in which only the examiners and the applications are involved, the longer the pendency, the more likely that a hold-up problem will occur. Increased pendency also leads to high damages to the firm being held-up.

There have been controversies over the quality of some high-profile patents. A well-known one was Amazon's one-click shopping cart patent (US Patent 5,960,411), which was granted by the USPTO in 1999 [2]. One possible reason for the decline of patent quality is that the USPTO is inundated with patent applications and has limited resources. The USPTO receives about 1,000 applications every working day [7, Ch. 5]. Each patent application receives about 20 hours of attention on average from its examiners [2, § 4], sometimes as little as 8 hours [7, Ch. 5]. Further, patent examiners face particular challenges in identifying non-patent prior art, due to their lack of participation in the scientific community, thereby not being up-to-date on where the latest inventions are published [15].



¹These data are published by the USPTO.



Patent Prediction Markets

Always Start with a Question →

- Forecast Patent Events
- Incentivize Prior Art Search
- Human-in-the-loop AI

 Will Claim 1 of US Patent 7598083 be held invalid in a US District Court decision by Jan. 1, 2019? 

Market Type	Validity
Organization	Johnson and Johnson
Resolution Date	12-31-2018

0.46 IPX Last trade

0.54 IPX Last trade

↑ Buy Yes

↓ Buy No



Public Markets

Market Type	Use Case
<i>Granted Patents</i>	<ul style="list-style-type: none">● Incentivize crowd-discovery of hard-to-find prior art● Invalidate NPE patents or other assets in litigation
<i>Published Applications</i>	<ul style="list-style-type: none">● Police technical domains for low-quality patents● Public record of art known to PHOSITA at time of patenting
<i>“Real Money” Markets</i>	<ul style="list-style-type: none">● Patent Insurance● Incentivize 3rd party to file IPR

How do PMs curate prior art?

Profiting from Prior Art:

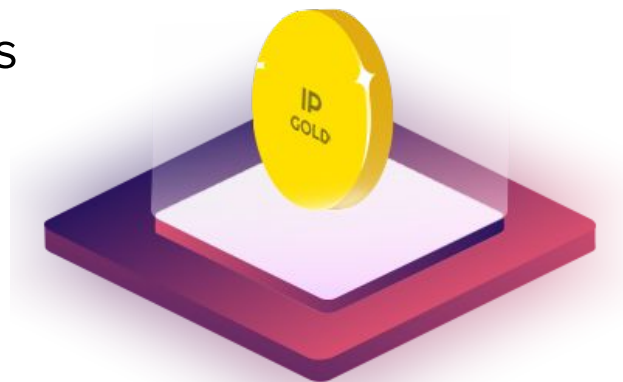
- Researcher buys shares of INVALID at 0.10/share.
- Researcher submits invalidating prior art and claims bounty.
- Market resolves and Researcher profits 0.90/share.

***The game is to profit by submitting prior art that has not yet been discovered by the market**

- **Information Aggregation:** PM rewards Researchers directly for revealing prior art to public
- **Coordination Costs:** Reduces costs of public participation in patent examination by aligning incentives of stakeholders behind a token
- **Forecast Evaluates the Art:** Price per share is the group consensus of validity in light of the submitted art

Token Incentivized Network

- Researchers earn IP Gold for submitting prior art and making accurate predictions
- Non-monetary cryptotoken required to access features of the platform
- All markets are denominated in IP Gold
- Aligns incentives of stakeholders



Airdrop to Research Network

Distributing IP Gold to:

- 100,000+ Ethereum wallets
- Every IP law professor in US
- Law students
- Subject matter experts
- Pilot participants



Pilot Program



- **Curate and manage 5-10 Prediction Markets**
- **Guaranteed activity and liquidity**
- **100,000 IP Gold for each member of the patent group**
- **6-Month Case Study & Evaluation**



Team



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Demo

<http://ec2-34-230-7-228.compute-1.amazonaws.com:8005/>