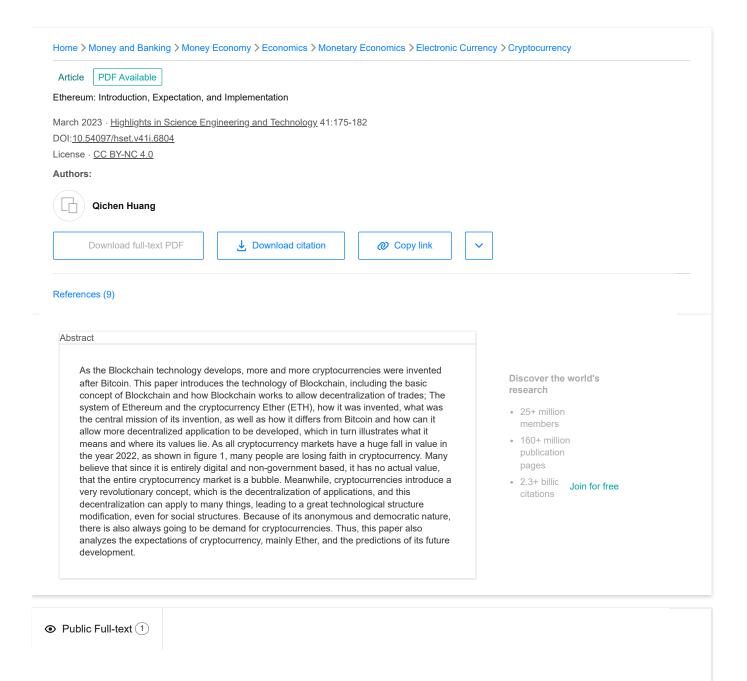
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# Ethereum: Introduction, Expectation, and Implementation

Qichen Huang

# Economics University of Washington, Seattle, WA, USA qhuanq5@uw.edu

Abstract. As the Blockchain technology develops, more and more cryptocurrencies were invented after Bitcoin. This paper introduces the technology of Blockchain, including the basic concept of Blockchain and how Blockchain works to allow decentralization of trades; The system of Ethereum and the cryptocurrency Ether (ETH), how it was invented, what was the central mission of its invention, as well as how it differs from Bitcoin and how can it allow more decentralized application to be developed, which in turn illustrates what it means and where its values lie. As all cryptocurrency markets have a huge fall in value in the year 2022, as shown in figure 1, many people are losing faith in cryptocurrency. Many believe that since it is entirely digital and non-government based, it has no actual value, that the entire cryptocurrency market is a bubble. Meanwhile, cryptocurrencies introduce a very revolutionary concept, which is the decentralization of applications, and this decentralization can apply to many things, leading to a great technological structure modification, even for social structures. Because of its anonymous and democratic nature, there is also always going to be demand for cryptocurrencies. Thus, this paper also analyzes the expectations of cryptocurrency, mainly Ether, and the predictions of its future development.

**Keywords:** Ethereum, Ether, Blockchain, cryptocurrency, decentralization.

#### 1. Introduction

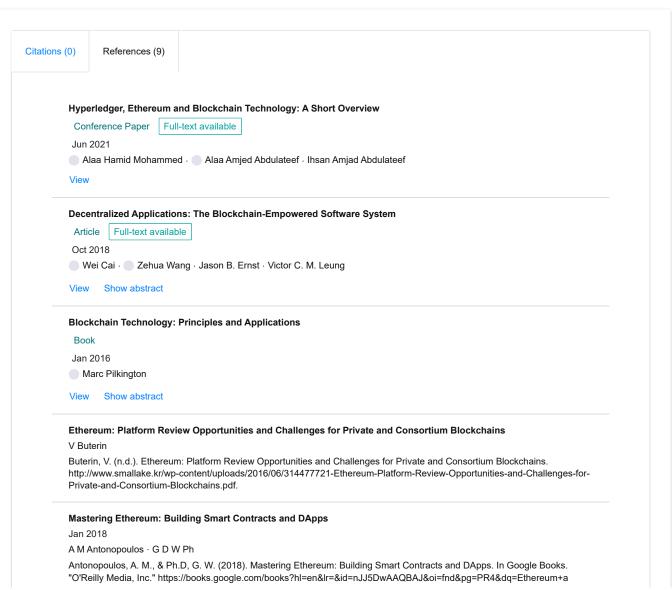
In the Ethereum website, the official definition of Ethereum is "the community-run technology powering the cryptocurrency Ether (ETH) and thousands of decentralized applications." [1] According to Ethereum: Platform Review, The Ethereum platform was conceived to create a more generalized platform in November 2013. It uses proof of work to combine the notion of public economic consensus. With the power of a stateful Turing-complete virtual machine, it allows application developers to create applications that benefit from the decentralized and secure Blockchains with convenience, without needing to create a new Blockchain for every new application [2].

As Ethereum: A Secure Decentralised Generalised Transaction Ledger EIP-150 Revision pointed out, Ethereum is a project that aims to build the generalized technology, which all transaction-based state machine concepts may be built, as well as providing to the end-developer "a tightly integrated end-to-end system for building software on a hitherto unexplored compute paradigm in the mainstream: a trustful object messaging compute framework" [3].

As figure 1 shows, the price of the cryptocurrency market rose at a surprisingly high speed, and also crashed within a very short amount of time. This led people to rethink their perception and understanding of cryptocurrencies, as well as what to expect from them in the future.

**Figure 1.** The Ethereum Price from Ref [4]

175



nd+smart+contracts&ots=uBLOalH\_uG&sig=VH-AfmGTjpwMrA-XzBxRqr5e1QE#v=onepage&q=Ethereum%20and%20smart%20contracts&f=false.

# What Is Ethereum? | Ethereum Explained | Blockchain Tutorial For Beginners | Simplilearn

Jan 2020

Simplilearn

Simplilearn. (2020). What Is Ethereum? | Ethereum Explained | Blockchain Tutorial For Beginners | Simplilearn. In YouTube. https://www.youtube.com/watch?v=04f1YsVntw8.

#### Build 5 Dapps on the Ethereum Blockchain -Beginner Tutorial

Oct 2019

Freecodecamp

FreeCodeCamp, "Build 5 Dapps on the Ethereum Blockchain -Beginner Tutorial," www.youtube.com, Oct. 07, 2019. https://www.youtube.com/watch?v=8wMKq7HvbKw&t=1024s (accessed Aug. 11, 2022).

# **Ethereum for Dummies**

Jan 2019

T Laurence

Laurence, T. (2019). Ethereum for Dummies. Wiley & Sons Canada, Limited, John.

# Merkle Patricia Trie Explained

Aug 2022

Leo Zhang

Leo Zhang. 2022. Merkle Patricia Trie Explained. Medium. Retrieved August 26, 2022 from https://medium.com/@chiqing/merkle-patricia-trie-explained-ae3ac6a7e123.

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