# Creating Dynamic Mock API Responses for UI Testing
(STS Research Paper)


# The Competitive Subculture of Cryptocurrency Mining
(STS Research Paper)



An Undergraduate Thesis Portfolio
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by


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**Preface**

*Taking into account social, environmental, technical, and economic values, how may the cost-benefit ratio of cryptocurrency be reduced?* Cryptocurrency mining is lucrative; one mined bitcoin block yields 6.25 bitcoin or $125,000 (Hamdy, n.d.). Yet bitcoin mining causes environmental harm, drives up graphics card prices and can have troubling implications for governing.

*How can cryptocurrency mining be more environmentally friendly?* Many current implementations of the cryptocurrency blockchain are built upon a proof-of-work system, which relies on hardware to do many computations depending on the difficulty set for mining a cryptocurrency block. As the number of miners increases, the difficulty also increases, which means that the hardware does more work for the same profit. Thus, this method becomes worse for the environment as it scales. To this extent, I was able to create a custom coin on a private Ethereum blockchain, which implemented a lower difficulty level for mining while also being secure. This allows for a much more environmentally friendly way of mining, while also being secure enough for smaller cryptocurrencies. It utilizes an Ethereum fountain that sends Ethereum to users. Mining is done to fill the fountain and then gets distributed to users to prevent 51% attacks.

*As a compound subculture, how do cryptocurrency miners perceive each other, compete for status within the subculture, and respond to outsiders?* In 2021, the cost of Ethereum and Bitcoin reached their all-time highs. Miners erected "rigs" of graphics cards. Some developed mining farms of hundreds of graphics cards, exacerbating a shortage and antagonizing gamers.