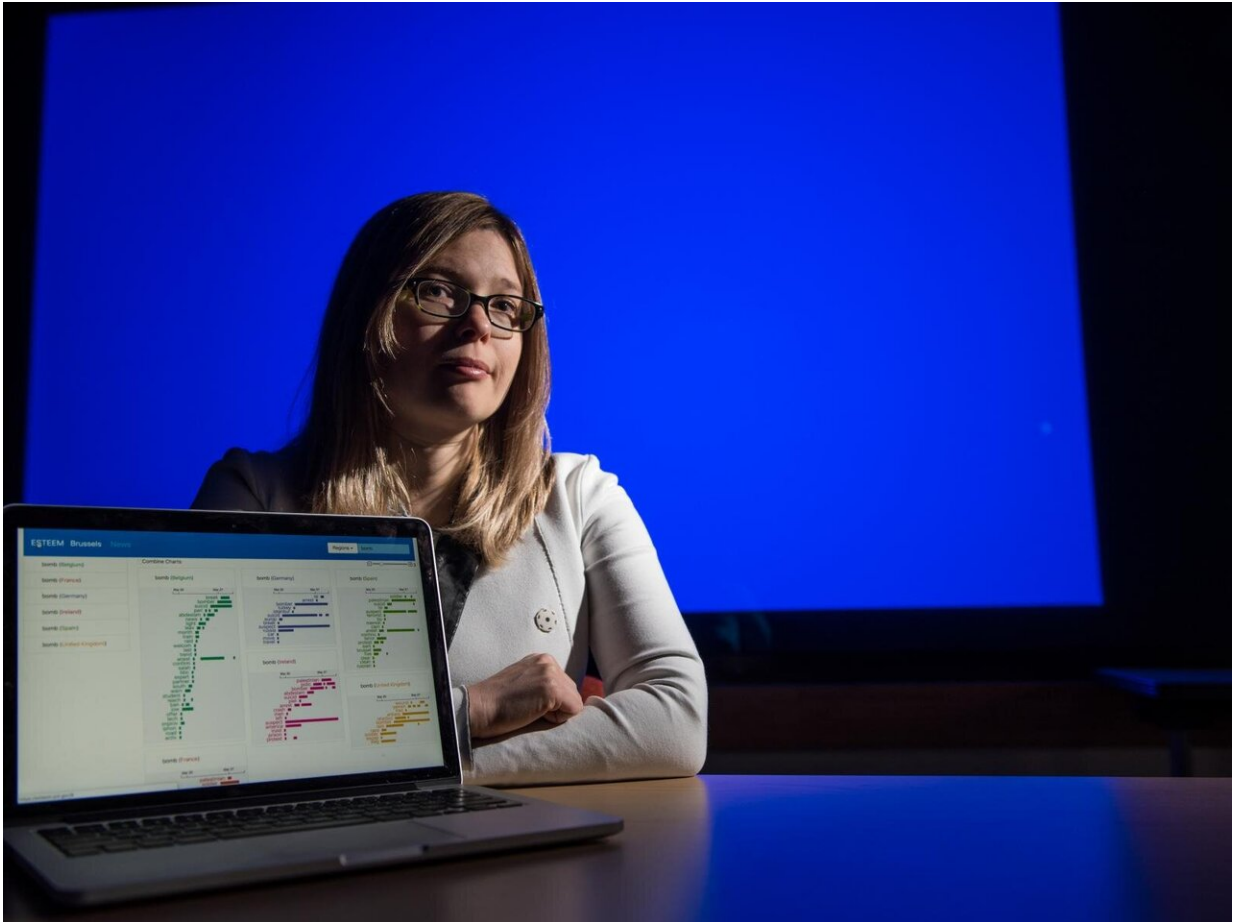


# How cryptocurrency discussions spread

June 10 2019, by Nick Hennen

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PNNL data scientist, Dr. Svitlana Volkova and her the team analyzed three years of worth of crypto discussions on Reddit from January 2015 to January 2018.  
Credit: Andrea Starr, PNNL Photographer

A rapidly increasing percentage of the world's population is connected to

the global information environment. At the same time, the information environment is enabling social interactions that are radically changing how and at what rate information spreads. As part of an effort to understand communication patterns and build a quantitative framework for how this information expands online, researchers at Pacific Northwest National Laboratory, a United States Department of Energy national laboratory, recently examined cryptocurrency discussion threads on Reddit. Their findings, presented at the Web Conference 2019, not only shed light on how cryptocurrency discussions spread but could inform artificial intelligence applications for modeling information spread across internet social environments to help identify and model criminal activities by state and non-state actors exploiting cryptocurrencies.

Every day, thousands of messages on Reddit [and elsewhere] contain discussions of cryptocurrencies. Some of these trigger follow-up discussions. Some lead to increased interest in a cryptocurrency—not just a discussion of that cryptocurrency, but its actual price/value. Clearly, not all cryptocurrencies are equivalent—and analyzing a set of them can reveal how bad actors might exploit those differences.

Led by PNNL data scientist, Dr. Svitlana Volkova, the team analyzed three years of discussions on Reddit from January 2015 to January 2018. The team measured the speed and scale of discussion spread related to Bitcoin, Ethereum, and Monero cryptocurrencies. Findings include:

- On average, there are 3,600 comments posted each day for Bitcoin; 500 for Ethereum; and 380 for Monero.
- Not every post triggered a discussion. The rate of ineffective posts—posts that do not receive any additional commentary—is up to 5x higher with Bitcoin and Ethereum than Monero.
- People respond quicker to Bitcoin posts. For example, it takes on average 11 minutes for someone within the Bitcoin subreddit to

comment; 20 minutes for Monero; and 27 minutes for Ethereum.

- Bitcoin discussions grow the fastest, followed by Ethereum and then Monero.
- Discussions around Monero have largest median lifetimes. Ethereum discussions have the largest possible lifetimes, and, Bitcoin discussions have the lowest median lifetime of the three coins.

"Cryptocurrencies are quite unique observable units of information in the way discussions about them spread across social platforms," said Volkova. "These [social signals](#) are quite useful, and by incorporating them with machine and [deep learning](#), we intend to build [predictive models](#) that hit on causal relationships between different variables so we can explain model decision-making processes."

The findings gathered by Volkova and her colleagues, PNNL researchers Maria Glenski and Emily Saldanha, provide valuable insights into how information expands and evolves in social platforms. Likewise, by focusing on a specific social phenomenon, the team hopes to compare the spread of cryptocurrency discussions with other viral trends, such as the spread of computer vulnerabilities and misinformation.

**More information:** Maria Glenski et al, Characterizing Speed and Scale of Cryptocurrency Discussion Spread on Reddit, *The World Wide Web Conference on - WWW '19* (2019). [DOI: 10.1145/3308558.3313702](#)

Provided by Pacific Northwest National Laboratory

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