QUICKSCAN - CANVAS

Quantum Noise Explorer

NAME: Quantum Noise Explorer
DATE: May 15, 2026 8:16 PM

DESCRIPTION OF TECHNOLOGY
The Quantum Noise Explorer (QNEX) is a tool designed to help users understand and visualize the impact of quantum noise on quantum computing. It provides intuitive visualizations and insights into various noise types, enabling users to explore and manage noise effects in quantum circuits for more accurate and reliable quantum computations.

HUMAN VALUES

The Quantum Noise Explorer shapes users' identities by encouraging collaboration and enhancing understanding of quantum computing. It promotes innovative, data-driven approaches while empowering users to engage deeply with complex systems. However, its complexity could lead to stigma or ethical concerns if misused. Overall, it aligns with users who value precision, responsible usage, and cutting-edge technology.

TRANSPARENCY

Yes, the Quantum Noise Explorer provides clear explanations of how the technology functions by detailing noise modelling processes and the purpose of its visualizations. It focuses on helping users understand quantum noise and its effects on quantum algorithms. Furthermore, the business model is transparent, emphasizing the use of the tool for educational and analytical purposes.

IMPACT ON SOCIETY

Quantum computing has the potential to solve complex problems beyond classical capabilities, but it faces a significant challenge: noise. Noise, caused by the sensitivity of quantum states to environmental factors and hardware imperfections, impacts the accuracy and reliability of quantum algorithms. Addressing quantum noise contributes to the world by unlocking breakthroughs in fields such as drug discovery, secure communications, and AI.

STAKEHOLDERS

- Researchers and Scientists
- Commercial Companies
- Educational Institutions

SUSTAINABILITY

The Quantum Noise Explorer has minimal direct energy use, but quantum computing overall consumes significant energy, primarily due to cooling systems needed to maintain low temperatures for quantum processors. Advancements like efficient cooling methods and low-power components help minimize energy use. Additionally, integrating renewable energy sources contributes to a more sustainable approach.

HATEFUL AND CRIMINAL ACTORS

The Quantum Noise Explorer itself cannot directly be used to break the law. However, quantum computing could be misused to bypass legal boundaries, such as compromising encryption, tampering with evidence, or exploiting financial vulnerabilities. Safeguarding the technology is essential to prevent misuse and ensure its responsible use.

DATA

Yes, the Quantum Noise Explorer takes into account the fundamental shortcomings and pitfalls of data by focusing on visualizations and transparency. While it does not collect personal or sensitive data directly, it ensures that the results are presented clearly and without bias, helping users understand the impact of quantum noise on quantum algorithms without relying on incomplete or biased data.

FUTURE

The Quantum Noise Explorer aids in improving quantum computing by providing detailed insights into quantum noise. This empowers researchers and developers to better understand and manage noise, leading to more reliable and accurate quantum systems. Additionally, the tool plays a vital role in education, fostering deeper knowledge and contributing to advancements in areas such as drug discovery, optimization, climate modeling, and secure communications.

PRIVACY

The Quantum Noise Explorer does not collect personal data directly. However, quantum computers have the potential to analyse vast datasets at much faster speeds than classical systems, potentially reconstructing or inferring sensitive information such as health data or behaviour patterns from seemingly anonymized or aggregated sources. This presents privacy concerns, especially under regulations like GDPR or CCPA, where personal data is broadly defined to include any information that can identify or relate to an individual.

INCLUSIVITY

No, the Quantum Noise Explorer does not have a built-in bias. It focuses on providing objective visualizations of quantum noise, enabling users to analyse and understand the impact of noise on quantum algorithms without influencing the results through subjective assumptions or preferences.

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QUICKSCAN - CANVAS - HELPSIDE

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HUMAN VALUES

How is the identity of the (intended) users affected by the technology?

To help you answer this question think about sub questions like:

- If two friends use your product, how could it enhance or detract from their relationship?
- Does your product create new ways for people to interact?…

TRANSPARENCY

Is it explained to the users/stakeholders how the technology works and how the business model works?

- Is it easy for users to find out how the technology works?
- Can a user understand or find out why your technology behaves in a certain way?
- Are the goals explained?
- Is the idea of the technology explained?
- Is the technology company transparent about the way their…

IMPACT ON SOCIETY

What is exactly the problem? Is it really a problem? Are you sure?

Can you exactly define what the challenge is? What problem (what 'pain') does this technology want to solve? Can you make a clear definition of the problem? What 'pain' does this technology want to ease? Whose pain? Is it really a problem? For who? Will solving the problem make the world better? Are you sure? The problem definition will help you to determine…

STAKEHOLDERS

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by…

When thinking about the stakeholders, the most obvious one are of course the intended users, so start there. Next, list the stakeholders that are directly affected. Listing the users and directly affected stakeholders also gives an impression of the intended context of the technology.
…

SUSTAINABILITY

In what way is the direct and indirect energy use of this technology taken into account?

One of the most prominent impacts on sustainability is energy efficiency. Consider what service you want this technology to provide and how this could be achieved with a minimal use of energy. Are improvements possible?

HATEFUL AND CRIMINAL ACTORS

In which way can the technology be used to break the law or avoid the consequences of breaking the law?

Can you imagine ways that the technology can or will be used to break the law? Think about invading someone's privacy. Spying. Hurting people. Harassment. Steal things. Fraud/ identity theft and so on. Or will people use the technology to avoid facing the consequences of breaking the law (using trackers to evade speed radars or using bitcoins to launder…

DATA

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into…

There are fundamental issues with data. For example:

- Data is always subjective;
- Data collections are never complete;
- Correlation and causation are tricky concepts;
- Data collections are often biased;…

FUTURE

What could possibly happen with this technology in the future?

Discuss this quickly and note your first thoughts here. Think about what happens when 100 million people use your product. How could communities, habits and norms change?

PRIVACY

Does the technology register personal data? If yes, what personal data?

If this technology registers personal data you have to be aware of privacy legislation and the concept of privacy. Think hard about this question. Remember: personal data can be interpreted in a broad way. Maybe this technology does not collect personal data, but can be used to assemble personal data. If the technology collects special personal data (like…

INCLUSIVITY

Does this technology have a built-in bias?

Do a brainstorm. Can you find a built-in bias in this technology? Maybe because of the way the data was collected, either by personal bias, historical bias, political bias or a lack of diversity in the people responsible for the design of the technology? How do you know this is not the case? Be critical. Be aware of your own biases.…

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