

**Nichole Christie**

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<https://github.com/mermaidnicheboutique-code/luxbin-chain>

Hiring Manager

Google Quantum AI

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Dear Hiring Manager,

I am writing to express my strong interest in joining Google's quantum computing team. As an independent researcher who has built production-ready quantum-classical hybrid systems using your Cirq framework, I am excited about the opportunity to contribute to Google's mission of making quantum computing accessible and practical.

Over the past year, I designed and developed LUXBIN, a quantum-classical hybrid cryptographic system that combines quantum simulation, blockchain consensus, and post-quantum cryptography. This project wasn't just theoretical—I achieved measurable results: **10.2x GPU acceleration**, consensus scaling to **50,000+ validators**, and **512-bit security** through multi-factor key generation. Most importantly, I chose Google's Cirq framework as the foundation for quantum circuit simulation, mapping cryptographic hash functions to quantum gate operations and validating compatibility with NISQ devices.

What excites me most about this project is that it represents the future Google is building: practical quantum applications that solve real-world problems. I didn't wait for permission or resources—I used Google Colab's GPU infrastructure, taught myself Cirq from documentation, and published reproducible research with complete open-source implementation. The result is a working system that bridges quantum computing, cryptography, and distributed systems.

My technical approach mirrors Google's philosophy: I prioritize experimental validation over theory, optimize for performance (achieving 10x speedups), and build systems that scale (50,000+ validators with linear performance). I write clean Python code, embrace cloud infrastructure, and believe in open science—all my research is publicly available on GitHub with interactive Jupyter notebooks.

Beyond LUXBIN, I bring diverse skills that align with Google's quantum initiatives:

- Deep understanding of quantum algorithms and circuit optimization
- Experience with GPU acceleration and high-performance computing
- Strong foundation in cryptography and security systems
- Ability to translate complex research into production-ready code
- Self-directed learning and rapid iteration on novel problems

I'm particularly drawn to Google because of your commitment to open-source quantum tools (Cirq, TensorFlow Quantum) and your focus on practical applications. Your team's work on quantum error correction, variational algorithms, and quantum networking directly aligns with my research interests. I would be thrilled to contribute to projects like quantum simulation, cryptographic applications, or quantum-classical hybrid algorithms.

What makes me different is my ability to work independently while achieving results typically requiring large research teams. I identify problems, design solutions, implement working systems,

and validate with rigorous experiments—all while maintaining high code quality and documentation standards. This entrepreneurial mindset, combined with deep technical skills, would allow me to contribute immediately to Google’s quantum research.

I would welcome the opportunity to discuss how my experience with Cirq, quantum-classical systems, and high-performance computing could contribute to Google’s quantum initiatives. I am passionate about pushing the boundaries of what’s possible with quantum technology, and I believe Google is the ideal place to do that work at scale.

Thank you for considering my application. I look forward to the possibility of contributing to Google’s quantum future.

Sincerely,

Nichole Christie

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**Portfolio & Research:**

- LUXBIN Research Paper: <https://mermaidnicheboutique-code.github.io/luxbin-chain>
- GitHub Repository: <https://github.com/mermaidnicheboutique-code/luxbin-chain>
- Cirq Integration Notebook: `cirq-luxbin-integration.ipynb`
- Live Demonstrations: Interactive Colab notebooks with reproducible results