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United States Citizenship and Immigration Services

Re: Mr. Aditya Locharla

Dear Sir or Madam:

This letter is in support of Mr. Aditya Locharla's immigrant visa petition based on my professional and expert opinion. Please allow me to start by briefly introducing myself. My name is Dr. Josh Mutus, Director of Quantum Materials at Rigetti Computing in Kelowna, British Columbia, Canada. My journey includes my work as a Postdoctoral Fellow at UC Santa Barbara, collaborating with Professor John Martinas in the dynamic field of quantum computing. I successfully completed my doctoral studies at the University of Alberta in Canada, earning a Ph.D. degree. With over 15 years of experience in the quantum computing domain, my contributions have led to publications with over 20,000 citations. Presently, I hold a prominent position as an industry leader within the realm of quantum computing. Given my extensive background, I am well qualified to recommend Mr. Aditya Locharla in Quantum bits (qubits) to perform complex calculations at speeds exponentially faster than classical computers. It has the potential to transform industries by solving complex problems, such as cryptography and optimization, that were previously beyond the reach of classical computing.

One of Mr. Locharla's remarkable achievements is his involvement as a key member of a research team that has published several influential papers in the field of quantum computing. These papers have collectively amassed over 800 citations, indicating the impact and importance of his research contributions.

I have not had the opportunity to work with Mr. Locharla, but I am aware of Mr.Locharla's influential work and recognize his superior research contributions to the field of Quantum computing. His involvement in Quantum error correction becomes evident in his published work titled "LILLIPUT: A Lightweight Low-Latency Lookup-Table Based Decoder for Near-term Quantum Error Correction." The presented paper, published in the *Proceedings of the ACM International Conference on Architectural Support for Programming Languages and Operating Systems*, introduces an approach for achieving real-time decoding and implementing quantum error-corrected algorithms. This offers an alternative to software decoders, which tend to be slower when compared to hardware decoders. Beyond these impactful citations, Mr.Locharla's research also has the potential to harness the methodology outlined in this paper to develop error-corrected quantum systems.

Mr. Locharla's contributions extend to notable publications, including 'Suppressing Quantum Errors by Scaling a Surface Code Logical Qubit,' featured in Nature, and has received more than 137 citations to date. Further demonstrating the impact of Mr. Locharla's work to the international Quantum community, researchers from "Department of Physics and Astronomy, University College London, UK", "AWS Center for Quantum Computing, Cambridge CB1 2GA, United Kingdom", and "Goldman, Sachs & Co., New York, USA" relied on his research in addressing some of the research challenges faced in the field of error corrected quantum computers. In their work, they used the same technique of reducing quantum errors through the expansion of a surface code logical qubit, but they introduced a different algorithm that demonstrated enhancements in the performance. Their work, "Improved Decoding of Circuit Noise and Fragile Boundaries of Tailored Surface Codes" was published in American Physical society. Beyond these impactful citations, Mr. Locharla's research also has the potential to drive advancements in areas like drug discovery, materials science, and cryptography, ultimately benefiting American society through improved healthcare, technological innovation, and national security.

The impact of Mr. Locharla's work goes beyond academic realms, possessing the potential to completely transform the landscape of the quantum computing industry. A case in point is the intricate electronics integral to Quantum computers, tackling some of the world's most challenging problems. Meticulous and well-timed architectural design plays a pivotal role, and his proficiency in the realm of "Field Programmable Gate Array (FPGA)" and "Application-Specific Integrated Circuit (ASIC)" technologies, coupled with their application in conceptualizing a Quantum computer that is both globally accessible and scalable, stands as of utmost significance in the pursuit of a feasible quantum computing resolution.

Based on the challenges Mr. Locharla has addressed his impact on the industry and academia, and his notable research publications, I highly recommend him as an exceptional candidate for the National Interest Waiver (NIW). His continued contributions to the field of quantum computing are essential for the advancement of this groundbreaking technology, and granting him the NIW will undoubtedly facilitate his continued success and impact.

If you require any further information or have any specific questions regarding Mr. Aditya Locharla's research and qualifications, please do not hesitate to reach out to me. I wholeheartedly support his NIW application and believe that he possesses the expertise and dedication necessary to make significant contributions to the United States in the field of quantum computing.

Sincerely,

Dr. John Mutus Job Title Entity/University Address Phone Number Emails

