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Dear Loyal,

I am excited to collaborate for the *Chan Zuckerberg Initiative Seed Networks for the Human Cell Atlas* proposal. My group seeks to use methods that produce low-dimensional representations of the Human Cell Atlas (HCA) to enhance the performance and biological relevance of efforts to search and catalog the HCA. The goal for our portion of this team is to develop methods that make search practical, even for streaming data. Using low-dimensional representations helps to reduce the memory and compute requirements of such systems, and focusing on learning shared latent spaces between raw and quantified representations of the data allows the results of queries using raw data to be analyzed in context with quantified data (such as reference HCA datasets and cell types). I am committed to working with the team to implement and evaluate these methods, which are described in Aim 1 of our proposal.

Of course, methods without users are lonely methods indeed, so I am excited to build and deliver a curriculum designed to enhance researcher productivity and undergraduate familiarity with the HCA. Over the past few years, I have taught a course at Penn that covers computational biology for the non-computational biologist. It supports approximately 60 PhD students from our biomedical graduate studies program each year. I have also participated as an instructor in an Applied Bioinformatics course led by Tom Hampton (another PI on our proposal), for which I cover machine learning. For this proposal we aim to build a scalable curriculum for low-dimensional representations and the HCA and to deliver this short course twice annually. We also plan to produce a curriculum suitable for implementation in an undergraduate class that covers the HCA. We will release this under an open license. Instructors who cover genomics in their undergraduate classes can use this to explain single cell methods and how the HCA aims to catalog human cell types. Exercises will cover practical uses of the HCA, including our approaches for search and our cell type catalog. I am committed to carrying out this work, which is described in Aim 3 of our proposal.

In summary, I am enthusiastic about developing practical methods and training efforts that enhance the HCA. I look forward to working with you to carry out the aims of our proposal.

Sincerely,

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