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(54) **Title:** COMPRESSED STATE-BASED BASE CALLING

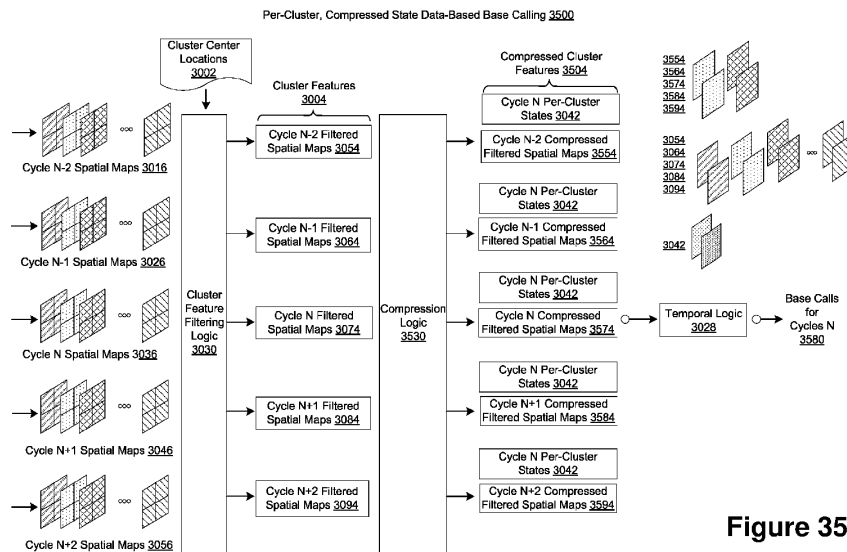


Figure 35

(57) **Abstract:** The technology discloses comprises a system. The system comprises a spatial convolutional neural network configured to process sequencing images of clusters, and produce spatially convolved features, a filtering logic configured to select, from the spatially convolved features, a subset of spatially convolved features that contain centers of the clusters, a compression logic configured to compress the subset of spatially convolved features into a set of compressed features, a contextualization logic configured to access state information for compressed features in the set of compressed features, a temporal convolutional neural network configured to process the set of stateful compressed features, and produce temporally convolved stateful features, and a base calling logic configured to generate base calls for the clusters based on the temporally convolved stateful features.

[Continued on next page]

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