WHAT IS CLAIMED IS:

1. A computerized-system for analyzing electrocardiogram (ECG) data of a patient, the ECG data generated by one or more electrodes across a plurality of time points and comprising a plurality of beats, the computerized-system configured to:

analyze the ECG data using a delineation algorithm to generate wave information corresponding to a likelihood of a presence of at least one wave at the plurality of time points;

determine beat onset information and beat offset information for beats of the plurality of beats where at least one wave is determined to be present to generate a plurality of beat onsets and beat offsets;

extract a plurality of beat portions of ECG data based on the plurality of beat onsets and beat offsets, each beat portion of the plurality of beat portions of ECG data corresponding to a beat of the plurality of beats; ~~and~~

determine that at least two beats of the plurality of beats should be grouped together based on the plurality of beat portions of ECG data, the at least two beats forming a cluster~~.~~;

~~2. The computerized-system of claim 1, wherein the computerized-system is further configured to:~~

analyze the plurality of portions of ECG data using an embedding algorithm to generate embedding data representative of the plurality of beats; and

analyze the embedding data using a grouping algorithm to generate group data, wherein the at least two beats of the plurality of beats are determined to be grouped together based on the group data.

~~3.~~2. The computerized-system of claim ~~2~~1, wherein group data corresponds to a distance between two beats.

~~4.~~3. The computerized-system of claim ~~2~~1, wherein the delineation algorithm utilizes a first neural network and the embedding algorithm utilizes a second neural network.

~~5.~~4. The computerized-system of claim ~~4~~3, wherein the grouping algorithm utilizes a third neural network.

~~6.~~5. The computerized-system of claim ~~2~~1, wherein the computerized-system is further configured to receive user input data from an input device regarding an inaccuracy corresponding to the ECG data, and~~.~~

~~7. The computerized-system of claim 6,~~ wherein the computerized-system is further configured to adjust one or more of the delineation algorithm, embedding algorithm, or grouping algorithm based on the user input data.

~~8.~~6. The computerized-system of claim ~~7~~5, wherein the computerized-system is further configured to modify displayed data based on the user input data, and~~.~~

~~9. The computerized-system of claim 8,~~ wherein the user input data corresponds to adding, deleting, or splitting one or more QRS clusters, PVC clusters, or PAC clusters.

~~10.~~7. The computerized-system of claim ~~7~~5, wherein the embedding data comprises a vector of data for each beat of the plurality of beats.

~~11.~~8. The computerized-system of claim ~~2~~1, wherein determining that at least two beats of the plurality of beats should be grouped together further comprises determining that the group data satisfies a threshold value.

~~12.~~9. The computerized-system of claim 1, wherein the computerized-system is further configured to transmit information indicative of the cluster to a computer for display on a graphic user interface, and~~.~~

~~13. The computerized-system of claim 1,~~ wherein the computerized-system is further configured to generate information to display at least one overlay comprising at least two beats of the plurality of beats overlaid over one another.

~~14.~~10. The computerized-system of claim 1, wherein the computerized-system is further configured to analyze the beats in the cluster using a classification algorithm to determine a likelihood of a presence of the one or more abnormalities, conditions, or descriptors associated with cardiac events for the patient.

~~15.~~11. The computerized-system of claim 1, wherein the computerized-system is further configured to analyze the wave information from the delineation algorithm using a classification algorithm to determine a likelihood of a presence of the one or more abnormalities, conditions, or descriptors associated with cardiac events for the patient.

~~16.~~12. The computerized-system of claim ~~15~~11, wherein the wave information is inputted into the classification algorithm and separately used to determine that at least two beats of the plurality of beats should be grouped together.

~~17.~~13. The computerized-system of claim 1, wherein the computerized-system is further configured to, prior to analyzing the ECG data using the delineation algorithm, pre-process the ECG data to remove noise from the ECG data.

~~18.~~14. The computerized system of claim 1, wherein the computerized-system is further configured to assign the ECG data and information based on the ECG data to a user account for review, and~~.~~

~~19. The computerized system of claim 18,~~ wherein the computerized-system is further configured to receive user input data regarding the ECG data and information based on the ECG data from the user account based on the review.

~~20.~~15. A method for analyzing electrocardiogram (ECG) data of a patient, the ECG data generated by one or more electrodes across a plurality of time points and

comprising a plurality of beats, the method comprising:

analyzing the ECG data using a delineation algorithm to generate wave information corresponding to a likelihood of a presence of at least one wave at the plurality of time points;

determining beat onset information and beat offset information for beats of the plurality of beats where at least one wave is determined to be present to generate a plurality of beat onsets and beat offsets;

extracting a plurality of beat portions of ECG data based on the plurality of beat onsets and beat offsets, each beat portion of the plurality of beat portions of ECG data corresponding to a beat of the plurality of beats; ~~and~~

determining that at least two beats of the plurality of beats should be grouped together based on the plurality of beat portions of ECG data, the at least two beats forming a cluster~~.~~;

~~21. The method of claim 20, further comprising:~~

analyzing the plurality of portions of ECG data using an embedding algorithm to generate embedding data representative of the plurality of beats; and

analyzing the embedding data using a grouping algorithm to generate group data, wherein the at least two beats of the plurality of beats are determined to be grouped together based on the group data.

~~22. The method of claim 20, further comprising assigning the ECG data and information based on the ECG data to a user account for review of the ECG data.~~

~~23. The method of claim 20, further comprising submitting the ECG data and information based on the ECG data for quality review by one or more reviewers.~~

~~24. The method of claim 23, further comprising receiving quality control input generated by the one or more reviewers.~~

~~25. The method of claim 24, further comprising causing display of the quality control input for additional quality control review.~~

~~26. The method of claim 20, further comprising receiving user input data from an input device regarding an inaccuracy corresponding to the ECG data.~~

~~27. The method of claim 20, further comprising adjusting one or more of the delineation algorithm, embedding algorithm, or grouping algorithm based on the user input data.~~

~~28. A system for analyzing electrocardiogram (ECG) data of a patient, the system comprising:~~

~~a first plurality of instructions configured to, when executed, obtain ECG data of the patient over a plurality of time points, the ECG data sampled at a rate of at least 20 samples per second, the first plurality of instructions further configured to, when executed, cause transmission of the ECG data to at least one server;~~

~~a second plurality of instructions configured to, when executed, cause the at least one server to:~~

~~receive the ECG data of the patient,~~

~~analyze the ECG data of the patient using at least one algorithm trained from a plurality of ECG data sets from different patients;~~

~~quantify a likelihood of a presence of one or more abnormalities, conditions, or descriptors, or any combination thereof, based on the analysis of the ECG data; and~~

~~transmit information corresponding to the presence of the one or more abnormalities, conditions, or descriptors, or any combination thereof, to a computer from the at least one server for display; and~~

~~a third plurality of instructions configured to, when executed by the computer, cause the computer to display information corresponding the presence of the one or more abnormalities, conditions, or descriptors, or any combination thereof, based on the transmitted information from the at least one server.~~

~~29. The system of claim 28, wherein the second plurality of instructions is further configured to, when executed, cause the at least one server to pre-process the ECG data~~

~~which involves at one of removing noise from the ECG data or expressing the ECG data at a predetermined baseline frequency.~~

~~30. The system of claim 28, wherein the second plurality of instructions is configured to, when executed, analyze the ECG data of the patient using at least one algorithm that applies the ECG data to a first neural network for delineation.~~

~~31. The system of claim 30, wherein analyzing the ECG data of the patient using at least one algorithm that applies the ECG data to a first neural network generates wave information.~~

~~32. The system of claim 31, wherein the second plurality of instructions is further configured to, when executed, analyze the wave information using one or more clustering algorithms to identify one or more clusters corresponding to the wave information.~~

~~33. The system of claim 32, wherein the one or more clusters includes one or more of premature ventricular complex (PVC) clusters or premature atrial complex (PAC) clusters.~~

~~34. The system of claim 30, wherein the second plurality of instructions, when executed, quantifies a likelihood of a presence of at least one of a P-wave, **QRS** complex, or T-wave at each of the plurality of time points.~~

~~35. The system of claim 34, wherein the second plurality of instructions is further configured to, when executed, calculate at least one onset and at least one offset for at least one of the P-wave, QRS-complex, or T-wave.~~

~~36. The system of claim 35, wherein the second plurality of instructions is further configured to, when executed, calculate at least one measurement from one or more of the onset, the offset, or the output of the first neural network.~~

~~37. The system of claim 28, wherein the second plurality of instructions is configured to, when executed, analyze the ECG data of the patient using at least one algorithm that applies the ECG data to a second neural network for classification.~~

~~38. The system of claim 37, wherein the second plurality of instructions, when executed, quantifies a likelihood of a presence of the one or more abnormalities, conditions, or descriptors.~~

~~39. The system of claim 38, wherein the second plurality of instructions is further configured to, when executed, apply a threshold to at least one value in the output of the second neural network and assign at least one label corresponding to the one or more abnormalities, conditions, or descriptors if the value exceeds a threshold.~~

~~40. The system of claim 39, wherein the second plurality of instructions is further configured to, when executed, post-process the ECG data by removing redundant labels.~~

~~41. The system of claim 40, wherein the computer that executes the third plurality of instructions is configured to execute the first plurality of instructions.~~

~~42. The system of claim 38, further comprising a fourth plurality of instructions configured to, when executed, cause the at least one server to generate a report including at least the transmitted information corresponding to the presence of the one or more abnormalities, conditions, or descriptors.~~

~~43. The system of claim 42, further comprising a fifth plurality of instructions configured to, when executed, receive user input related to the ECG data and cause the computer to transmit the user input to the at least one server such that the at least one server uses the user input to generate the report.~~

~~44. The system of claim 42, wherein the report includes at least one heart rate density plot representing density of heart rates of the patient as a fonction of time.~~

~~45. The system of claim 38, wherein the third plurality of instructions is further configured to, when executed by the computer, cause the computer to display a heart rate density plot representing density of heart rates of the patient as a fonction of time.~~

~~46. The system of claim 38, wherein each set of the plurality of ECG data sets from the different patients was generated at a sampling rate equal to the rate used to obtain the ECG data.~~

~~47. The system of claim 38, wherein the second plurality of instructions is further configured to generate a plurality of wave information corresponding to a plurality of beats in the ECG data.~~

~~48. The system of claim 47, wherein the second plurality of instructions is further configured to cause the at least one server to analyze the plurality of wave information using an embedding algorithm to generate a plurality of embedding data corresponding to a comparison of two or more beats of the plurality of beats.~~

~~49. The system of claim 48, wherein each wave information of the plurality of be wave information is a vector.~~

~~50. The system of claim 48, wherein each embedding data of the plurality of embedding data is a vector.~~

~~51. The system of claim 48, wherein the embedding algorithm is trained from a plurality of ECG data sets.~~

~~52. The system of claim 48, wherein the second plurality of instructions further causes the plurality of embedding data to be analyzed by a grouping algorithm to generate group data, the group data matching at least two beats of the plurality of beats.~~

~~53. The system of claim 52, wherein the second plurality of instructions is~~

~~further configured to generate a graphic user interface based on the group data.~~

~~54. The system of claim 53, wherein the second plurality of instructions further causes the at least one server to transmit the graphic user interface to the computer.~~

~~55. The system of claim 53, wherein the graphic user interface comprises at least one beat overlay comprising at least two of the plurality of beats in the ECG data overlaid over one another.~~

~~56. A system for analyzing electrocardiogram (ECG) data of a patient, the system comprising instructions stored on at least one server, the instructions configured to, when executed, cause the at least one server to:~~

~~receive a set of ECG data of the patient over a plurality of time points, the set of ECG data sampled at a rate of at least 20 samples per second;~~

~~analyze the set of ECG data of the patient using at least one algorithm trained using a plurality of sets of ECG data generated at a sampling rate of at least 20 samples per second from different patients;~~

~~quantify, at each time point of the plurality of time points, a likelihood of a presence of one or more abnormalities, conditions, or descriptors, or any combination thereof, based on the analysis of the set of ECG data; and~~

~~transmit information corresponding to the likelihood of the presence of the one or more abnormalities, conditions, or descriptors, or any combination thereof, to a computer for display.~~

~~57. A computerized method for analyzing electrocardiogram (ECG) data of a patient, the method comprising:~~

~~receiving a set of ECG data of the patient over a plurality of time points, the set of ECG data sampled at a sample rate;~~

~~analyzing the set of ECG data of the patient using at least one algorithm trained using a plurality of sets of ECG data, each set in the plurality of sets of ECG data generated at the sample rate from different patients;~~

~~identifying, at each time point, one or more abnormalities, conditions or descriptors, or any combination thereof, based on the analysis of the set of ECG data; and~~

~~transmitting information comprising the one or more abnormalities, conditions, or descriptors, or any combination thereof, to a computer for display.~~

~~58. The computerized method of claim 57, wherein analyzing the set of ECG data of the patient comprises analyzing an entire set of sampled ECG data without discarding data from the set of ECG data.~~

~~59. The computerized method of claim 57, wherein the sample rate is at least 20 samples per second.~~

~~60. The computerized method of claim 57, further comprising assigning the set of ECG data and information based on the set of ECG data to a user account for review of the ECG data.~~

~~61. The computerized method of claim 57, further comprising submitting the set of ECG data and information based on the set of ECG data for quality review by one or more rev1ewers.~~

~~62. The computerized method of claim 61, further comprising receiving quality control input generated by the one or more reviewers.~~

~~63. The computerized method of claim 62, further comprising causing display of the quality control input for additional quality control review.~~