Claims:

1. A networked computer system comprising M client computers each assigned to a different one of N classes, for use in developing one or more genes each characterized by one or more conditions each dependent upon one or more indicators, each class being associated with only a subset of the indicators, a first one of the M client computers comprising:

a memory operative to store a plurality of the genes which depend upon the subset of indicators associated with the class to which the first client computer is assigned;

a communication port through which the first client computer recurrently receives a first set of data associated with the plurality of genes; and

a processor operative to evaluate performance characteristic of each of the plurality of genes by comparing a solution provided by each gene with the recurrently received first set of data associated with that gene, the performance characteristic of each gene defining a fitness of that gene and being adjusted with every recurrently received data.

2. The networked computer system of claim 1 wherein at least two of the subsets of plurality of indicators comprise overlapping indicators.

3. The networked computer system of claim 1 wherein the first set of data associated with each gene comprises historical trading data covering a first plurality of trading days and wherein the solution provided by each gene comprises a trading recommendation made by the gene.

4. The networked computer system of claim 3 wherein each client computer is configured to discard one or more of the genes it receives after evaluating the fitness of the genes for the first plurality of trading days, each of the discarded genes having a fitness that falls below a first predefined threshold value, each of the remaining genes being a surviving gene.

5. The networked computer system of claim 4 wherein said first client computer is configured to:

evaluate the fitness of its surviving genes using a second set of historical data covering a second plurality trading days;

discard the genes whose fitness as evaluated during a sum of the first and second plurality of trading days is below a second predefined threshold value;

repeat the evaluation and the discard operations S times where S is an integer equal to or greater than one, wherein genes surviving S evaluation and discard operations define a first elitist gene pool; and

transmit one or more of the genes of the first elitist pool to a server computer.

6. The networked computer system of claim 5 wherein the first and second predefined threshold values are equal.

7. The networked computer system of claim 5 wherein said server computer is adapted to:

receive the one or more genes of the elitist gene pool of the client computers;

store the received one or more genes in a server gene pool; and

transmit, for fitness evaluation using a third set of historical trading data covering a third plurality of trading days, only to a first subset of the plurality of client computers of class j, one or more genes previously evaluated by and received from the client computers of class j, wherein j is an integer varying from 1 to N.

8. The networked computer system of claim 4 wherein said server computer is adapted to:

receive one or more genes from the client computers in class k;

store the received class k genes in a server gene pool; and

transmit, for fitness evaluation using a third set of historical trading data covering a third plurality of trading days, to at least a first subset of the plurality of class i client computers, one or more class k genes, wherein k and i are different integers representing different classes.

9. The networked computer system of claim 8 wherein said server computer causes class k genes and class i genes to be merged thereby generating a new class of genes represented by a union of the subset of indicators of class k and class i genes, wherein said class k and class i

genes are merged only if a measure of convergence of class k genes meets a predefined condition and a measure of convergence of class i genes meets a predefined condition.

10. The networked computer system of claim 8 wherein said server computer causes class k genes and class i genes to be merged thereby generating a new class of genes represented by a new subset of indicators randomly generated, wherein said class k and class i genes are merged only if a measure of convergence of class k genes meets a predefined condition and a measure of convergence of class i genes meets a predefined condition.

11. The networked computer system of claim 8 wherein said third plurality of trading days do not overlap with said first plurality of trading days.

12. The networked computer system of claim 5 wherein a gene is transmitted to said server computer only if the gene's fitness after S evaluation and discard operations is computed as being higher than the fitness of the gene when previously stored previously by the one or more servers.

13. The networked computer system of claim 4 wherein the genes stored in the client computers are generated in accordance with computer instructions stored in the client computers and executed by the processors of the client computers.

14. The networked computer system of claim 8 wherein said server pool is configured to store a fixed number of genes.

15. The networked computer system of claim 8 wherein said server is further adapted to combine a fitness value associated with each gene that the server receives from a client computer with a corresponding fitness value previously stored by the server for that gene.

16. The networked computer system of claim 4 wherein said plurality of indicators are evaluated as a logical expression conjoined by logical AND and/or modified by logical NOT operations.

17. The networked computer system of claim 16 wherein the at least one action recommended by each gene is selected from a group consisting of buy, sell, hold, long exit and short exit recommendations.

18. A networked computer system for use in developing one or more genes each characterized by at least one action and one or more conditions each dependent upon one or more indicators, comprising a server computer having:

a memory operative to store a plurality of the genes; and

a communication port through which the server computer receives one or more genes from a plurality of client computers assigned to N different classes, each class associated with only a subset of the indicators , the server computer configured to:

store the received one or more genes in a server gene pool in the memory; and

transmit to each of at least a first subset of the plurality of client computers one or more genes of the server gene pool for fitness evaluation spanning W trading trading days, the genes received from the plurality of client computers generated by evaluating performance characteristic of genes by comparing a solution provided by each gene with recurrently received data associated with the gene, the performance characteristic of each gene being adjusted with each recurrently received data and defining a fitness of the gene.

19. The networked computer system of claim 18 wherein the data associated with each gene comprises historical trading data and wherein the solution provided by each gene comprises a trading recommendation made by the gene.

20. The networked computer system of claim 19 wherein said first one of the plurality of client computers is configured to discard genes after evaluating their fitness for P trading days, each of the discarded genes having a fitness that falls below a first predefined threshold value.

21. The networked computer system of claim 20 wherein said first one of the plurality of client computers is further configured to:

evaluate, for a plurality of Q trading days in addition to the P trading days, the fitness of the remaining genes;

discard the genes whose fitness as evaluated during a sum of the P+Q trading days is below a second predefined threshold value; and

repeat the evaluation and the discard operations at least S times, wherein Q and S are integers, and wherein S is equal to or greater than 1, wherein genes surviving S evaluation and discard operations define the first elitist gene pool.

22. The networked computer system of claim 19 wherein said server computer receives only genes whose fitness is not less than a fitness of the least fit gene previously stored in the server gene pool.

23. The networked computer system of claim 22 wherein said server gene pool is configured to store a fixed number of genes.

24. The networked computer system of claim 22 wherein said server is further adapted to combine a plurality of fitness values associated with each gene the server receives with a corresponding fitness value stored in the server for that gene.

25. The networked computer system of claim 19 wherein said gene conditions evaluate said plurality of indicators as a logical expression conjoined by logical AND and/or modified by logical NOT operations.

26. The networked computer system of claim 25 wherein the at least one action of each gene comprises a recommendation selected from a group consisting of buy, sell, hold, long exit and short exit recommendations.

27. The networked computer system of claim 21 wherein said server computer transmits for fitness evaluation using a third set of historical trading data covering a third plurality of trading days, only to a first subset of the plurality of client computers which are members of a class j, one or more genes previously evaluated by and received from the client computers of class j, wherein j is an integer.

28. The networked computer system of claim 20 wherein said computer server transmit, for fitness evaluation using a third set of historical trading data covering a third plurality of trading days, to at least a first subset of the plurality of client computers which are members of a class i , one or more class k genes, wherein k and i are different integers representing different classes.

29. The networked computer system of claim 28 wherein said server computer causes class k genes and class i genes to be merged thereby generating a new class of genes represented by a union of the subset of indicators of class k and class i genes, wherein said class k and class i genes are merged only if a measure of convergence of class k genes meets a predefined condition and a measure of convergence of class i genes meets a predefined condition.

30. The networked computer system of claim 28 wherein said server computer causes class k genes and class i genes to be merged thereby generating a new class of genes represented by a new subset of indicators randomly generated, wherein said class k and class i genes are merged only if a measure of convergence of class k genes meets a predefined condition and a measure of convergence of class i genes meets a predefined condition.

31. A method for solving a computational problem, the method comprising:

storing N genes in a memory accessible to a first one of a plurality of client computers, each gene characterized by at least one action and a plurality of conditions each dependent upon a respective subset of indicators associated with a class to which the gene belongs; wherein N is an integer greater than one;

recurrently receiving data associated with the N genes; and

evaluating performance characteristic of each of the N genes by comparing a solution provided by each gene with the recurrently received data associated with that gene, the performance characteristic of each gene being adjusted with each recurrently received data and defining a fitness of the gene.

32. The method of claim 31 wherein the data associated with each gene comprises historical trading data and wherein the solution provided by each gene comprises a trading recommendation made by the gene.

33. The method of claim 32 further comprising:

discarding M of the N genes after evaluating the fitness of the N genes for a first plurality of trading days, each of the discarded genes having a fitness that falls below a first predefined threshold value, each of the remaining N-M genes being a surviving gene, wherein M and P are positive integers and wherein M is smaller than N.

34. The method of claim 33 further comprising:

evaluating the fitness of the surviving genes using a second set of historical data covering a second plurality of trading days;

discarding genes whose fitness as evaluated during a sum of the first and second plurality of trading days is below a second predefined threshold value;

repeating the evaluation and the discarding operations S times where S is an integer greater than one, wherein genes surviving S evaluation and discarding operations define a first elitist gene pool; and

transmitting one or more of the genes of the first elitist pool to a server.

35. The method of claim 34 wherein the first and second predefined threshold values are equal.

36. The method of claim 34 further comprising the server:

receiving the one or more genes of the elitist gene pool;

storing one or more of the received genes; and

transmitting, for fitness evaluation using a third set of historical trading data covering a third plurality of trading days, only to a first subset of the plurality of client computers of a first class, one or more genes previously evaluated by and received from client computers of the first class

37. The method of claim 34 further comprising the server:

receiving the one or more genes of the elitist gene pool;

storing one or more of the received genes; and

transmitting, for fitness evaluation using a third set of historical trading data covering a third plurality of trading days, only to a first subset of the plurality of client computers which are members of a class i, one or more class k genes previously evaluated by and received by the server from the client computers of a second class wherein k and i are different integers representing different classes.

38. The method of claim 37 further comprising:

merging class k and class i genes to generate a new class of genes represented by a union of the subset of indicators of class k and class i genes.

39. The method of claim 37 further comprising:

merging class k and class i genes to generate a new class of genes represented by a new subset of indicators randomly generated.

40. The method of claim 37 wherein said third plurality of trading days do not overlap with said first plurality of trading days.

41. The method of claim 34 further comprising:

transmitting a gene for storage only if the gene's fitness after S evaluation and discard operations is computed as being higher than the fitness of the gene at a time of previous storage.

42. The method of claim 33 further comprising:

generating the genes stored in the client computers in accordance with computer instructions stored in and executed by the client computers.

43. The method of claim 37 further comprising:

storing a fixed number of genes in a server gene pool.

44. The method of claim 37 further comprising:

combining a plurality of fitness values associated with each gene received by the server with a corresponding fitness value previously stored in the server for that gene.

45. A stand alone computer comprising:

at least one processing core configured as a sever;

a plurality of processing cores configured as clients each assigned to a different, class, for use in developing one or more genes each characterized by at least one action and one or more conditions each dependent upon one or more indicators, each class being associated with only a respective subset of the indicators, each of the plurality of clients comprising:

a memory operative to store N genes, each gene dependent upon the subset of indicators associated with a respective one of the classes, and at least one action, wherein N is an integer greater than one;

a port adapted to continue to recurrently receive data associated with the N genes; each client processing core configured to evaluate performance characteristic of each of the N genes by comparing a solution provided by each gene with the recurrently received data associated with that gene, the performance characteristic of each gene being adjusted with each recurrently received data and defining a fitness of the gene.

46. The stand alone computer of claim 45 wherein the data associated with each gene comprises historical trading data and wherein the solution provided by each gene comprises a trading recommendation made by the gene.

47. The stand alone computer of claim 46 wherein a first one of the plurality of client processing cores is configured to discard M of the N genes after evaluating the fitness of the N genes for P trading days, each of the discarded genes having a fitness that falls below a first predefined threshold value, each of the remaining N-M genes being a surviving gene, wherein M and P are positive integers and wherein M is smaller than N.

48. The stand alone computer of claim 47 wherein said first one of the client processing cores is further configured to:

evaluate, for a plurality of Q trading days in addition to the P trading days, the fitness of the remaining genes;

discard the genes whose fitness as evaluated during a sum of the P+Q trading days is below a second predefined threshold value; and

repeat the evaluation and the discard operations at least S times, wherein Q and S are integers, and wherein S is equal to or greater than 1, wherein genes surviving S evaluation and discard operations define a first elitist gene pool after evaluation over a total of V trading days; and

transmit the first elitist pool of genes to the server processing core.

49. The stand alone computer of claim 48 wherein the first and second predefined threshold values are equal.

50. The stand alone computer of claim 48 wherein said sever processing core is adapted to:

selectively receive the first elitist gene pool from the first client processing core;

store the received genes in a server gene pool; and

transmit for fitness evaluation only to at least a first subset of the plurality of client processing cores of class j, one or more genes previously evaluated by and received from the client processing cores of class j.

51. The stand alone computer of claim 48 wherein said sever processing core is adapted to:

selectively receive the first elitist gene pool from the first client processing core;

store the received genes in a server gene pool; and

transmit for fitness evaluation to at least a first subset of a plurality of client processing cores of class j, one or more genes previously evaluated by and received from the client processing cores of class k, wherein k and j are unequal integers.

52. The stand alone computer of claim 51 wherein said server processing core causes class k genes and class i genes to be merged to generate a new class of genes represented by a union of the subset of indicators of class k and class i genes.

53. The stand alone computer system of claim 51 wherein said server processing core causes class k genes and class i genes to be merged to generate a new class of genes represented by a new subset of indicators randomly generated.

54. The stand alone computer of claim 48 wherein each of the at least a first subset of the plurality of client processing cores is adapted to:

receive one or more genes from the server processing core;

evaluate a fitness of the received genes by comparing trading recommendations made by each of the received genes with an associated historical trading data spanning the W trading days;

discard genes whose fitness is less than a third threshold value; and

transmit genes that are not discarded to the server processing core for consideration for storage in the server gene pool.

55. The stand alone computer of claim 54 wherein said W trading days and V trading days do not overlap.

56. The stand alone computer of claim 54 wherein said third threshold value is equal to the first and second threshold values.

57. The stand alone computer of claim 54 wherein said genes are transmitted to the server processing core only if their fitness is higher than the fitness of genes previously stored in the server pool.

58. The stand alone computer of claim 46 wherein the genes stored in each client processing core are generated in accordance with computer instructions stored in and executed by the stand alone computer.

59. The stand alone computer of claim 54 wherein said server processing core is configured to store a fixed number of genes in its pool.

60. The stand alone computer of claim 57 wherein said sever processing core is further adapted to combine a plurality of fitness values associated with each gene the server processing core receives from the at least first subset of the plurality of client processing cores with a corresponding fitness value stored in the server processing core for that gene.

61. The stand alone computer of claim 47 wherein said plurality of indicators are evaluated as a logical expression conjoined by logical AND and/or modified by logical NOT operations.

62. The stand alone computer of claim 48 wherein the at least one action recommended by each gene is selected from a group consisting of buy, sell, hold, long exit and short exit operations.

63. The stand alone computer of claim 51 wherein class k genes and class i genes are merged only if a measure of convergence of class k and class i genes meets a predefined condition.

64. The stand alone computer of claim 53 wherein class k genes and class i genes are merged only if a measure of convergence of class k and class i genes meets a predefined condition.

65. The stand alone computer of claim 60 wherein said stand alone computer is a mainframe computer.

Claims:

1. A server computer system comprising:

a memory accessible to the server computer system and storing a server gene pool having some of the individuals in a plurality of individuals, each individual in the plurality of individuals identifying a corresponding subset of indicators in a plurality of indicators and further identifying at least one action in dependence upon the subset of indicators, not all of the subsets of indicators being the same;

a communications port through which the server computer system receives individuals from client computers in a plurality of client computers, each client computer in the plurality of client computers being assigned to a class, each of the classes being associated with a respective subset of indicators in a plurality of indicators, and at least one of the classes including more than one of the client computers, each received individual being one of the plurality of individuals and being received in conjunction with an associated received fitness value; and

a processor configured to:

accept at least some of the received individuals, and

transmit for further evaluation, each given individual in a first subset of the accepted individuals, to a given client computer which is a member of the class from which the server computer received the given individual.

2. A server computer system according to claim 1, wherein each of the individuals that the server computer system receives from the client computers have previously been evaluated on a first quantity of historical trading data and found to have had a fitness which exceeds a predetermined threshold fitness.

3. A server computer system according to claim 2, wherein the processor, in accepting at least some of the received individuals:

determines whether each of the received individuals is already stored in the server gene pool; and

discards all of the received individuals having an updated fitness value which is below a predetermined server minimum fitness,

wherein the updated fitness value for each received individual is the received fitness value of the individual for individuals which are not already stored in the server gene pool,

and wherein for individuals which are already stored in the server gene pool, the updated fitness value for each received individual is a combination of the received fitness value of the individual and a fitness value previously stored for the individual in the server gene pool.

4. A server computer system according to claim 3, wherein the predetermined server minimum fitness is dependent upon a fitness of the least fit individual in the server gene pool.

5. A server computer system according to claim 3, wherein the processor is further configured to store in the server gene pool at least some of the accepted individuals.

6. A server computer system according to claim 1, wherein the processor is further configured to determine whether a first one of the classes satisfies a predetermined convergence condition, and if so:

merge the first class with a second one of the classes to form a merged class, at least some of the client computers that were assigned to the first class being re-assigned to the merged class; and

transmit for further evaluation, to a client computer which is a member of the merged class, individuals which have been accepted and which were received from a client computer that was a member of the first class.

7. A server computer system according to claim 6, wherein the second class is also determined by the server computer system to satisfy a predetermined convergence condition,

wherein the merging of the first class with the second class further includes re-assigning to the merged class at least some of the client computers that were assigned to the second class being re-assigned,

and wherein the processor is further configured to transmit for further evaluation, to a client computer which is a member of the merged class, individuals which have been accepted and which were received from a client computer that was a member of the second class.

8. A server computer according to claim 6, wherein the merged class is associated with a union of the subset of indicators previously associated with the first class and the subset of indicators previously associated with the second class.

9. A server computer system comprising:

a memory accessible to the server computer system and storing a server gene pool having some of the individuals in a plurality of individuals, each individual in the plurality of individuals identifying a corresponding subset of indicators in a plurality of indicators and further identifying at least one action in dependence upon the subset of indicators, not all of the subsets of indicators being the same;

a communications port through which the server computer system receives individuals from client computers in a plurality of client computers, each client computer in the plurality of client computers being assigned to a class, each of the classes being associated with a respective subset of indicators in a plurality of indicators, and at least one of the classes including more than one of the client computers; and

a processor configured to:

accept at least some of the received individuals, and

transmit to the client computers for further evaluation, each individual in a first subset of the accepted individuals,

wherein each given individual transmitted for further evaluation is transmitted for further evaluation to a member of the group consisting of:

a client computer which is a member of the same class from which the given individual was received by the server computer system; and

a client computer which is a member of a class which was derived at least in part from the class from which the given individual was received by the server computer system.

10. A server computer system according to claim 9, wherein the processor, in accepting at least some of the received individuals:

determines whether each of the received individuals is already stored in the server gene pool; and

discards all of the received individuals having an updated fitness value which is below a predetermined server minimum fitness, wherein the updated fitness value for each received individual is,

for individuals which are not already present in the server gene pool, a fitness value received by the server computer system in conjunction with the received individual; and

for individuals which are already present in the server gene pool, a combination of a fitness value received by the server computer system in conjunction with the received individual and a fitness value previously associated with the individual in the server gene pool.

11. A server computer system according to claim 10, wherein the predetermined server minimum fitness is dependent upon a fitness of the least fit individual in the server gene pool.

12. A server computer system according to claim 10, wherein the processor is further configured to store in the server gene pool at least some of the accepted individuals.

13. A server computer system according to claim 9, wherein the processor is further configured to determine whether a first one of the classes satisfies a predetermined convergence condition, and if so then to merge the first class with a second one of the classes to derive a merged class, at least some of the client computers that were assigned to the first class being re-assigned to the merged class,

wherein a first one of the individuals transmitted for further evaluation was received by the server computer system from the first class,

and wherein the first individual is transmitted for further evaluation to a first client computer in the merged class.

14. A server computer according to claim 13, wherein the first client computer was, prior to the merger, a member of the first class.

15. A server computer according to claim 13, wherein the first client computer was, prior to the merger, a member of the second class.

16. A server computer system according to claim 13, wherein the second class is also determined by the server computer system to satisfy a predetermined convergence condition,

wherein the merging of the first class with the second class further includes re-assigning to the merged class at least some of the client computers that were assigned to the second class,

wherein a second one of the individuals transmitted for further evaluation was received by the server computer system from the second class,

and wherein the second individual is transmitted for further evaluation to a second client computer in the merged class.

17. A server computer according to claim 13, wherein the merged class is associated with a union of the subset of indicators previously associated with the first class and the subset of indicators previously associated with the second class.

18. A server computer system according to claim 9, wherein one of the individuals transmitted for further evaluation is transmitted for further evaluation also to an additional member of the group.

19. A server computer system according to claim 9, wherein each of the individuals that the server computer system receives from the client computers has previously been evaluated on a first quantity of historical trading data and found to have had a fitness which exceeds a predetermined threshold fitness.

20. A server computer system according to claim 19, wherein a particular client computer, to which a particular one of the individuals is transmitted for further evaluation:

further evaluates the particular individual on a second quantity of historical trading data;

determines after the further evaluation whether the particular individual has a fitness which exceeds a predetermined threshold fitness; and only if so, then

transmits the particular individual back to the server computer system.

21. A server computer system according to claim 1, wherein through the communications port, in receiving individuals, the server computer system receives more than one of the individuals from a particular one of the client computers.

22. A server computer system according to claim 1, wherein the processor, in transmitting for further evaluation, transmits more than one individual to particular one of the client computers.

23. A server computer system according to claim 1, wherein the given client computer to which the processor transmits the given individual for further evaluation, is different than the client computer from which the server computer received the given individual.

24. A server computer system according to claim 9, wherein through the communications port, in receiving individuals, the server computer system receives more than one of the individuals from a particular one of the client computers.

25. A server computer system according to claim 9, wherein the processor, in transmitting for further evaluation, transmits more than one individual to particular one of the client computers.

26. A server computer system according to claim 9, wherein the given client computer to which the processor transmits the given individual for further evaluation, is different than the client computer from which the server computer received the given individual.