

Claims.

1. A computer implemented method for automatically selecting a portfolio where said portfolio comprises a population of solutions, the method comprising the steps of:

5 generating, by a processor, a plurality of first generation portfolios from a plurality of available solutions, wherein each of said plurality of first generation portfolios is generated by random selection of one or more of said plurality of available solutions;

applying, by the processor, a random percentage weighting to each of said randomly selected solutions, but where the sum of the random percentage weightings is arranged to
10 equal 100%;

calculating, by the processor, a score for each of the plurality of first generation portfolios, the score for each of said plurality of first generation portfolios of assets comprising an aggregate of a plurality of different evaluation factors;

ranking, by the processor, the plurality of first generation portfolios by their respective
15 scores; and

selecting, by the processor, a plurality of said first generation portfolios as parent portfolios based on their respective scores and using said parent portfolios to generate a plurality of child portfolios,

wherein some of the plurality of parent and/or child portfolios are selected to undergo a
20 mutation process whereby, for a selected portfolio, at least one asset of said portfolio is randomly selected and all or a random percentage weighted portion of said randomly selected asset is replaced by another asset randomly selected from a union of assets comprising a group of all of assets of existing portfolios and a group of other eligible assets and

wherein the parent and/or child portfolios selected to undergo the mutation process are
25 selected by assigning each of said parent and/or child portfolios with a binary value according to a pre-set mutation rate, where the assigned binary value determines whether a portfolio is selected for the mutation process or not.

2. The method of claim 1, wherein the solutions comprise assets.

3. The method of claim 2, comprising the step of receiving data describing an initial portfolio of assets.
4. The method of claim 3, comprising the step of making said initial portfolio of assets a first one of said plurality of first generation portfolios of assets.
5. The method of claim 3 or claim 4, wherein the plurality of available assets comprises assets comprising said initial portfolio of assets and other eligible assets.
6. The method of claim 5, wherein a random percentage weighting applied to a randomly selected asset from said plurality of available assets is limited to a maximum value of its percentage weighting in the initial portfolio of assets or is limited to a predetermined maximum percentage weighting where said asset is one of the other eligible assets.
7. The method of any one of claims 1 to 6, wherein the step of calculating a score for each of the plurality of first generation portfolios of assets comprises calculating a weighted aggregate of the plurality of different evaluation factors.
8. The method of claim 1, wherein each of the plurality of child portfolios is generated by two parent portfolios which are adjacent to each other by their ranking scores.
9. The method of claim 8, wherein the assets for a child portfolio are randomly selected from a group of assets comprising the two adjacent parent portfolios.
10. The method of claim 9, wherein a random percentage weighting assigned to a randomly selected asset from the group of parent assets is limited to a maximum value of its original percentage weighting in the respective parent portfolio.
11. The method of any one of claims 1 to 10, comprising the steps of:
calculating a score for each of the plurality of parent and child portfolios;
ranking the plurality of parent and child portfolios by their respective scores; and

selecting a subset of said plurality of parent and child portfolios based on their respective scores as next generation parent portfolios and using said next generation parent portfolios to generate a plurality of next generation child portfolios.

- 5 12. The method of claim 11, comprising the steps of:
generating each of a plurality of next generation child portfolios from two next
generation parent portfolios which are adjacent to each other by their ranking scores; and
selecting some of the plurality of next generation parent and/or next generation child
portfolios to undergo the mutation process.
- 10 13. The method of claim 11 or claim 12, comprising the steps of:
calculating a score for each of the next generation parent and next generation child
portfolios.
- 15 14. The method of claim 13, comprising repeating the steps of ranking, selecting,
generating, and calculating a score for each next generation of portfolios for a plurality of
times until a marginal improvement in a score calculated for a highest ranking portfolio is less
than a predetermined amount over a latter pre-set number of iterations.
- 20 15. The method of claim 14, wherein said highest ranking portfolio is selected for
implementation.
16. A non-transitory computer readable medium storing machine readable code which,
when executed by a processor, causes an electronic processing device to implement the steps
25 of any one of the preceding claims.
17. A computer based system for automatically compiling a portfolio of assets, the system
comprising:
a computer readable medium storing machine readable code; and
30 a processor configured to execute said machine readable code to:

generate a plurality of first generation portfolios of assets from a plurality of available assets, wherein each of said plurality of first generation portfolios is generated by random selection of one or more of said plurality of available assets;

5 apply a random percentage weighting to each of said randomly selected assets, but where the sum of the random percentage weightings is arranged to equal 100%;

 calculate a score for each of the plurality of first generation portfolios of assets, the score for each of said plurality of first generation portfolios of assets comprising an aggregate of a plurality of different evaluation factors;

 rank the plurality of first generation portfolios of assets by their respective scores; and

10 select a plurality of said first generation portfolios as parent portfolios based on their respective scores and use said parent portfolios to generate a plurality of child portfolios, wherein some of the plurality of parent and/or child portfolios are selected to undergo a mutation process whereby, for a selected portfolio, at least one asset of said portfolio is randomly selected and all or a random percentage weighted portion of said randomly selected
15 asset is replaced by another asset randomly selected from a union of assets comprising a group of all of assets of existing portfolios and a group of other eligible assets and wherein the parent and/or child portfolios selected to undergo the mutation process are selected by assigning each of said parent and/or child portfolios with a binary value according to a pre-set mutation rate, where the assigned binary value determines whether a portfolio is selected for the mutation
20 process or not.