WHAT IS CLAIMED:

1. A method of additively printing extension segments on a plurality of workpieces, the method comprising:

determining a workpiece-interface of each of a plurality of workpieces from one or more digital representations of one or more fields of view having been captured by a vision system with the plurality of workpieces secured to a build plate at locations identifiable by respective ones of a plurality of registration points mapped to a coordinate system utilized to locate respective ones of the plurality of workpieces and/or the corresponding workpiece-interfaces; and

transmitting to an additive manufacturing machine, one or more print commands configured to additively print a plurality of extension segments with each respective one of the plurality of extension segments being located on the workpiece-interface of a corresponding respective one of the plurality of workpieces, the one or more print commands having been generated based at least in part on the one or more digital representations of the one or more fields of view;

wherein the one or more field of view comprise a plurality of areas of interest respectively corresponding to an expected location of respective ones of the plurality of workpieces and/or the corresponding workpiece-interfaces, and wherein respective ones of a plurality of areas of interest are determined based at least in part on respective ones of the plurality of registration points being mapped to the coordinate system.

2. The method of claim 1, wherein determining the workpiece-interface of each of the plurality of workpieces comprises:

determining one or more coordinates of the workpiece-interface of respective ones of the plurality of workpieces.

3. The method of claim 2, wherein the one or more print commands are configured to cause the additive manufacturing machine to print respective ones of the plurality of extension segments on the workpiece-interface of corresponding respective ones of the plurality of workpieces based at least in part on the one or more coordinates of the respective workpiece-interface.

4. The method of claim 1, wherein the workpiece-interface of each of a plurality of workpieces has a workpiece-interface perimeter, and the one or more print commands are configured to cause the additive manufacturing machine to additively print respective ones of the plurality of extension segments on the workpiece-interface of respective ones of the plurality of workpieces such that the respective ones of the plurality of extension segments are substantially congruent with the corresponding workpiece-interface perimeter.

5. The method of claim 4, wherein the plurality of workpieces comprises a first workpiece having a first workpiece-interface defined by a first workpiece-interface perimeter and a second workpiece having a second workpiece-interface defined by a second workpiece-interface perimeter, the first workpiece-interface perimeter differing from the second workpiece-interface perimeter in respect of curvature, surface area, and/or geometry.

6. The method of claim 1, wherein the respective ones of the plurality of extension segments overhang the corresponding workpiece-interface of respective ones of the plurality of workpieces, the overhang having a maximum overhang distance of about 1,000 microns or less.

7. The method of claim 1, wherein the plurality of workpieces have a height of from 1 cm to 5 cm and a cross-sectional width of from 0.1 mm to 5 mm, and wherein the plurality of extension segments have a height of from 10 μm to 5 mm.

8. The method of claim 7, wherein a ratio of a height of respective ones of the plurality of workpieces to a height of respective ones of the plurality of extension segments configured to be additively printed thereon ranges from 2:1 to 10,000:1.

9. The method of claim 7, wherein a ratio of a cross-sectional width of respective ones of the plurality of workpieces to a height of respective ones of the plurality of extension segments configured to be additively printed thereon ranges from 2:1 to 1,000:1.

10. The method of claim 1, comprising:

obtaining the one or more digital representations of the one or more fields of view using the vision system.

11. The method of claim 1, comprising:

generating the one or more print commands based at least in part on the one or more digital representations of the one or more fields of view.

12. The method of claim 11, wherein generating the one or more print commands comprises:

determining and/or generating an extension segment-CAD model based at least in part on the one or more digital representations of the one or more fields of view;

slicing the extension segment-CAD model into a plurality of slices; and

determining a toolpath and an additive printing area for each of the plurality of slices.

13. The method of claim 12, wherein the extension segment-CAD model comprises a model of the plurality of extension segments respectively located with reference to at least a portion of one or more coordinates of the workpiece-interface of respective ones of the plurality of workpieces.

14. The method of claim 1, comprising:

additively printing respective ones of the plurality of extension segments on corresponding respective ones of the plurality of workpieces.

15. The method of claim 1, wherein the plurality of workpieces comprises a plurality of compressor blades and/or turbine blades for a turbomachine and wherein the plurality of extension segments comprises a plurality blade tips.

16. The method of claim 1, wherein determining a workpiece-interface of each of a plurality of workpieces comprises:

determining one or more areas of interest within the one or more fields of view, the one or more areas of interest respectively corresponding to expected locations of the plurality of workpieces within the one or more fields of view;

determining a workpiece-interface of each of the plurality of workpieces within respective ones of the one or more areas of interest; and

generating a point cloud corresponding to the workpiece-interface of each of the plurality of workpieces.

17. A computer readable medium comprising computer-executable instructions, which, when executed by one or more processors of an additive manufacturing system, cause the additive manufacturing system to:

determine a workpiece-interface of each of a plurality of workpieces from one or more digital representations of one or more fields of view having been captured by a vision system with the plurality of workpieces secured to a build plate at locations identifiable by respective ones of a plurality of registration points mapped to a coordinate system utilized to locate respective ones of the plurality of workpieces and/or the corresponding work-piece- interfaces, and determining one or more coordinates of the workpiece-interface of respective ones of the plurality of workpieces; and

transmit to an additive manufacturing machine, one or more print commands configured to additively print a plurality of extension segments with each respective one of the plurality of extension segments being located on the workpiece-interface of a corresponding respective one of the plurality of workpieces, the one or more print commands having been generated based at least in part on the one or more digital representations of the one or more fields of view;

wherein the one or more fields of view comprise a plurality of areas of interest respectively corresponding to an expected location of respective ones of the plurality of workpieces and/or the corresponding work-piece-interfaces, and wherein respective ones of a plurality of areas of interest are determined based at least in part on the respective ones of the plurality of registration points being mapped to the coordinate system.