Appendix B

Synthesised Textures

B.1 Textures synthesised with various neighbourhoods

When modelling with MRFs it is not always apparent what neighbourhood size should be used. Certainly there is very little in the literature about how to choose an appropriate neighbourhood size given a certain texture. The most widely accepted technique is to test various neighbourhood sizes until the desired one is found. The test usually involves finding out how well the model performs in the desired application. In this case we wish to know how well the model performs at texture synthesis.

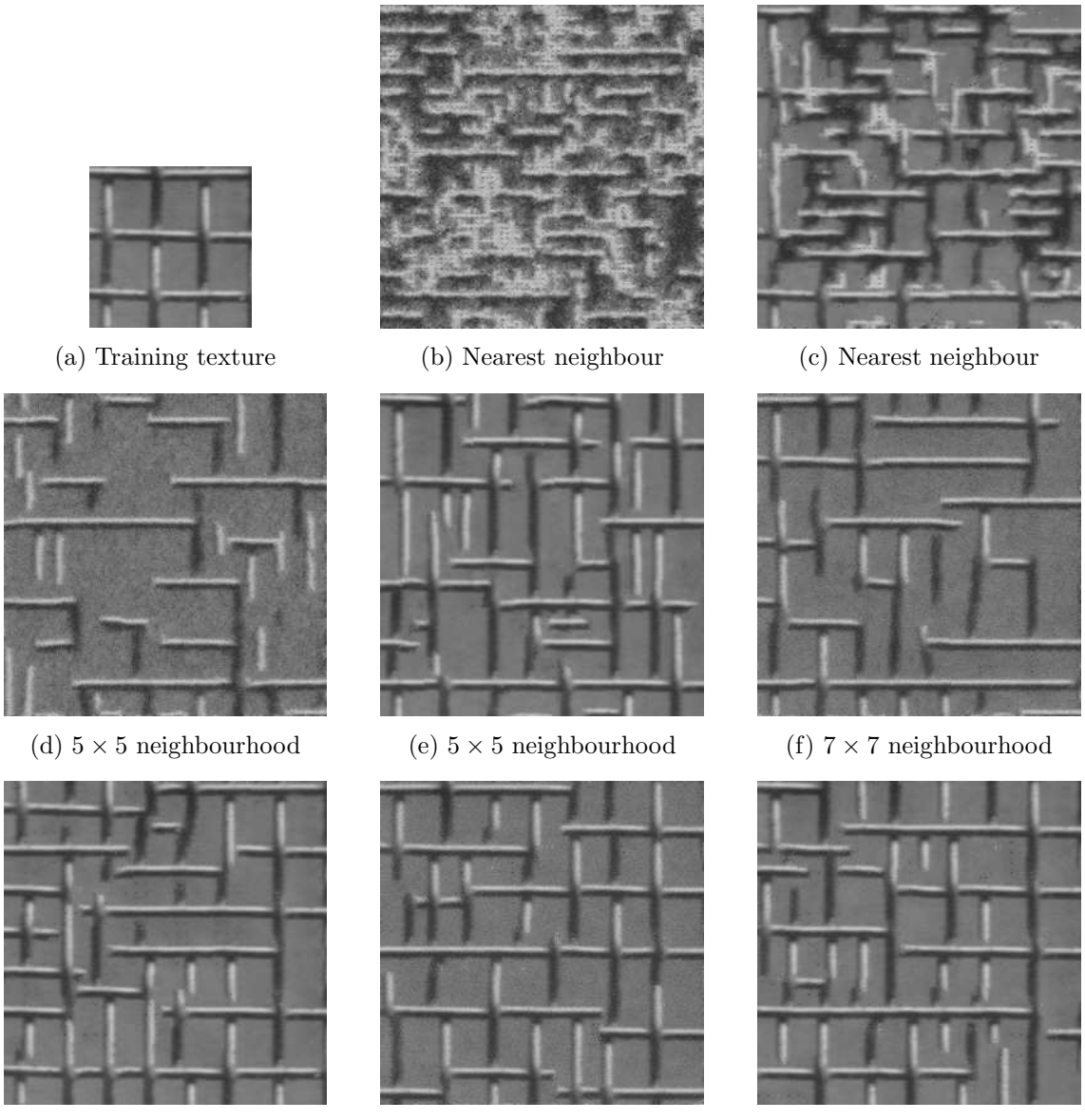
The following Figs. B.1–B.166 demonstrate how well the nonparametric MRF model is able to synthesise various texture types. All textures were synthesised using our multiscale texture synthesis algorithm, as outlined in Fig. 7.4. In each case the training textures were 128×128 pixels from which 256×256 synthetic versions were produced. The lack of phase discontinuity in the larger synthesised images suggest that the texture characteristics must have been capture by the model.

The first set of training textures, Figs. B.1–B.72, are from the Brodatz album [28]. The figures show how the synthetic texture varies as the neighbourhood size increases from nearest neighbour to a 9×9 neighbourhood. For each neighbourhood size two synthesis results are presented, one for the Gibbs sampling method, and one for the ICM sampling method. This is also done for the second set of training textures, Figs. B.73–B.166. This second set is from VisTex [203]. However, in

this case the neighbourhood size is only tested from the nearest neighbour up to the 7×7 neighbourhood.

When viewing these results, take the time to consider the consequences of choosing a particular neighbourhood size for the classification algorithm. If the neighbourhood size is too small, the model will be too general and the will not produce a reliable likelihood function for the particular texture class. If the neighbourhood size is too large, the model will be too specific and therefore not produce an adequate likelihood for textures of a similar class. When this synthesis experiment was first undertaken, we were looking to see if it was possible to capture all the characteristics of a texture so it could be realistically reproduced over a large area. We found, as the results indicate, that the larger the neighbourhood, the more realistic our reproductions. However these reproductions incurred more repetitive structure as the neighbourhood size increased. This is an indication that as the neighbourhood size increases, the model becomes more "specific" and therefore less adequate for classification. The ideal neighbourhood size for classification will produce a texture that is representative of the training texture, but still stochastic in nature.

Before making a decision on which neighbourhood size to employ for classification, consider the significance of the difference between the Gibbs and ICM sampling results. From the results it is visually obvious that the ICM sampling scheme performs marginally better than the Gibbs sampling scheme. This can be explained, as in Section 7.7, that although the modes of the LCPDF are well estimated, estimating the full distribution of the LCPDF as a sum of Gaussian distributions can produce inherent noise into the estimate. However, it is how well the whole distribution of the LCPDF is modelled that will determine how "ideal" the model is for open-ended classification. Therefore, although it is the Gibbs sampling scheme that performs the worst, it is the Gibbs sampling scheme that will determine how "ideal" the model is.

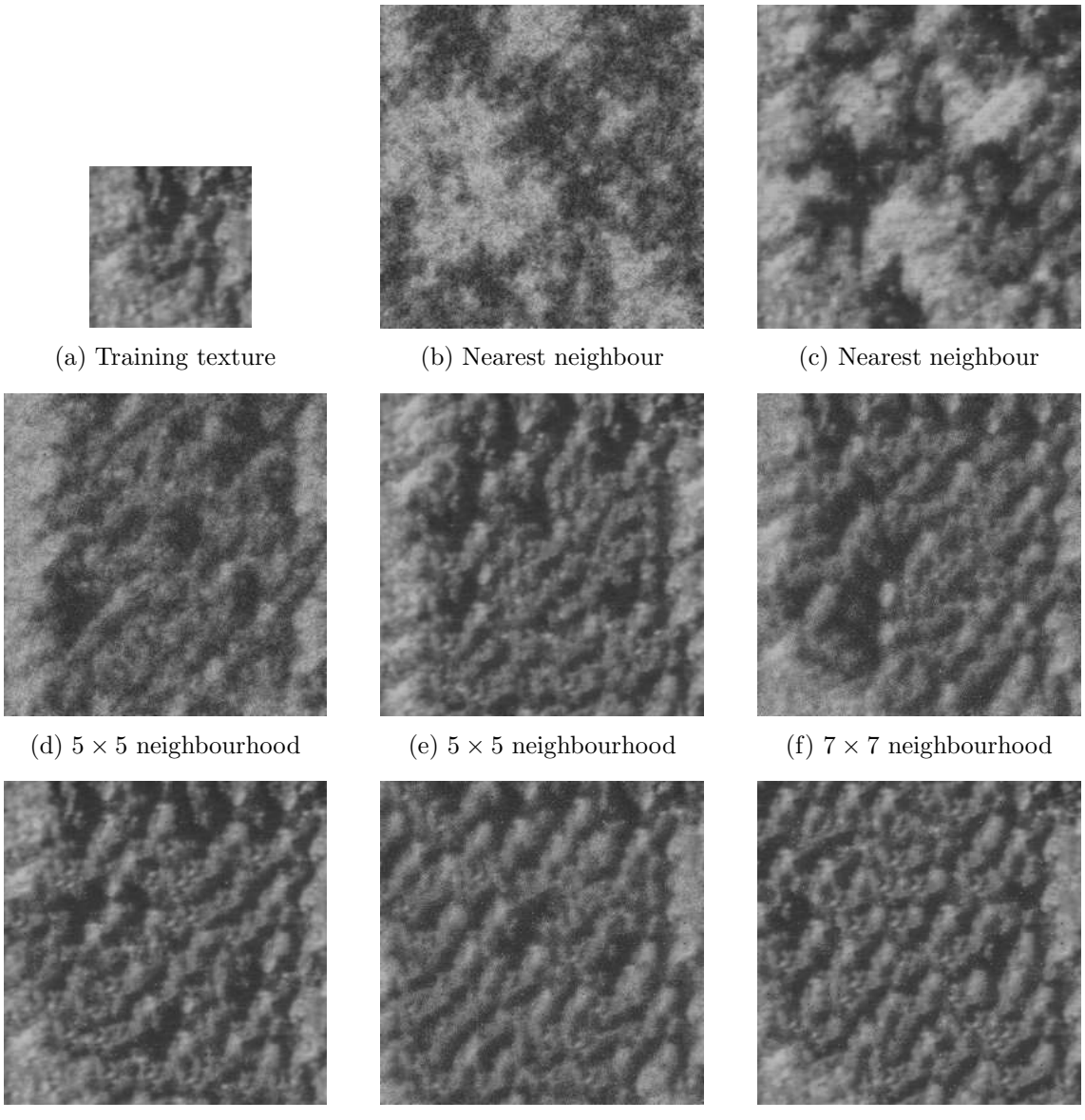


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.1: Brodatz texture D001a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

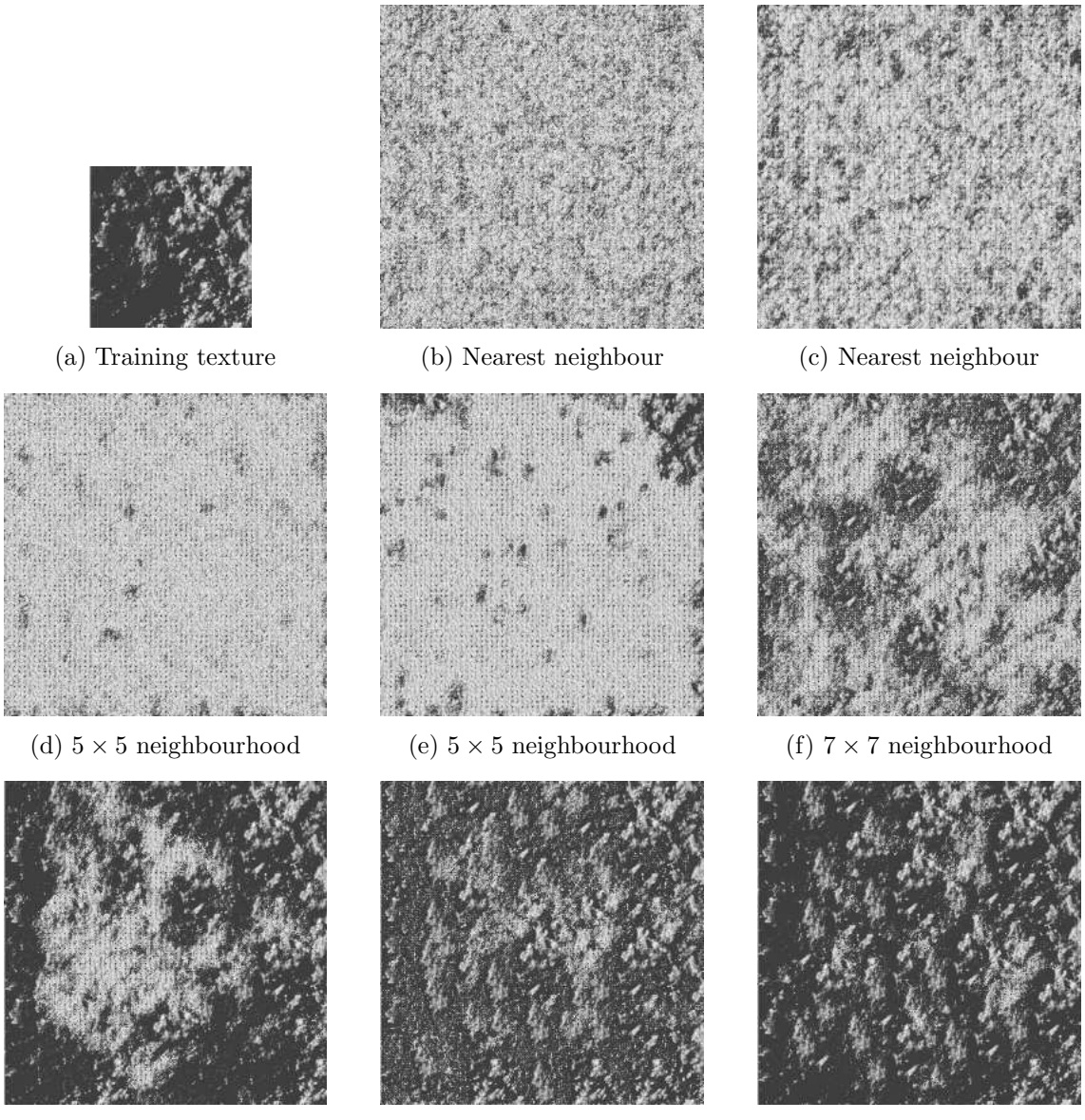


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.2: Brodatz texture D002a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

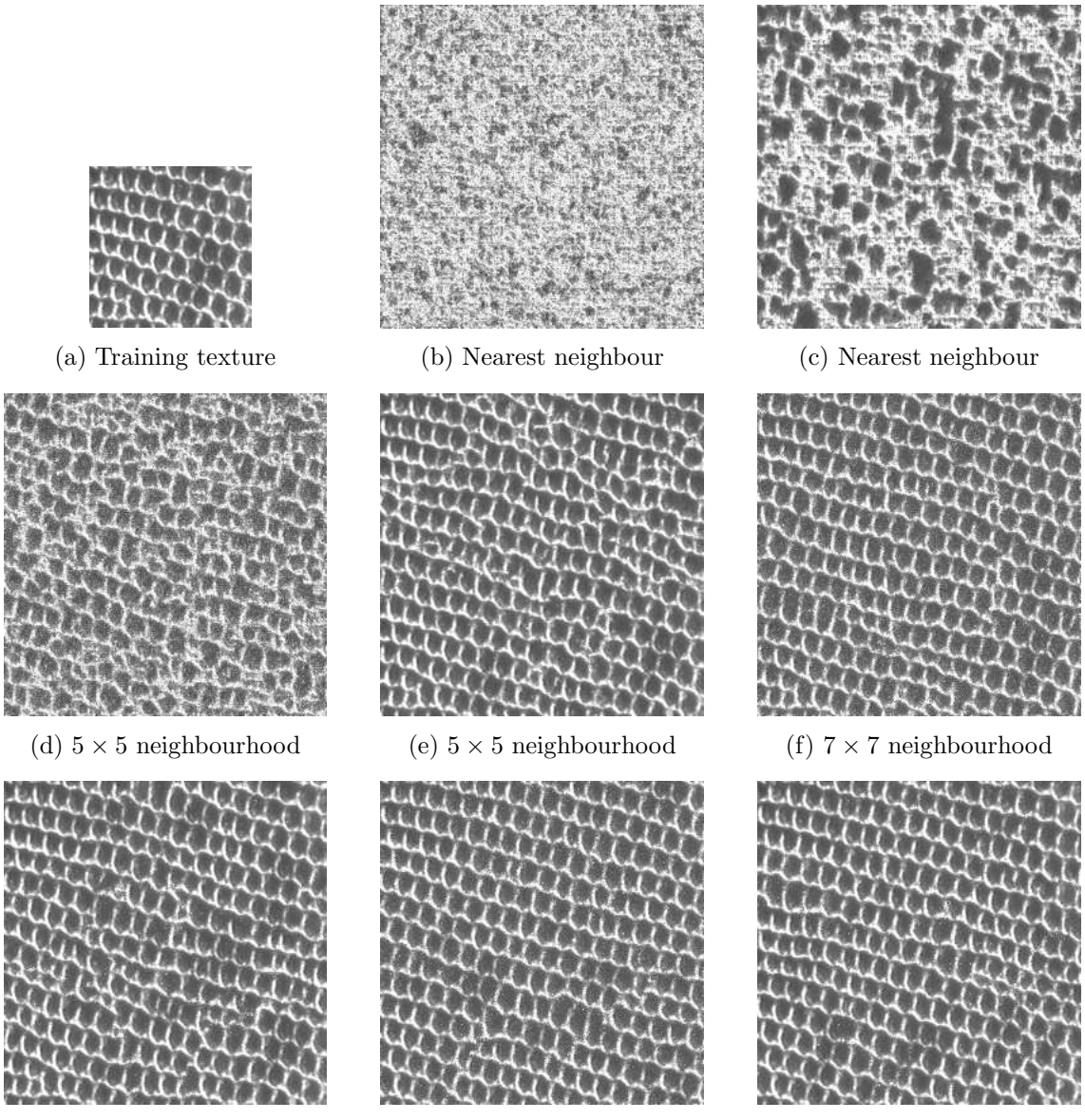


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.3: Brodatz texture D002b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

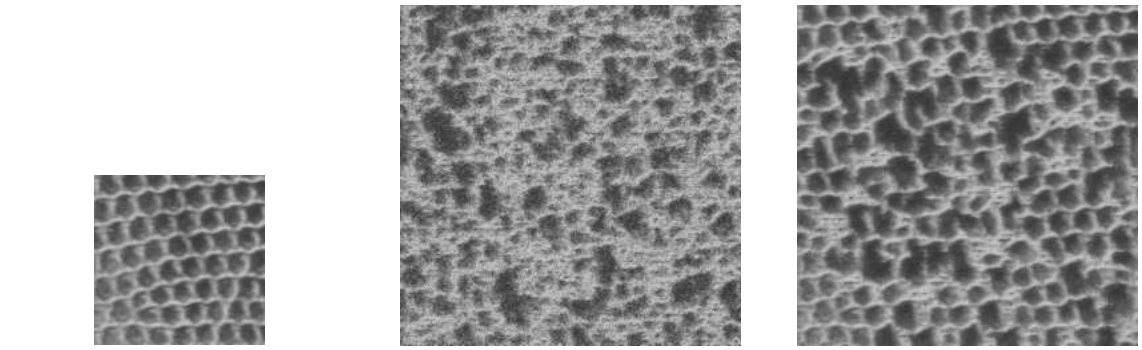


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

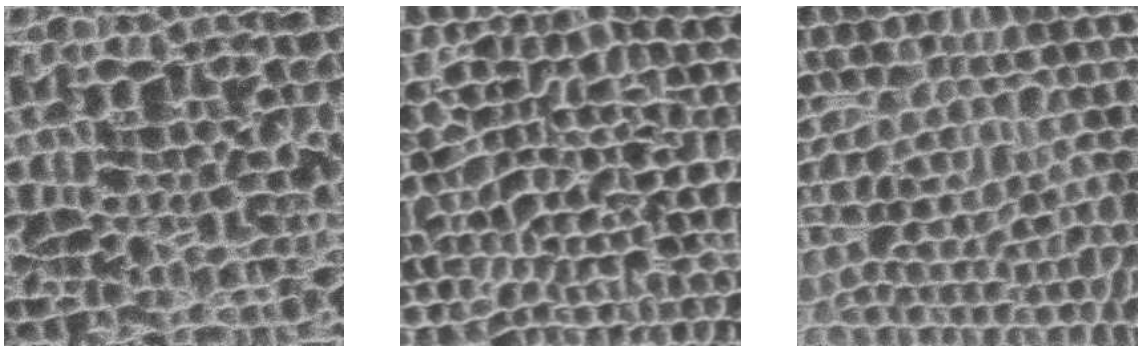
(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

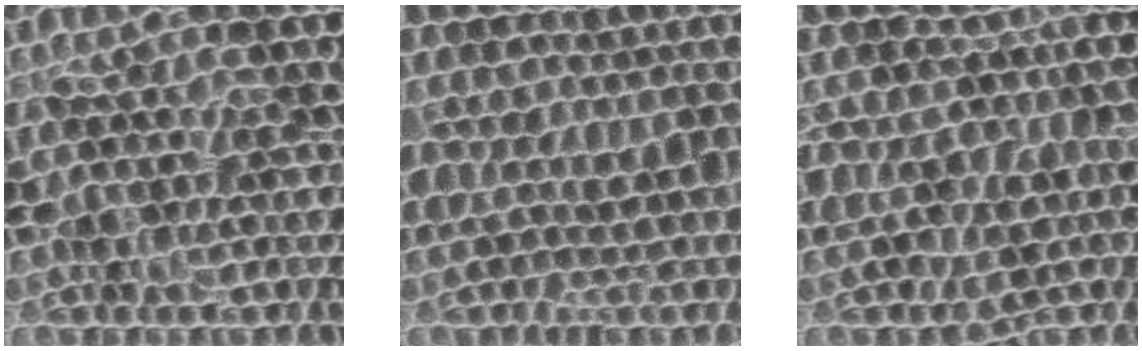
Figure B.4: Brodatz texture D003a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

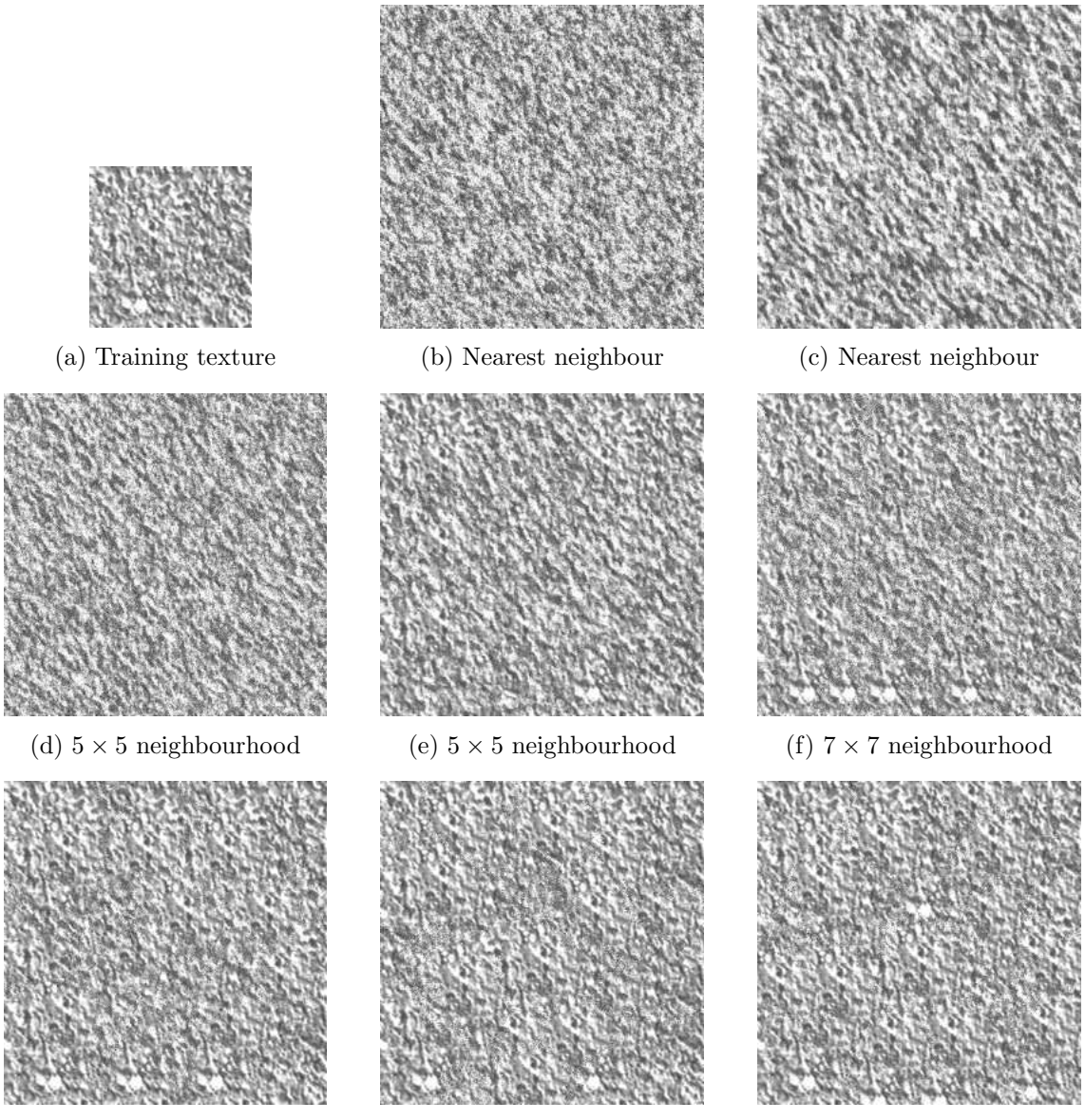


(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood



(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.5: Brodatz texture D003b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

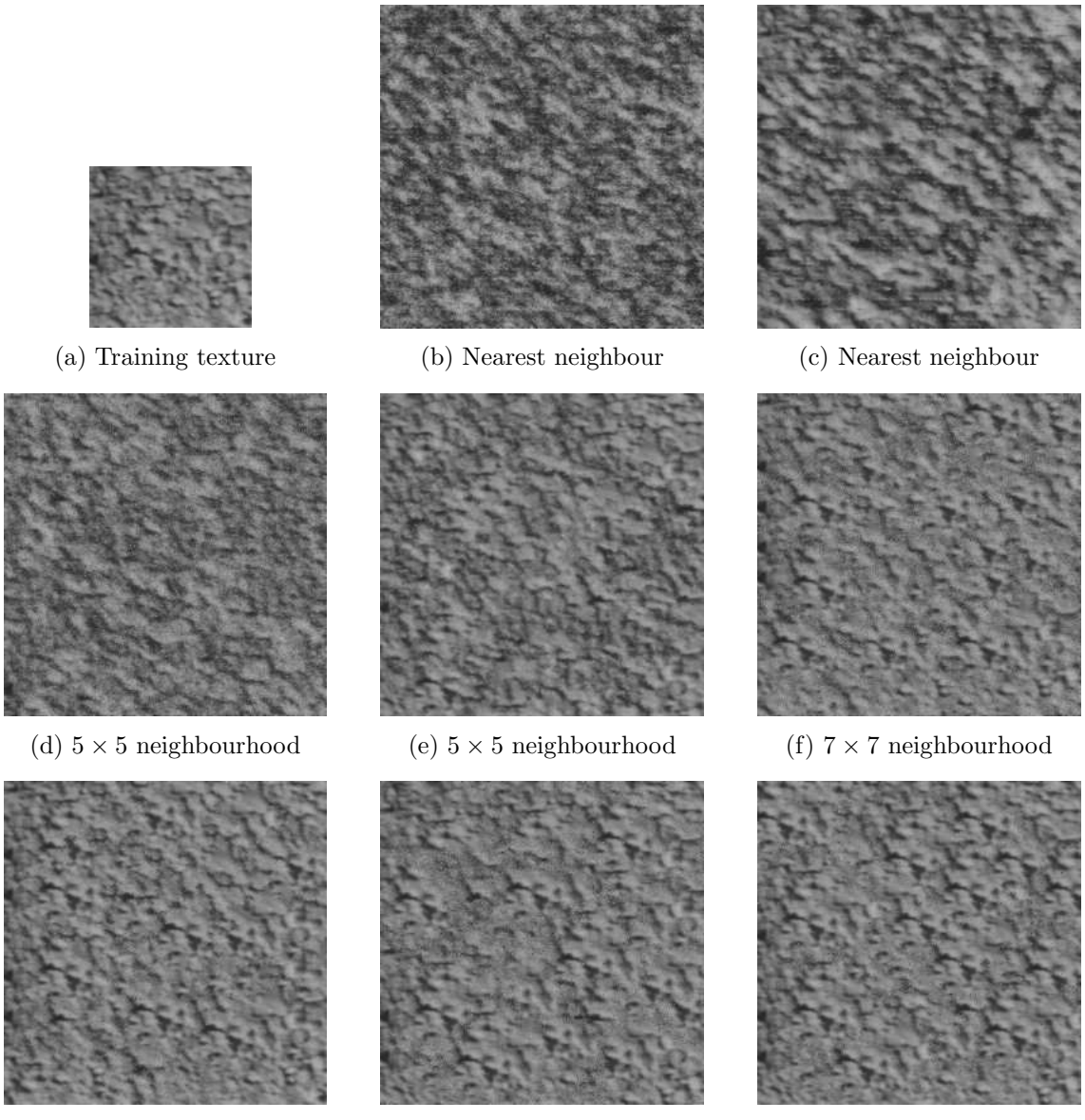


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.6: Brodatz texture D004a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

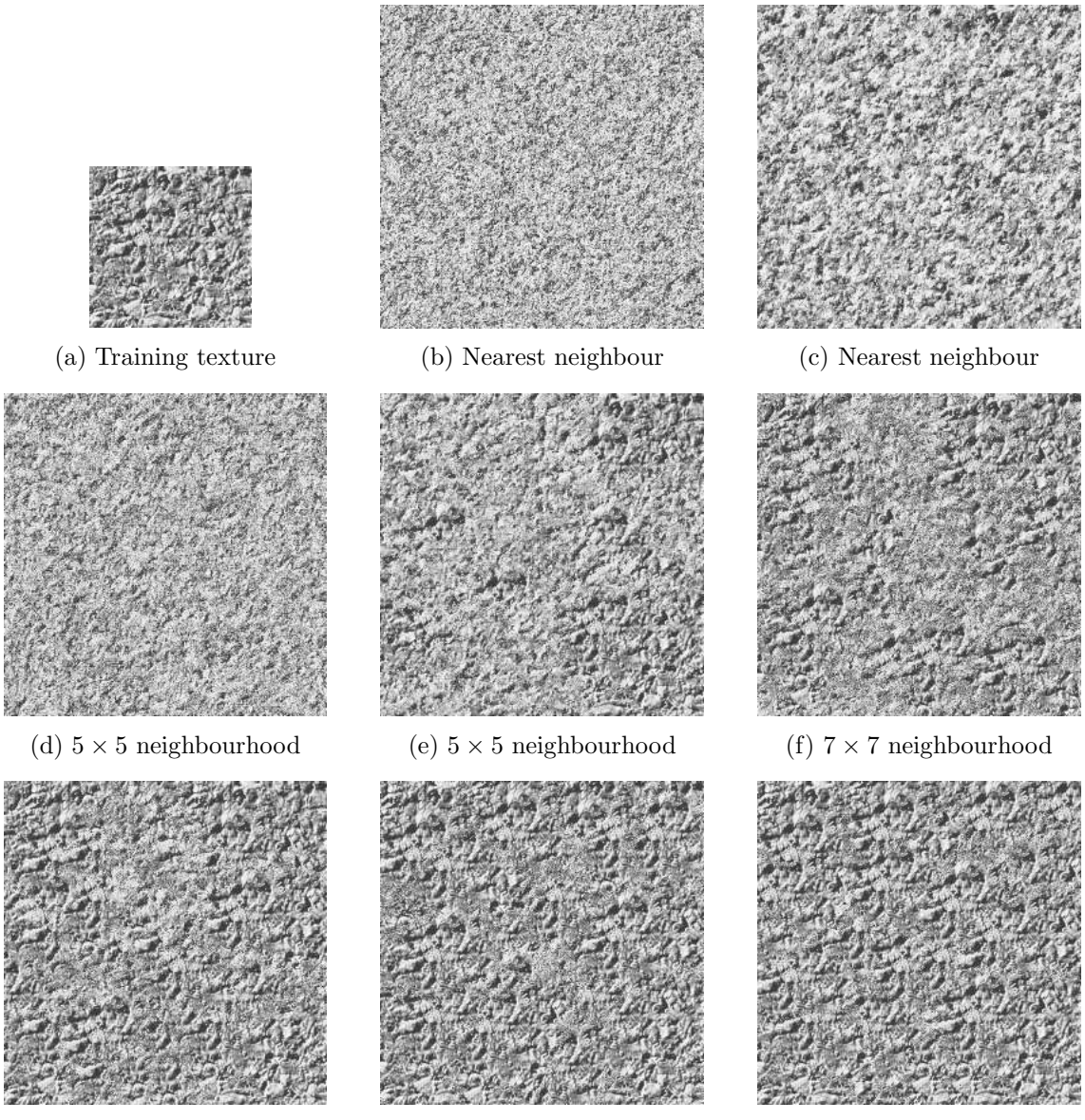


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.7: Brodatz texture D004b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

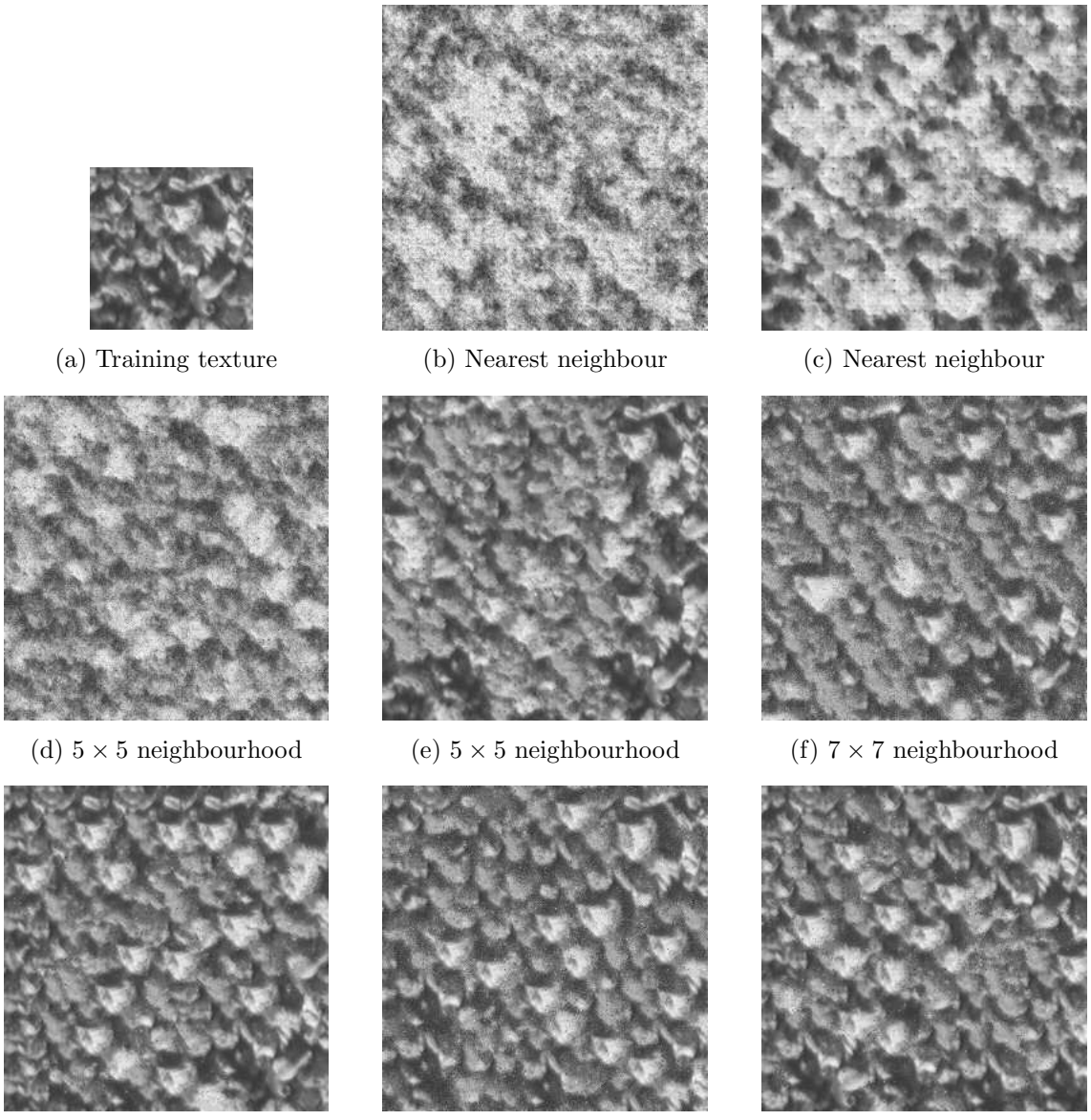


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.8: Brodatz texture D004c: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

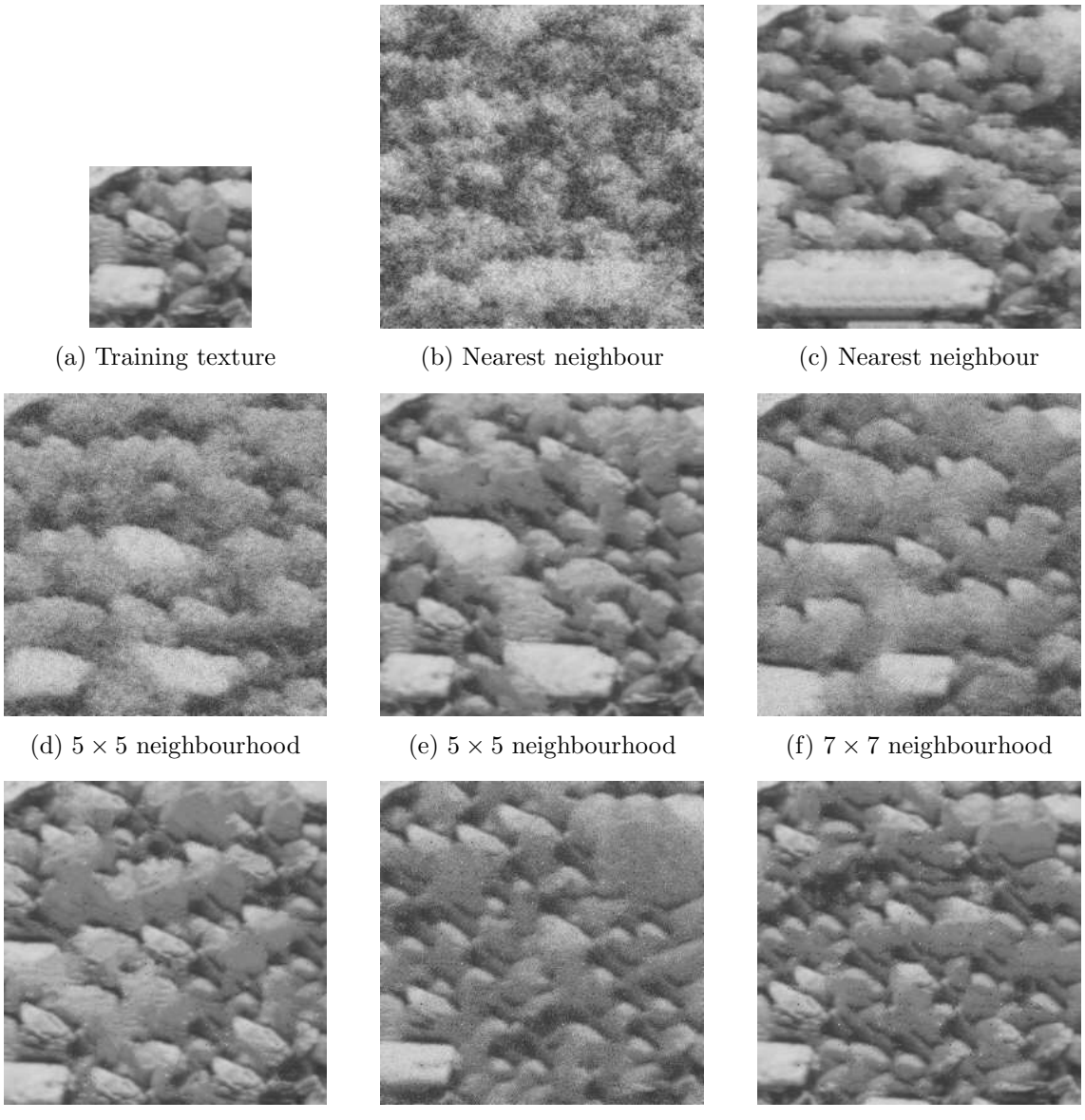


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.9: Brodatz texture D005a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



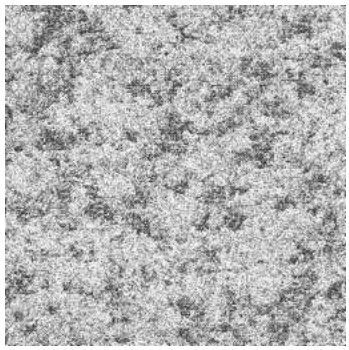
(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

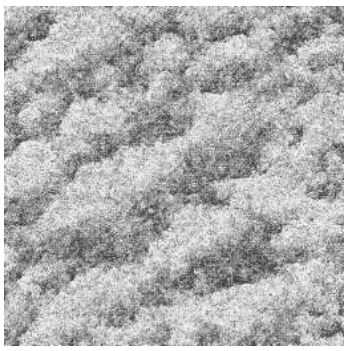
Figure B.10: Brodatz texture D005b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

(a) Training texture



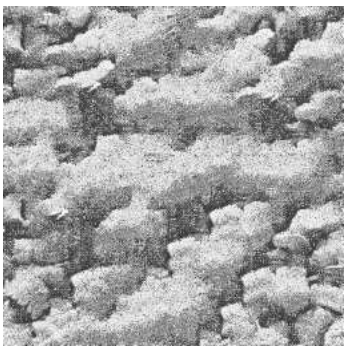
(b) Nearest neighbour

(c) Nearest neighbour



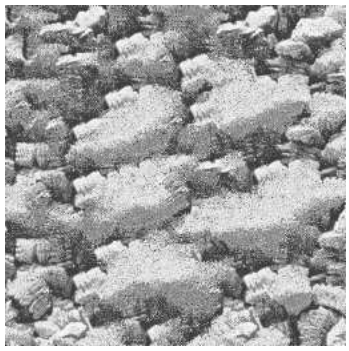
(d) 5×5 neighbourhood

(e) 5×5 neighbourhood



(f) 7×7 neighbourhood

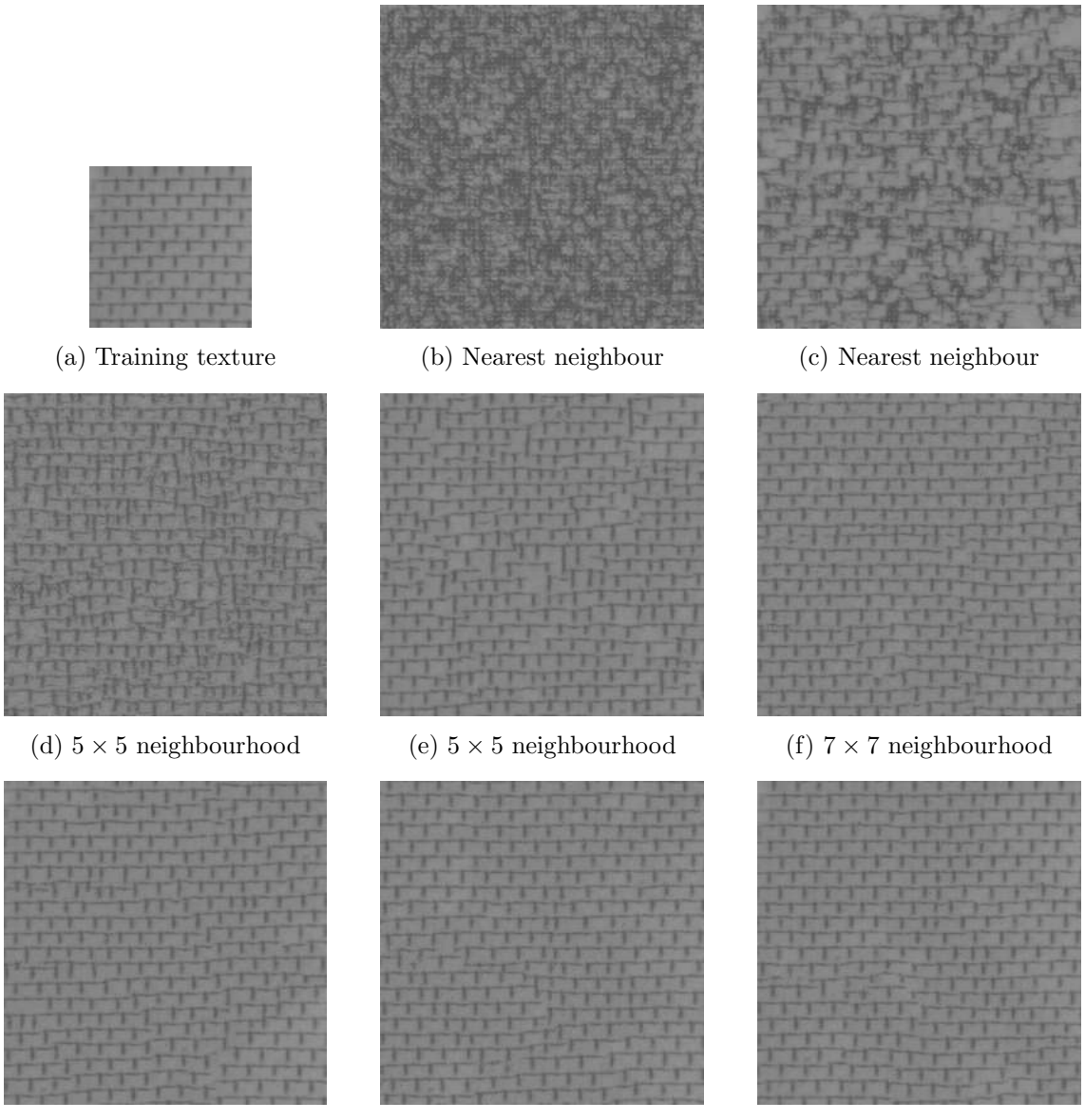
(g) 7×7 neighbourhood



(h) 9×9 neighbourhood

(i) 9×9 neighbourhood

Figure B.11: Brodatz texture D005c: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

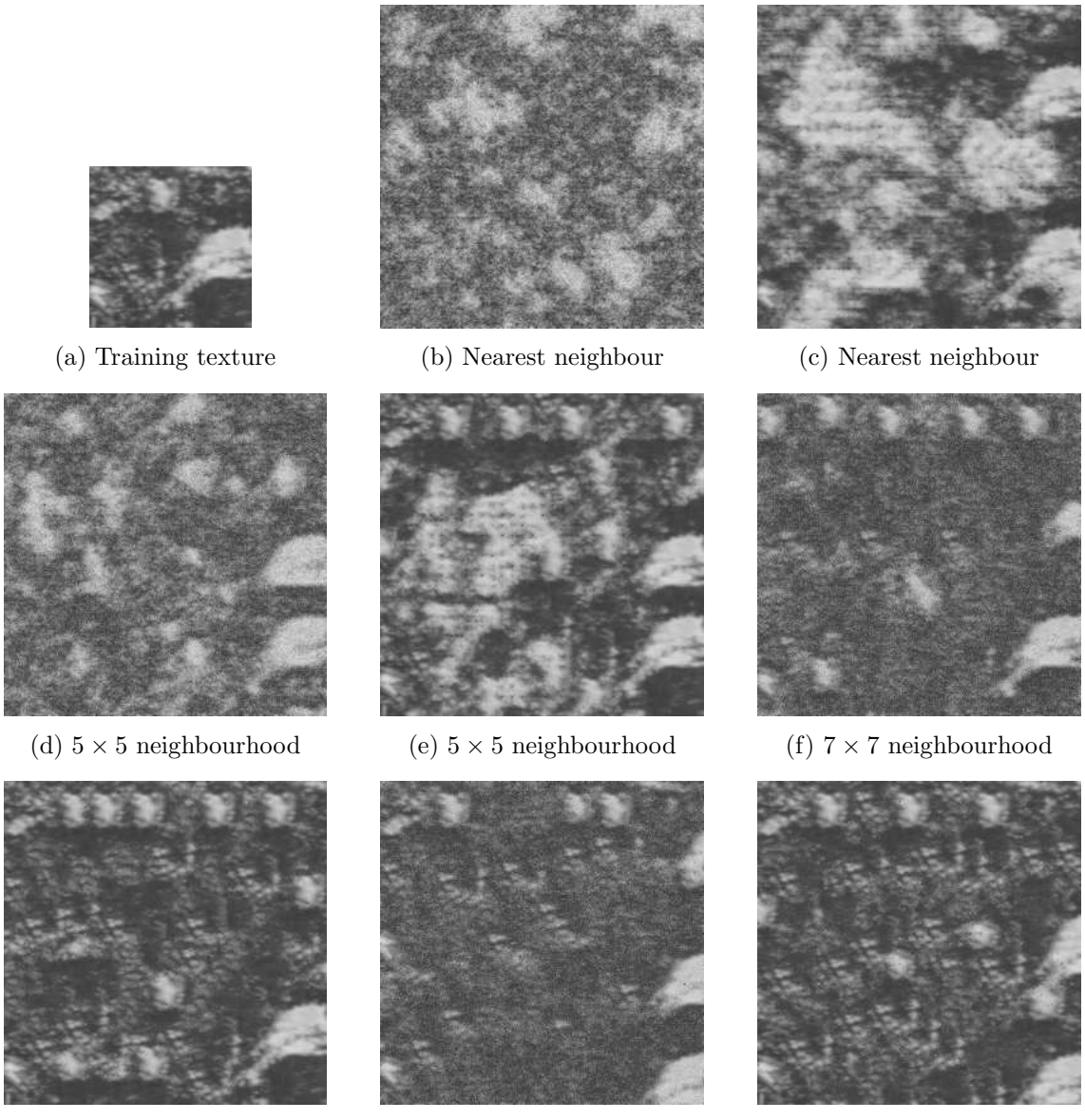


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.12: Brodatz texture D006a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



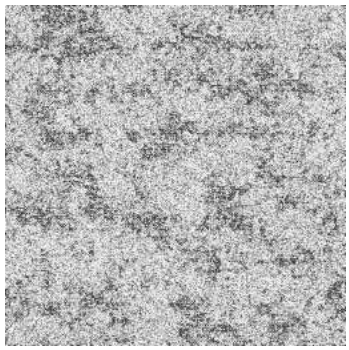
(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

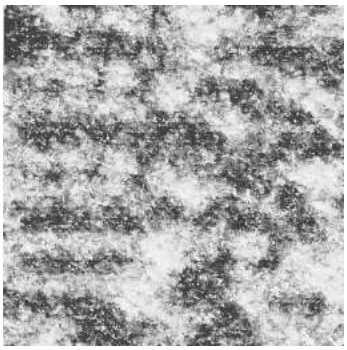
(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.13: Brodatz texture D007a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

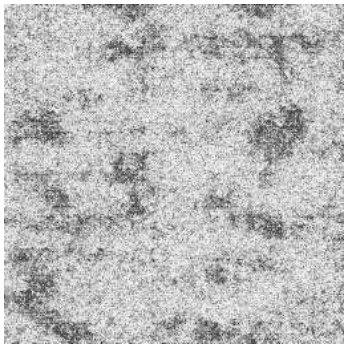
(a) Training texture



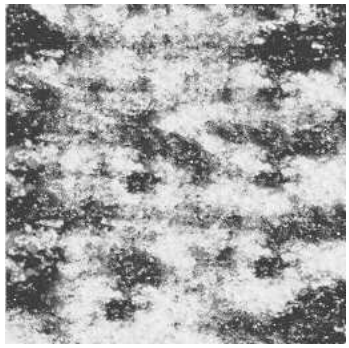
(b) Nearest neighbour



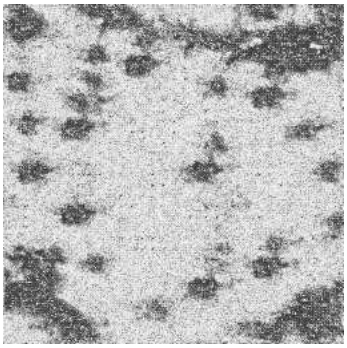
(c) Nearest neighbour



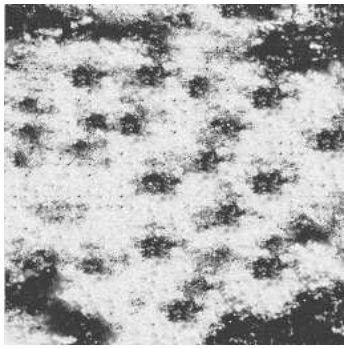
(d) 5×5 neighbourhood



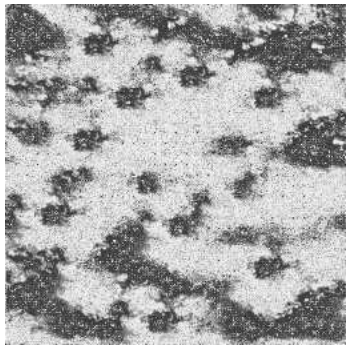
(e) 5×5 neighbourhood



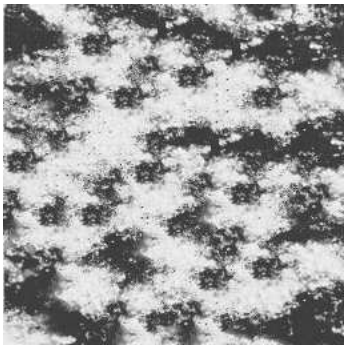
(f) 7×7 neighbourhood



(g) 7×7 neighbourhood

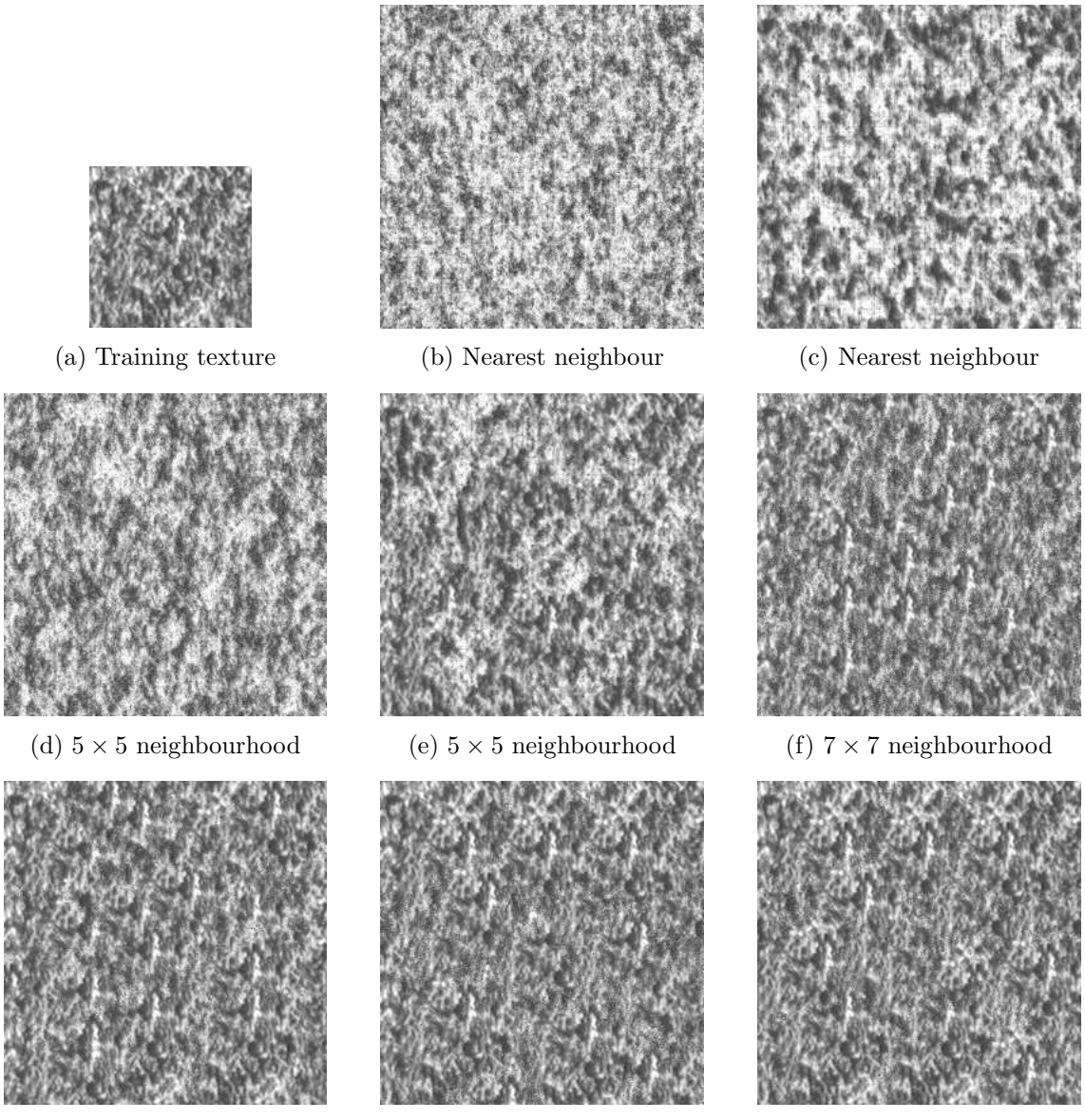


(h) 9×9 neighbourhood



(i) 9×9 neighbourhood

Figure B.14: Brodatz texture D007b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

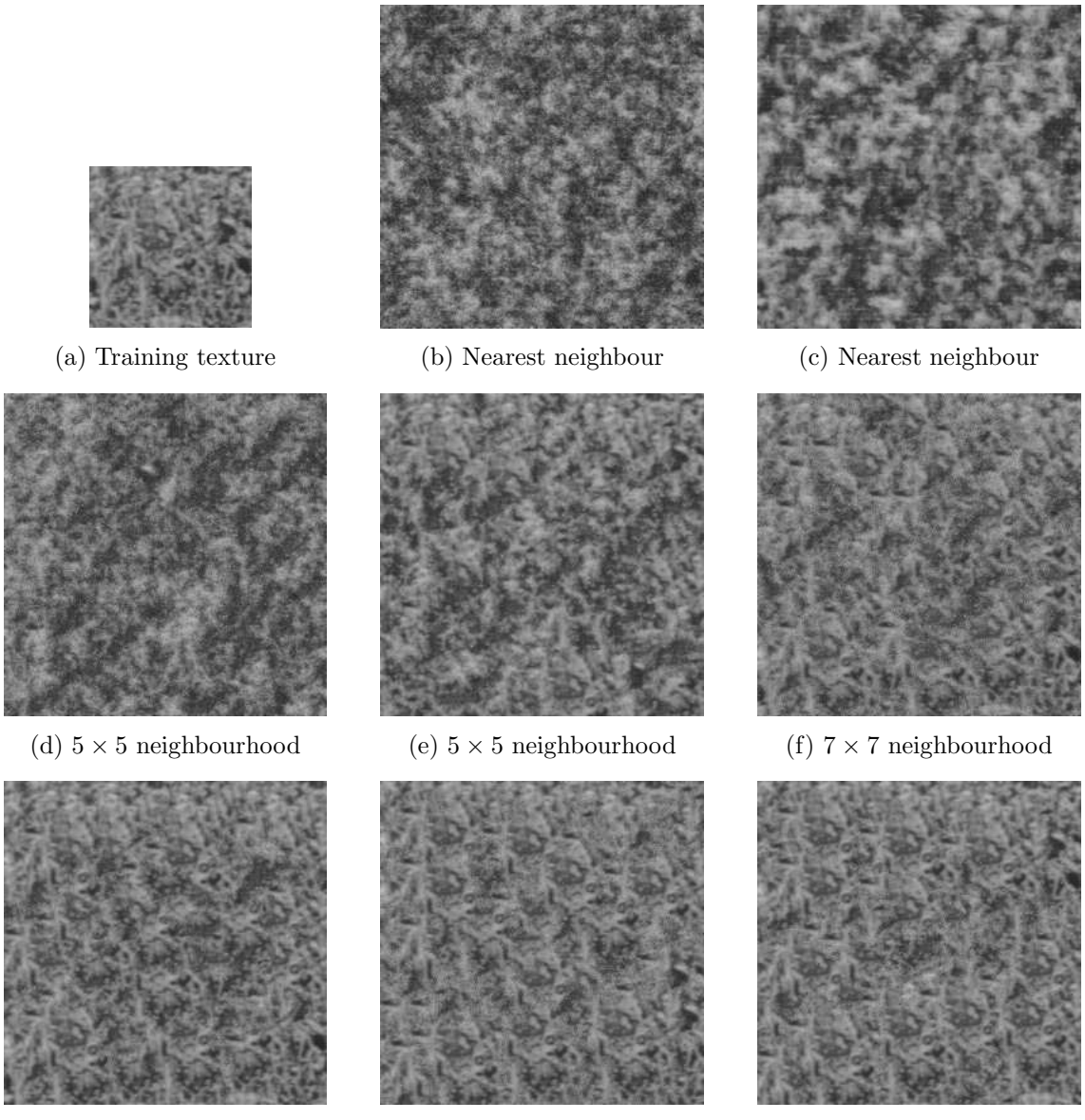


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.15: Brodatz texture D009a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

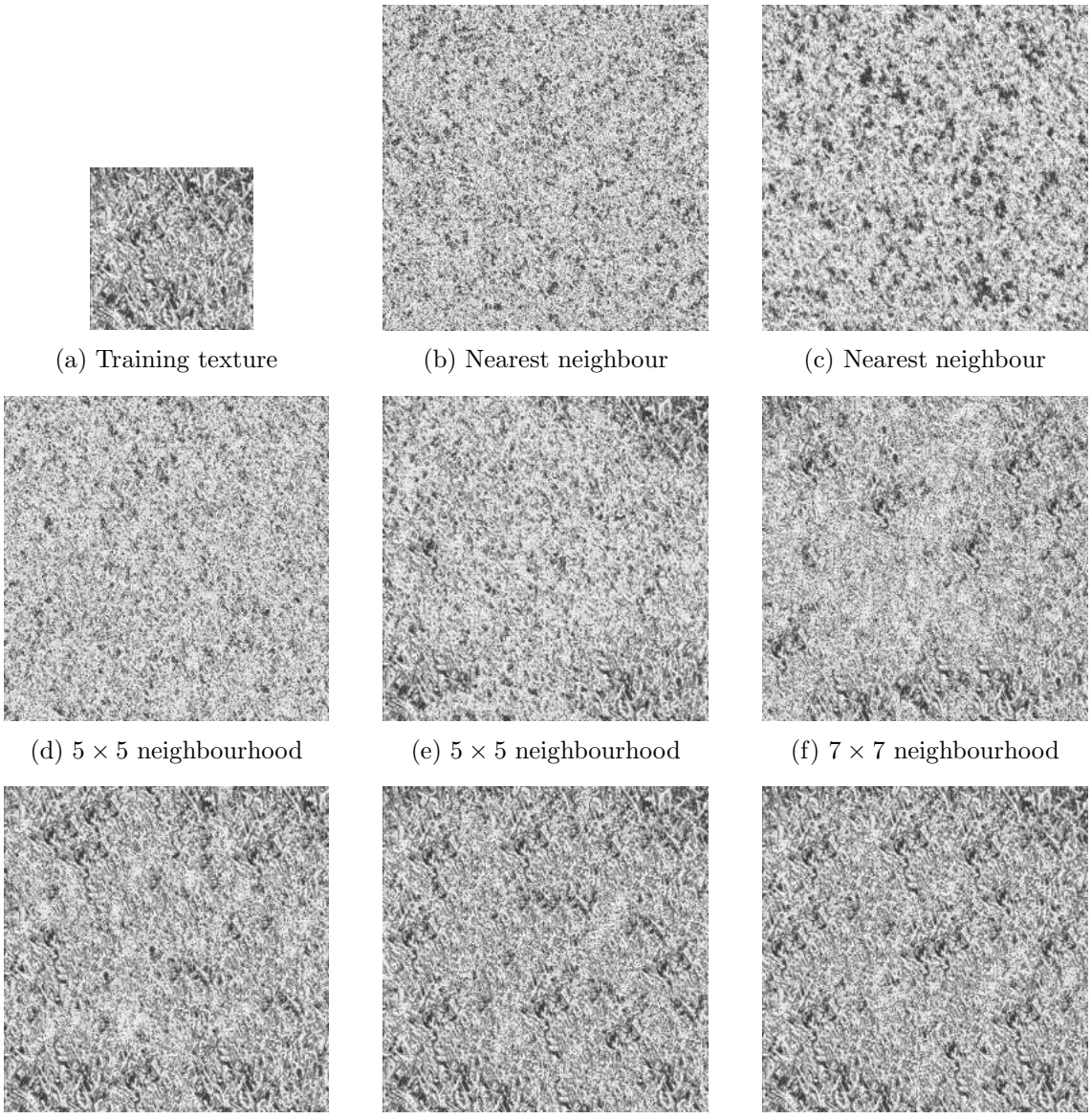


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.16: Brodatz texture D009b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

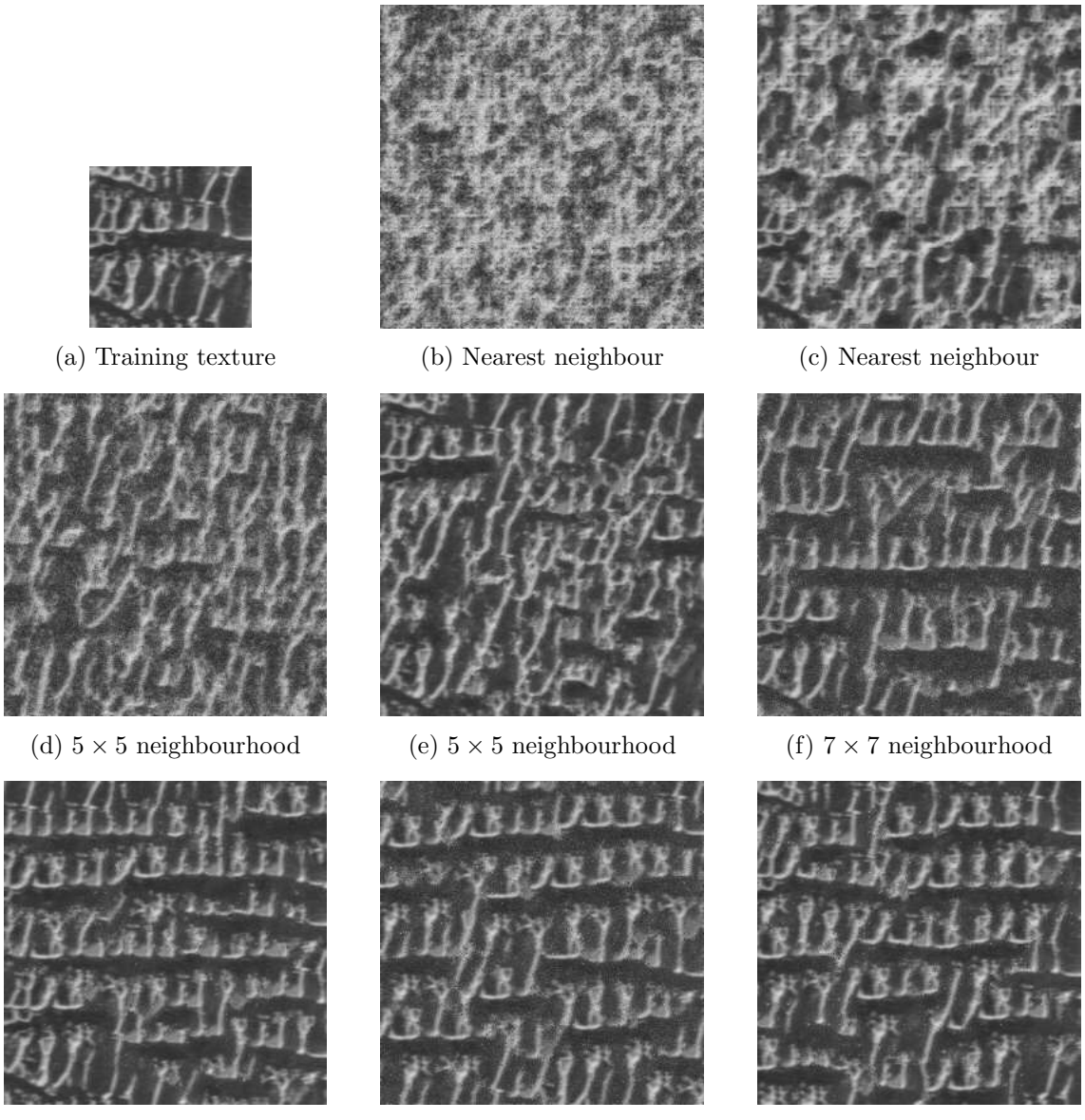


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.17: Brodatz texture D009c: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

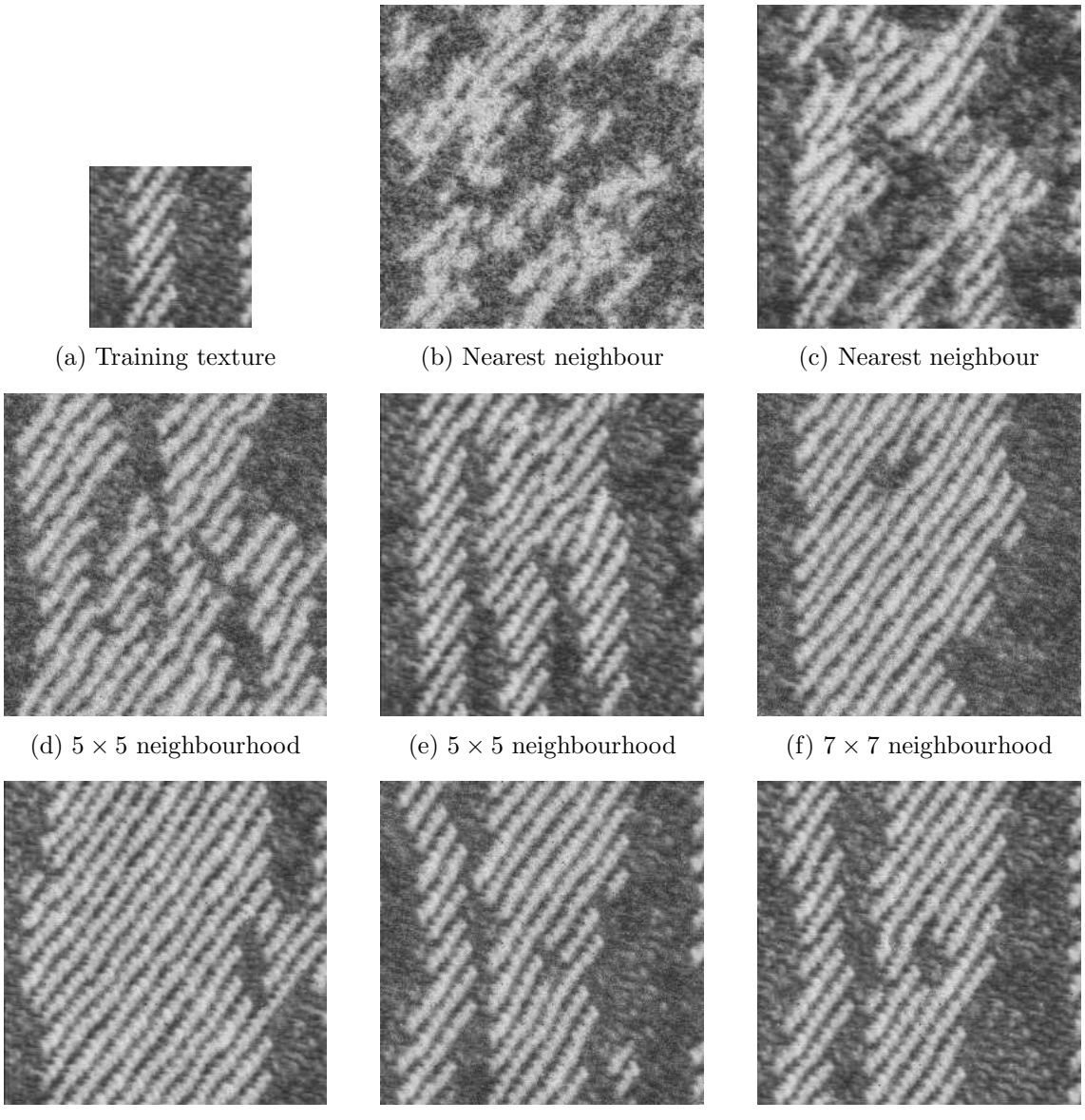


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.18: Brodatz texture D010a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

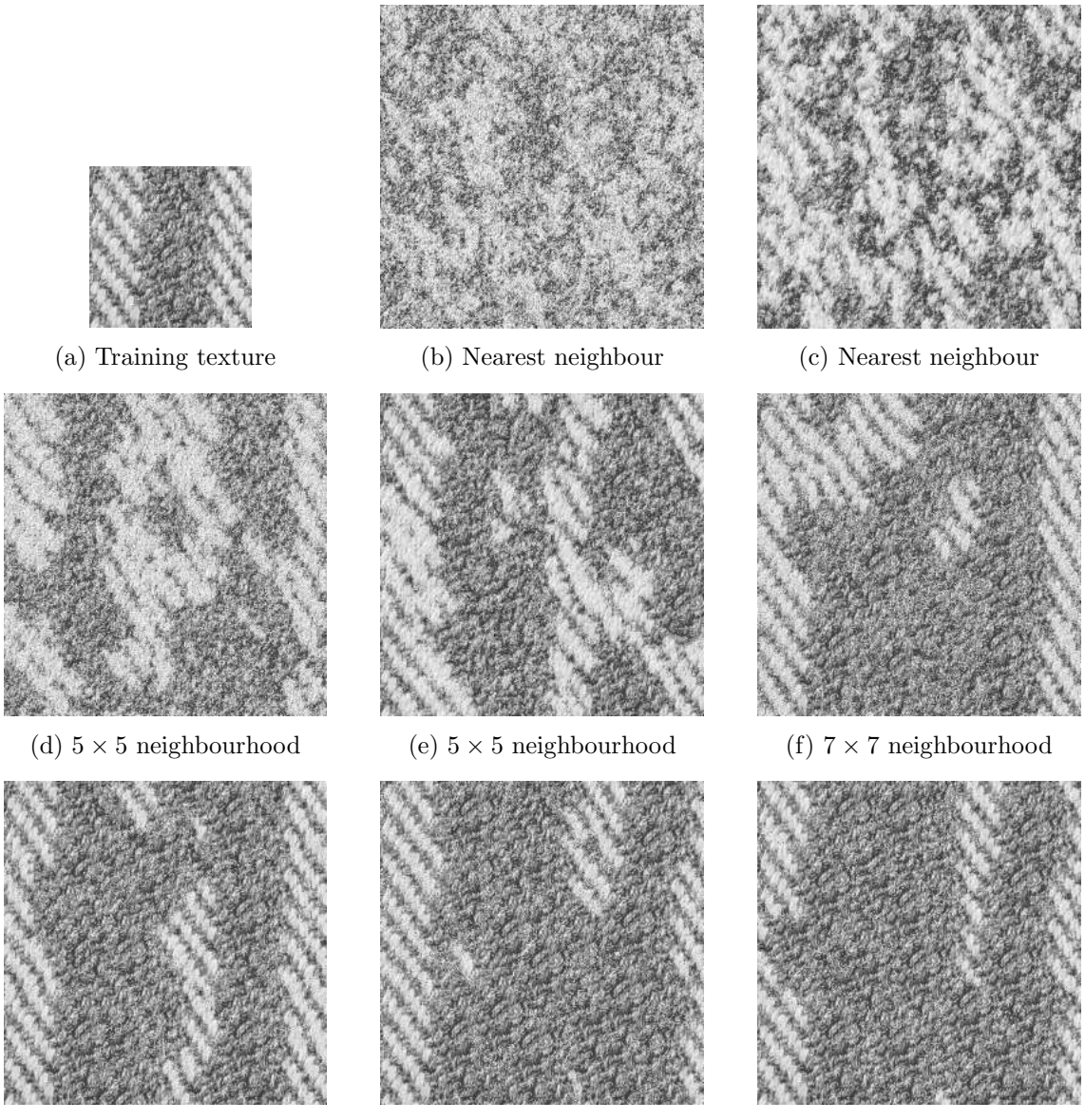


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.19: Brodatz texture D011a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

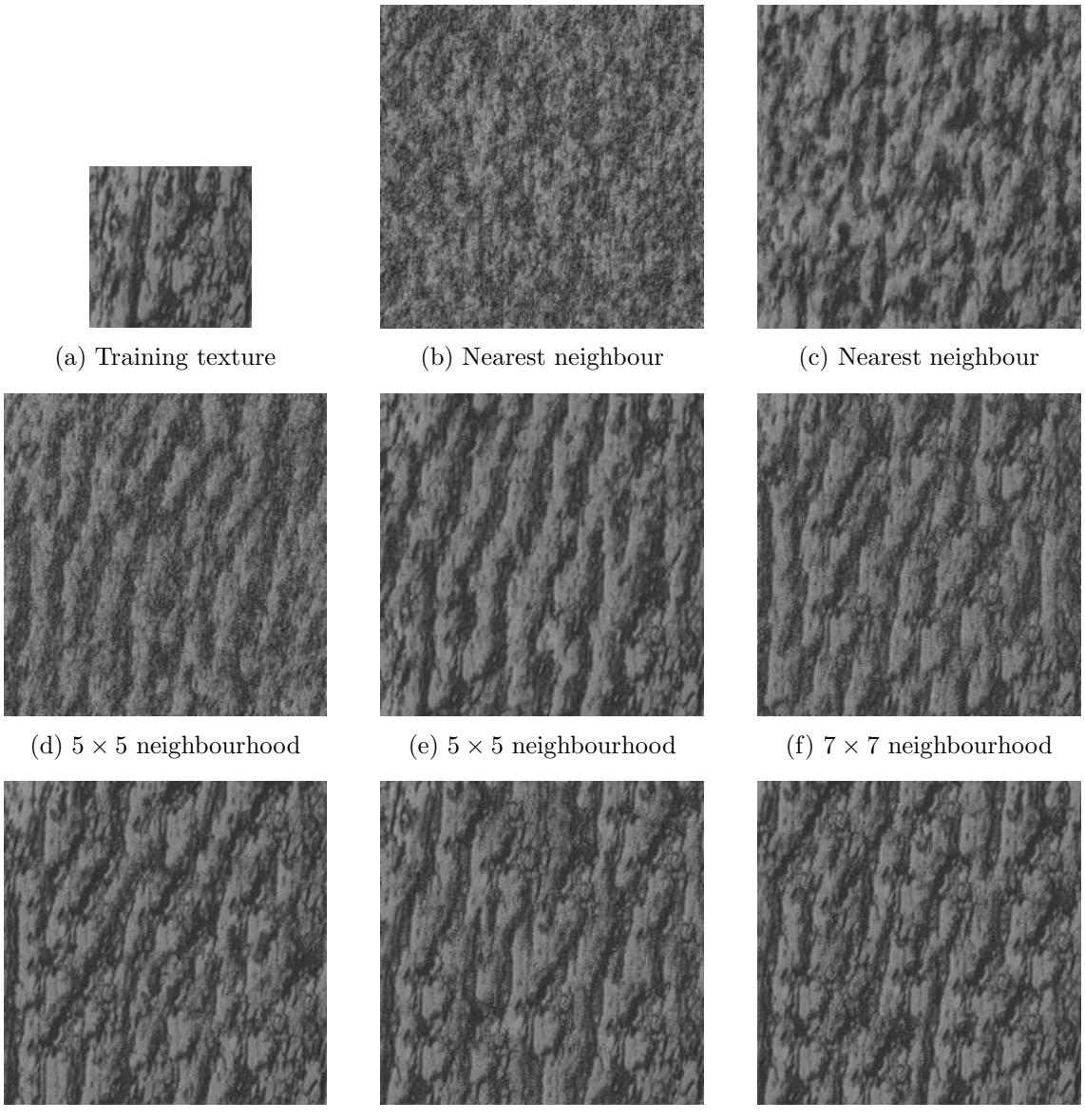


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.20: Brodatz texture D011b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

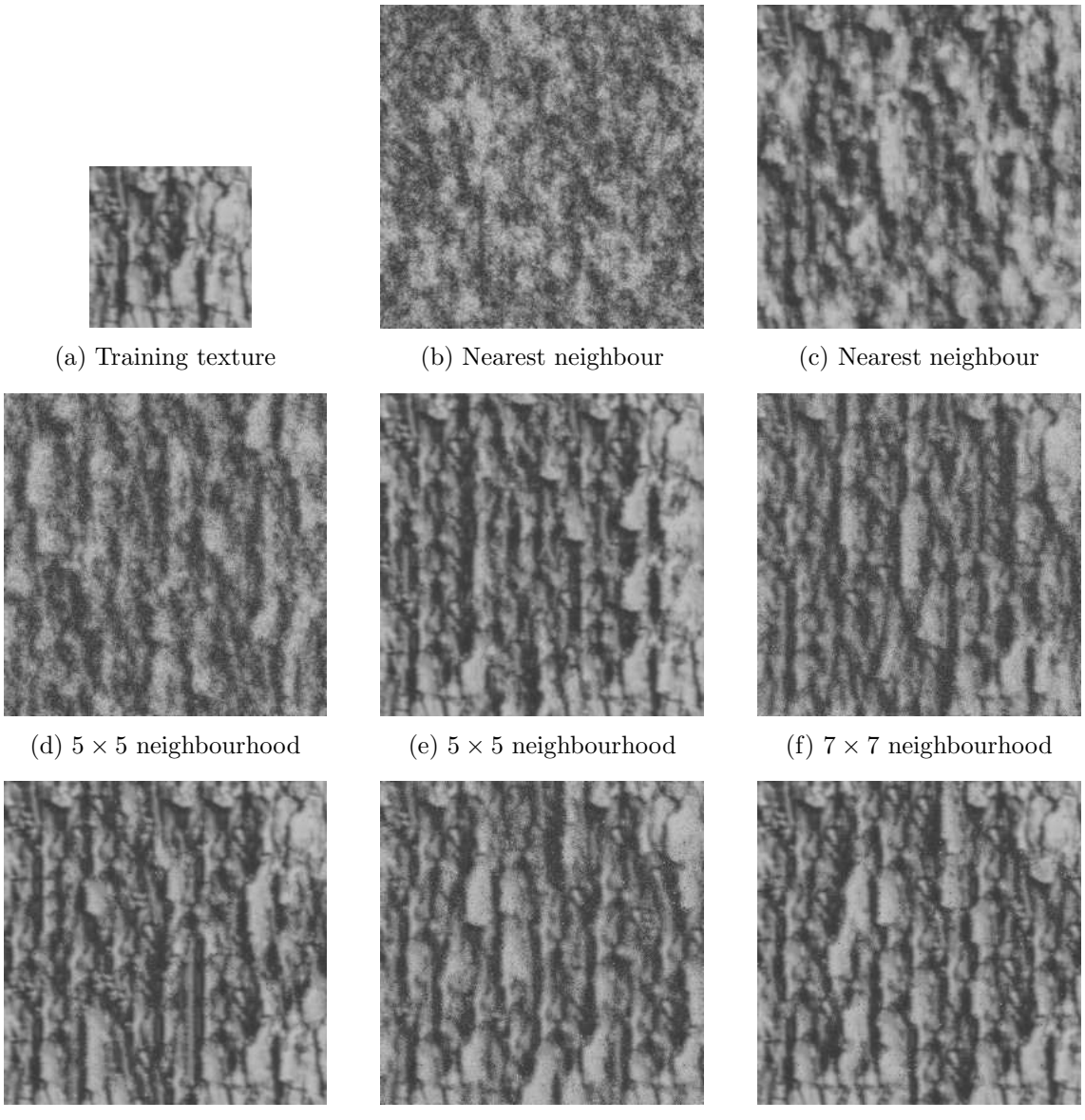


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.21: Brodatz texture D012a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

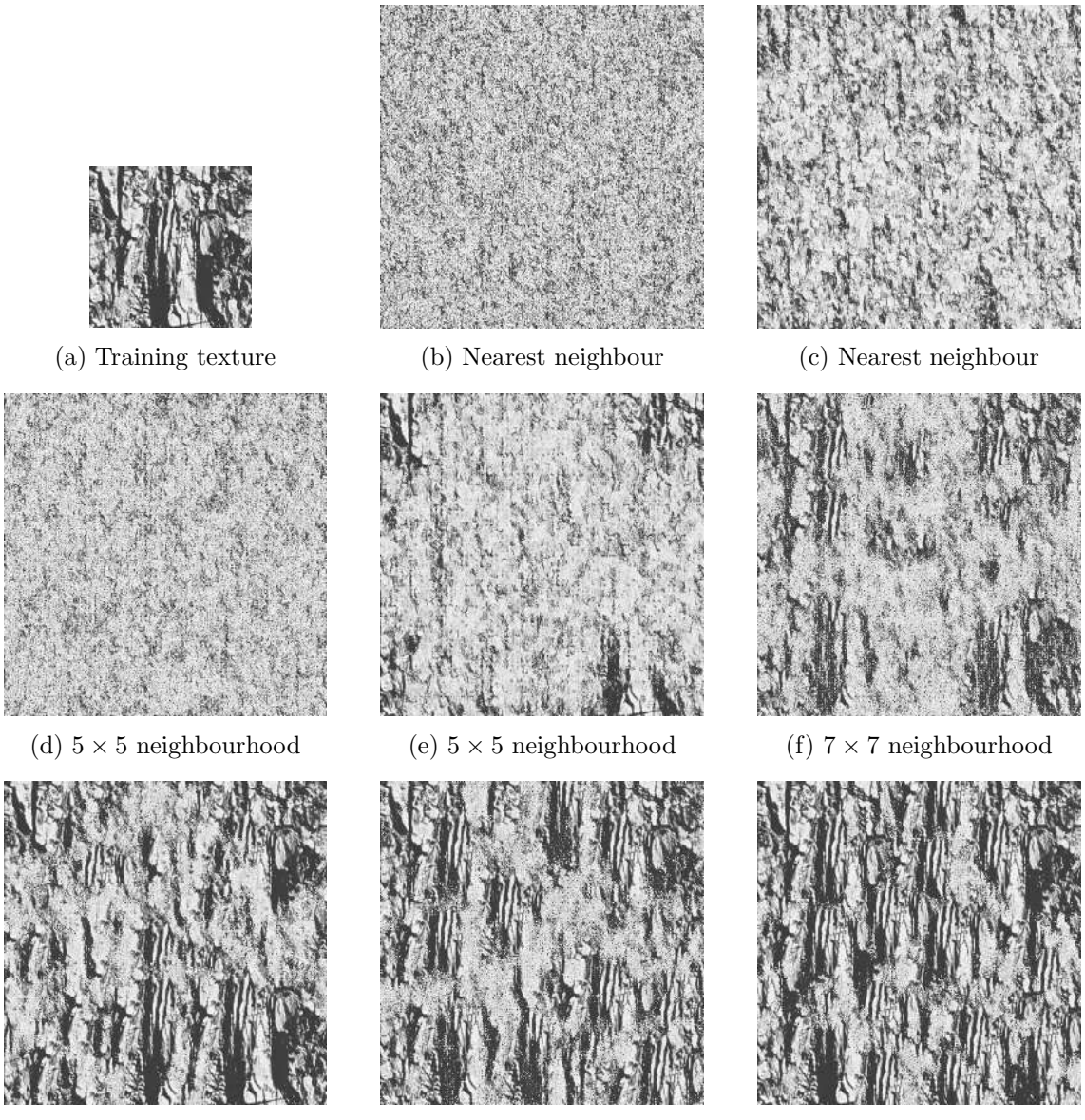


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.22: Brodatz texture D012b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

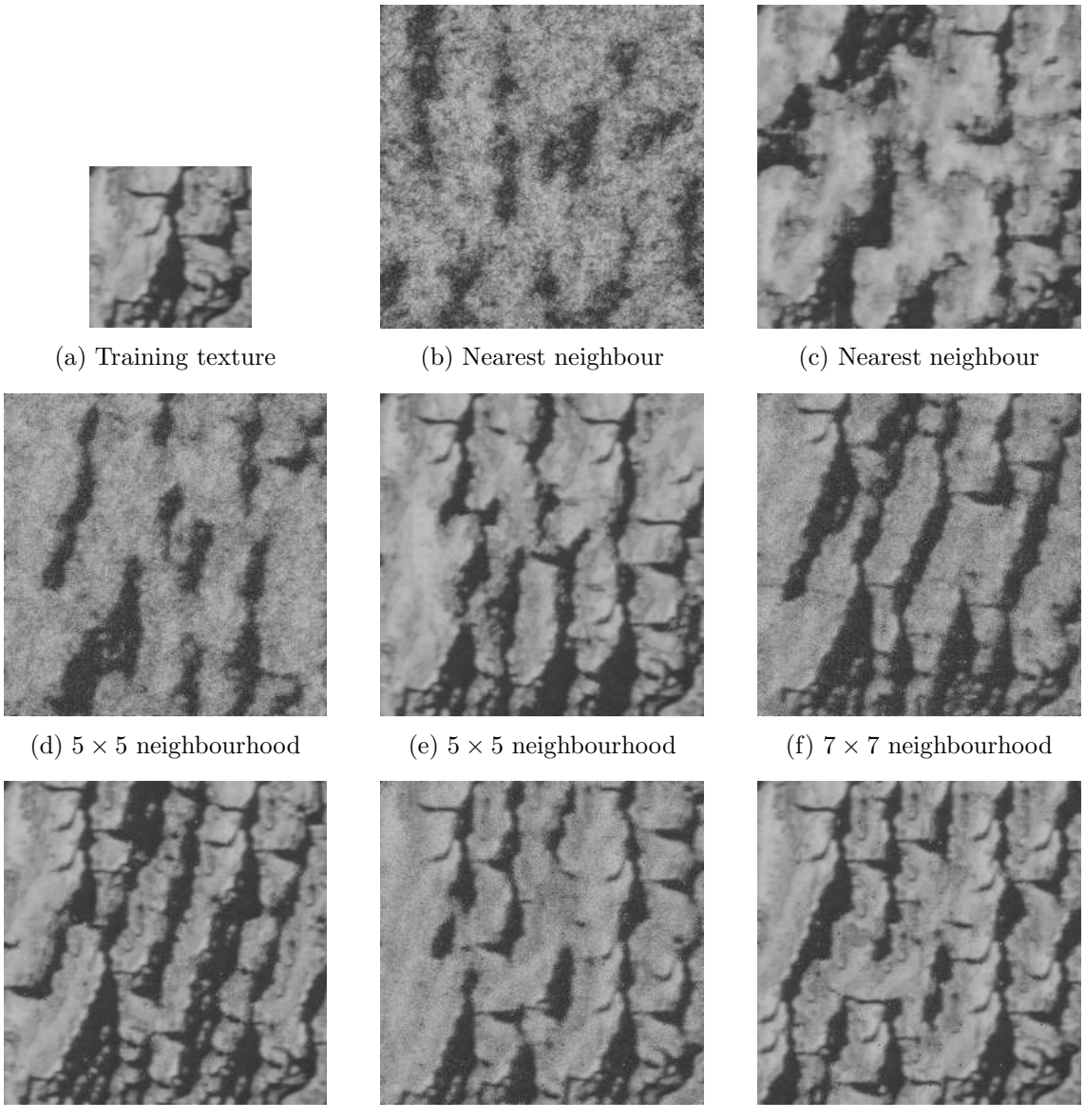


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.23: Brodatz texture D012c: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

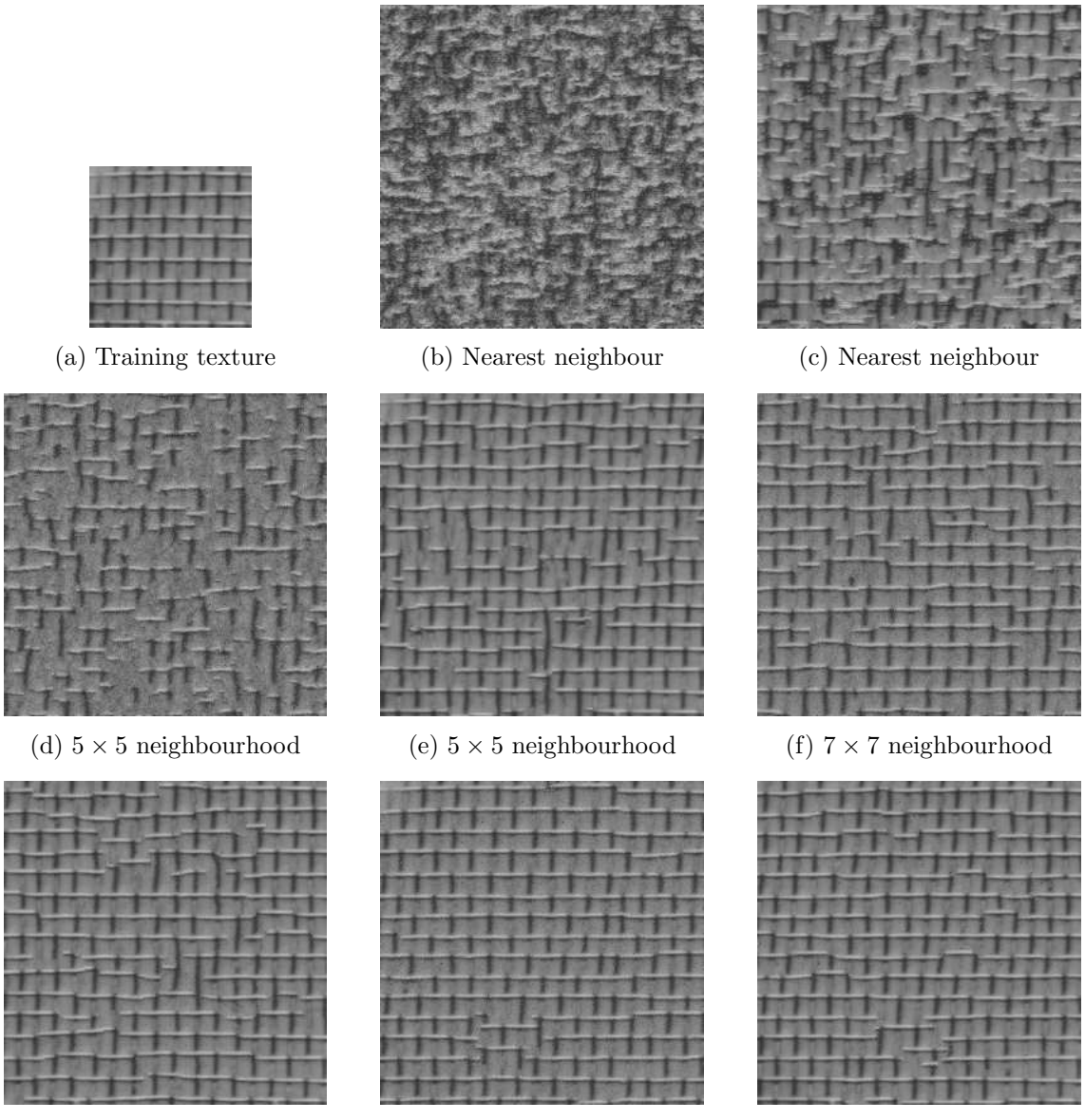


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.24: Brodatz texture D013a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

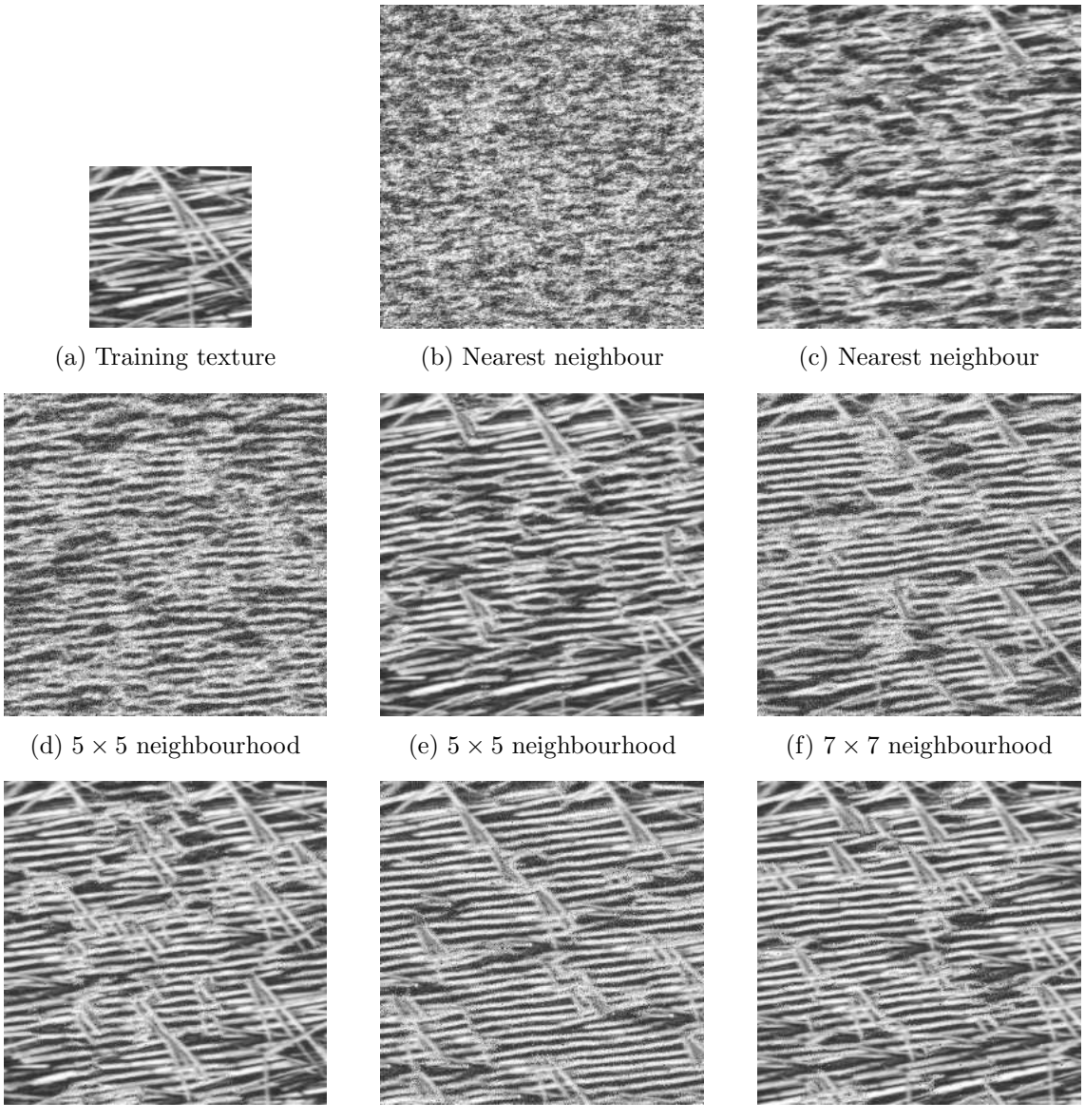


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.25: Brodatz texture D014a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

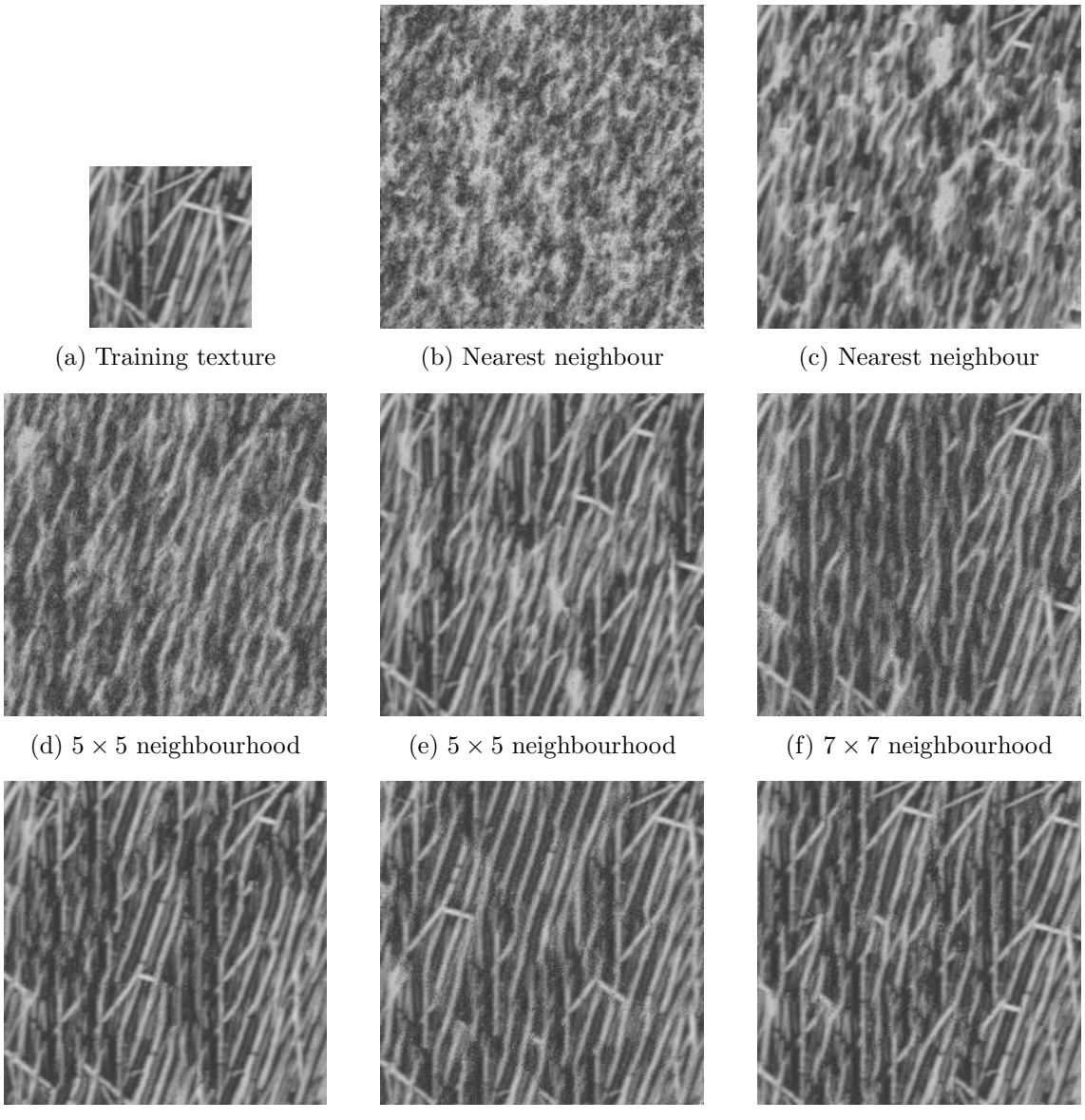


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.26: Brodatz texture D015a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

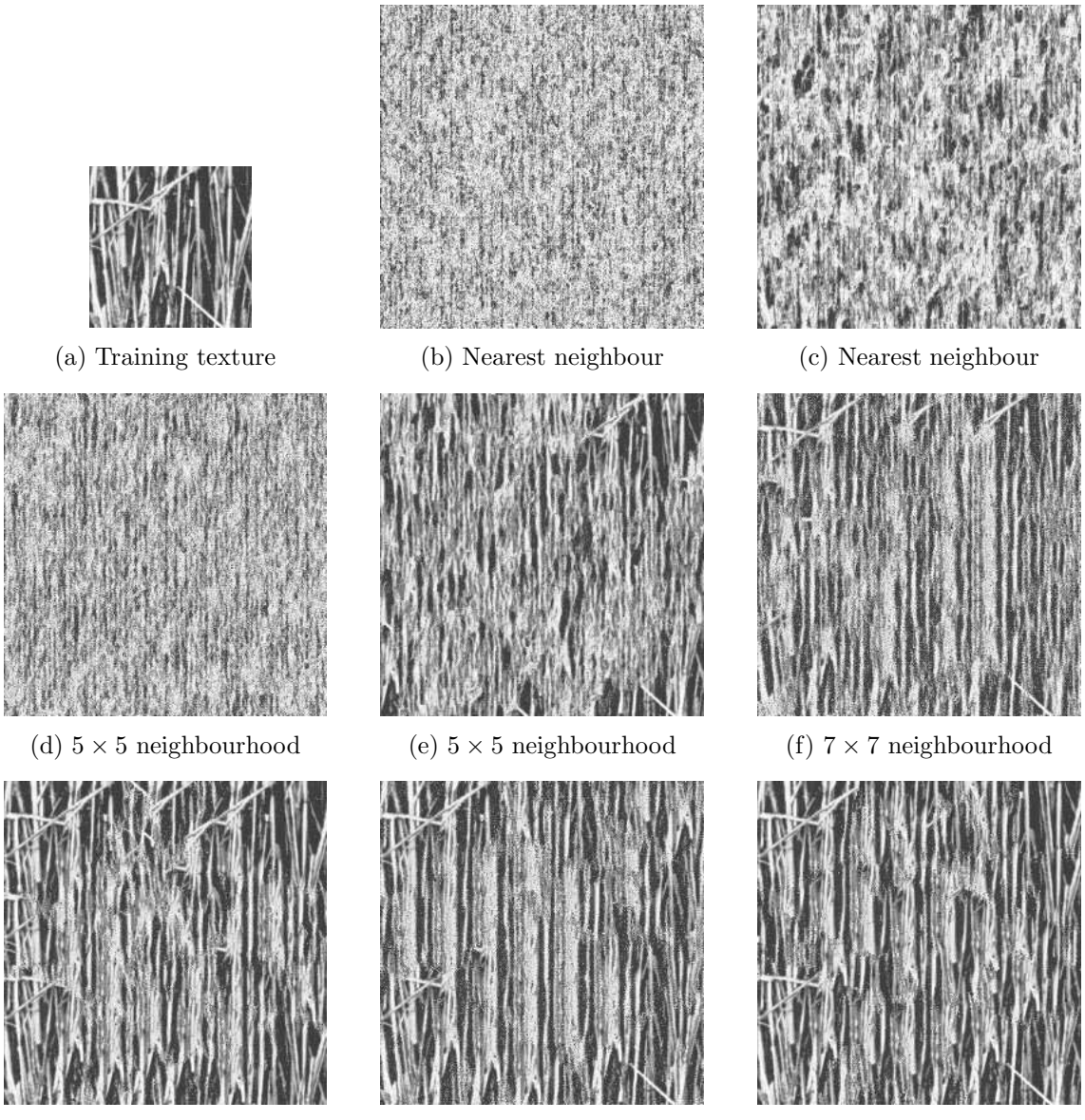


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.27: Brodatz texture D015b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

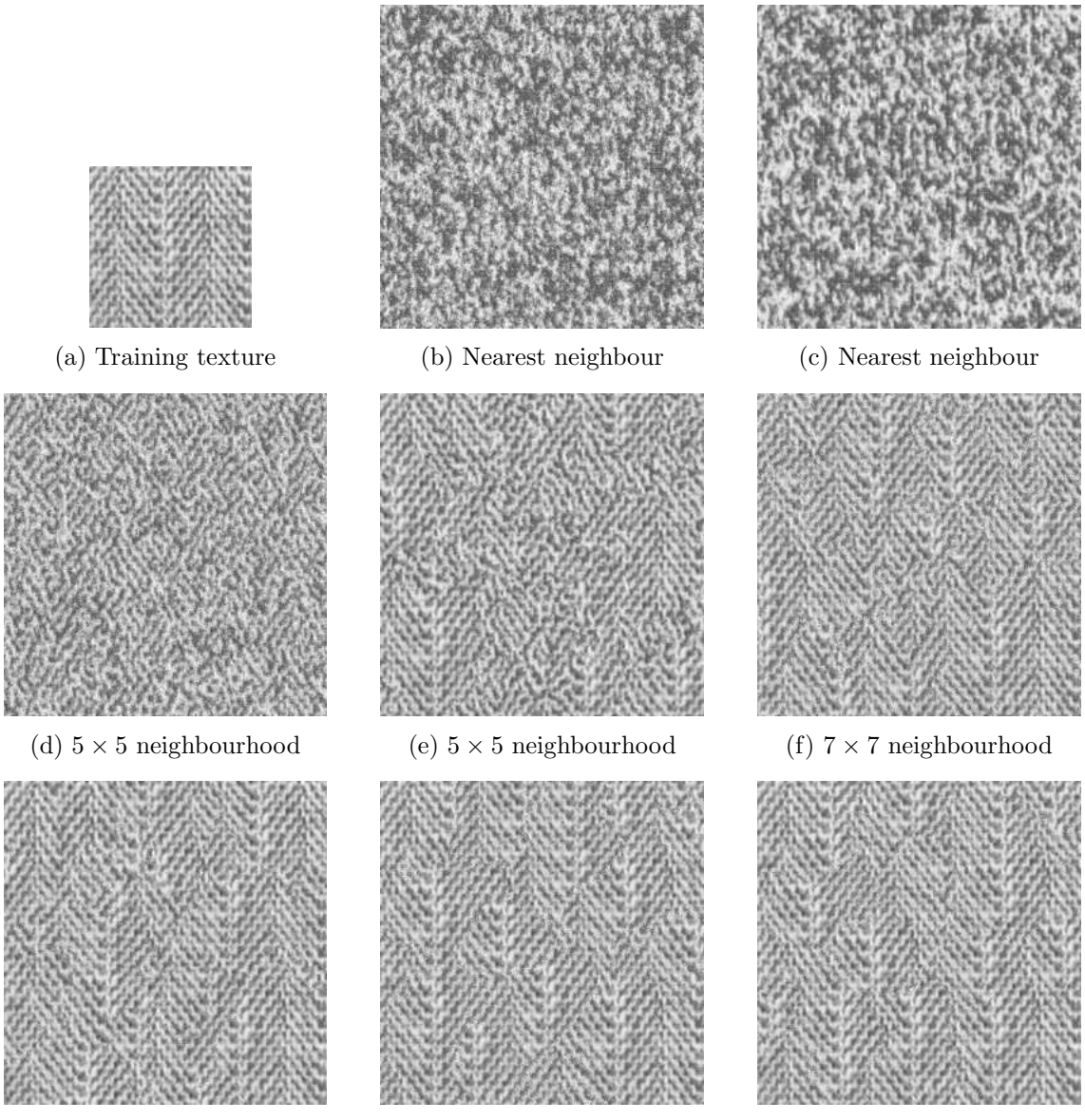


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.28: Brodatz texture D015c: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

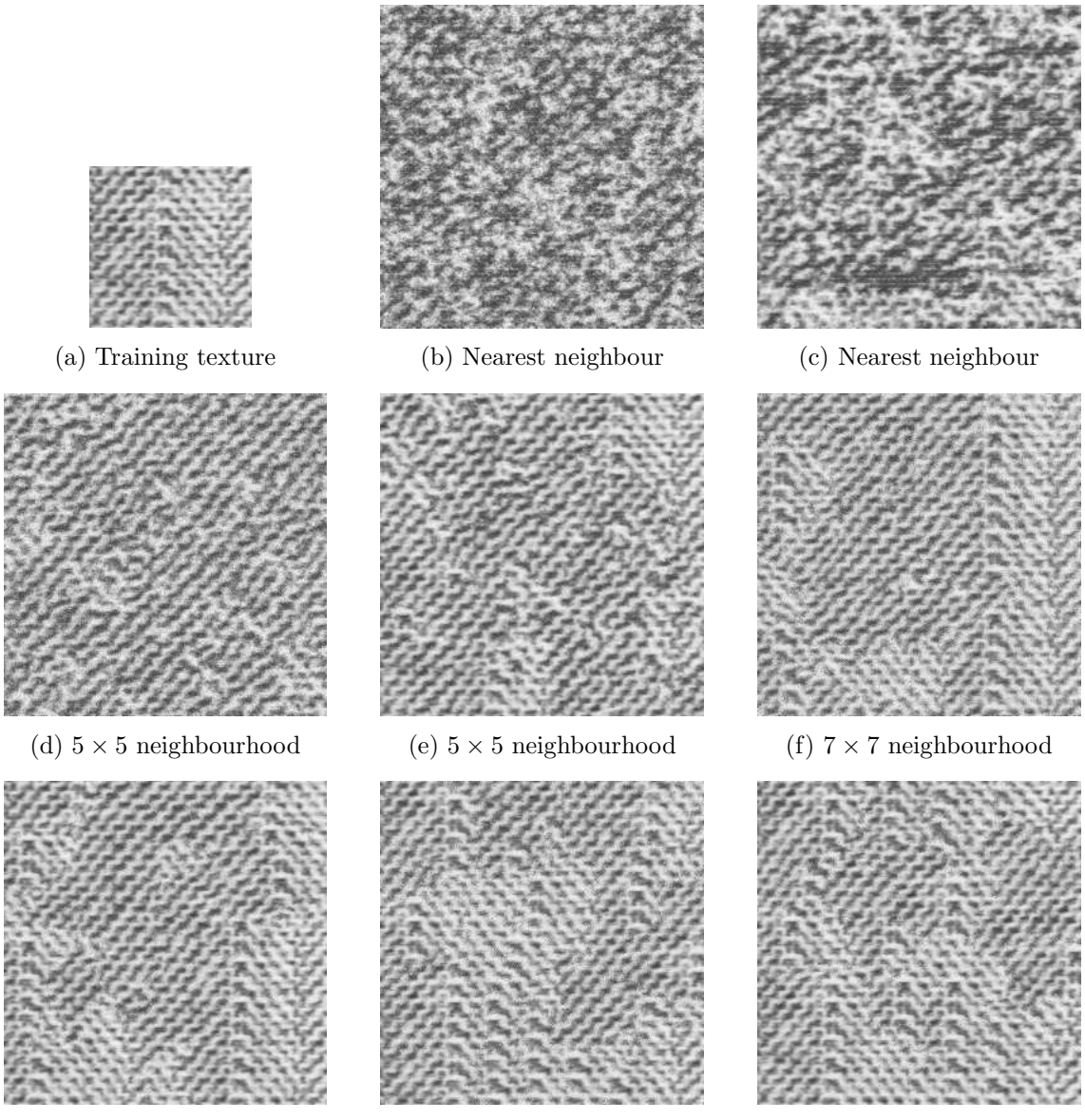


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.29: Brodatz texture D017a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

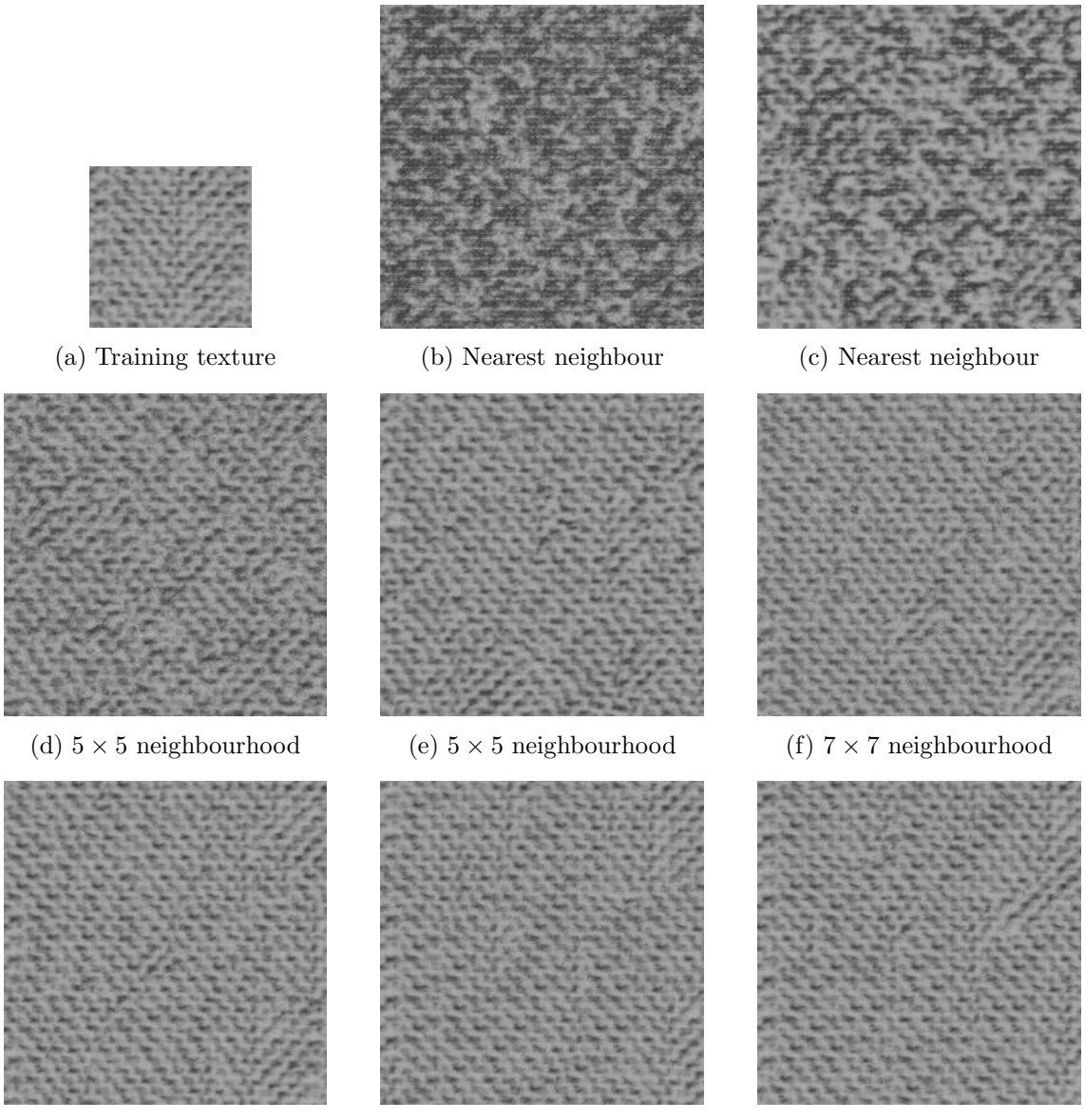


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.30: Brodatz texture D017b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

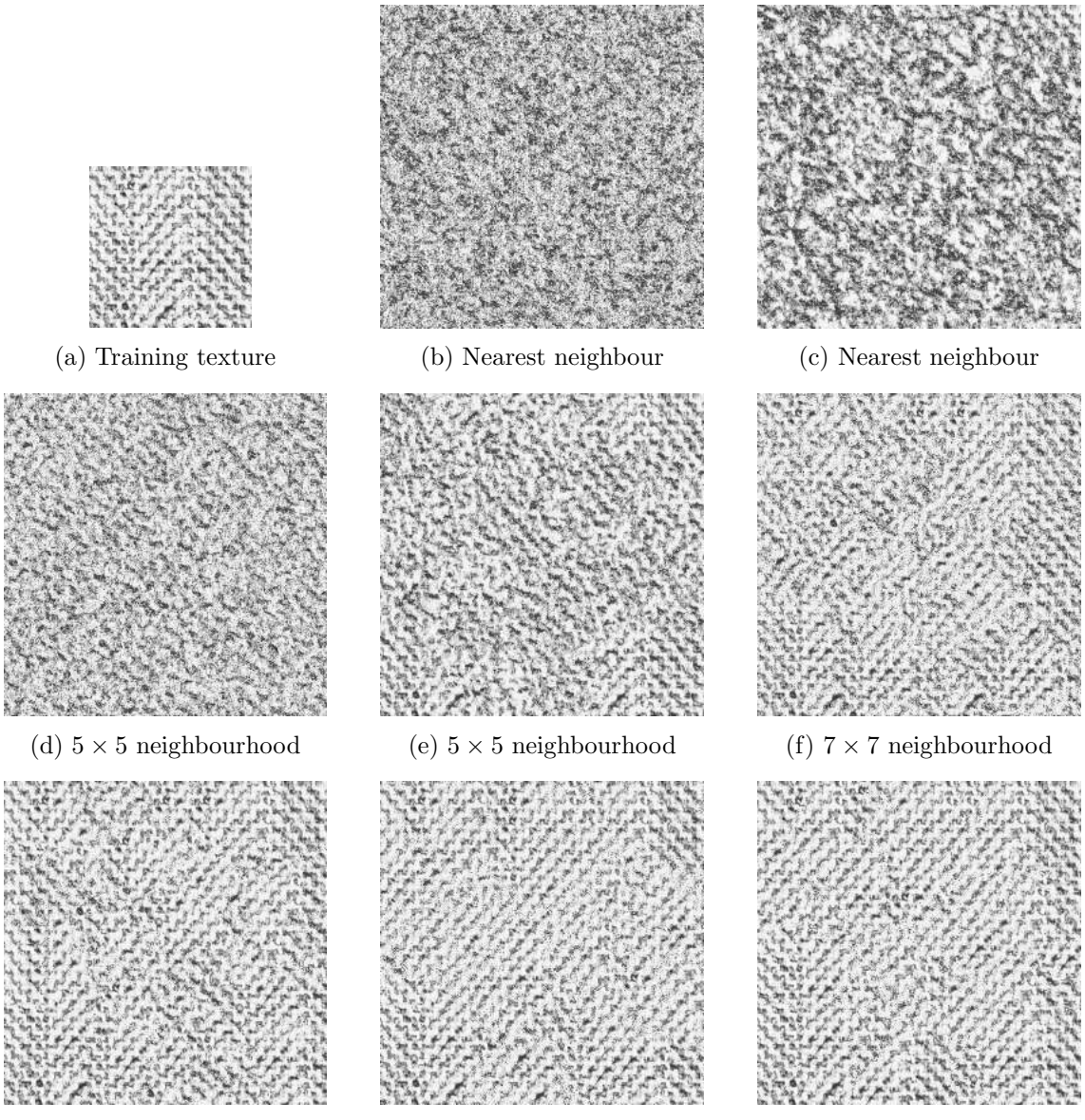


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.31: Brodatz texture D017c: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

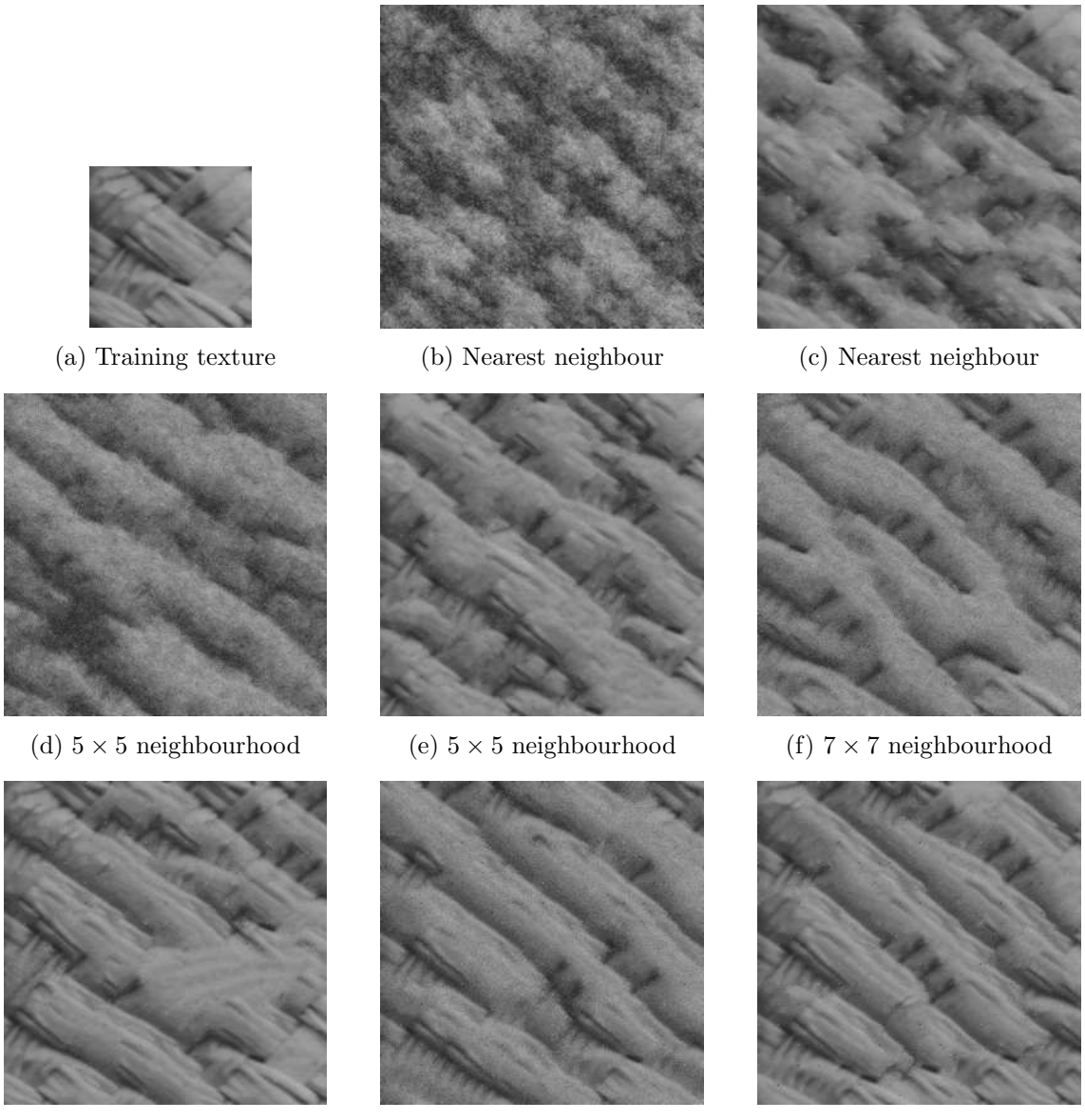


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.32: Brodatz texture D017d: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

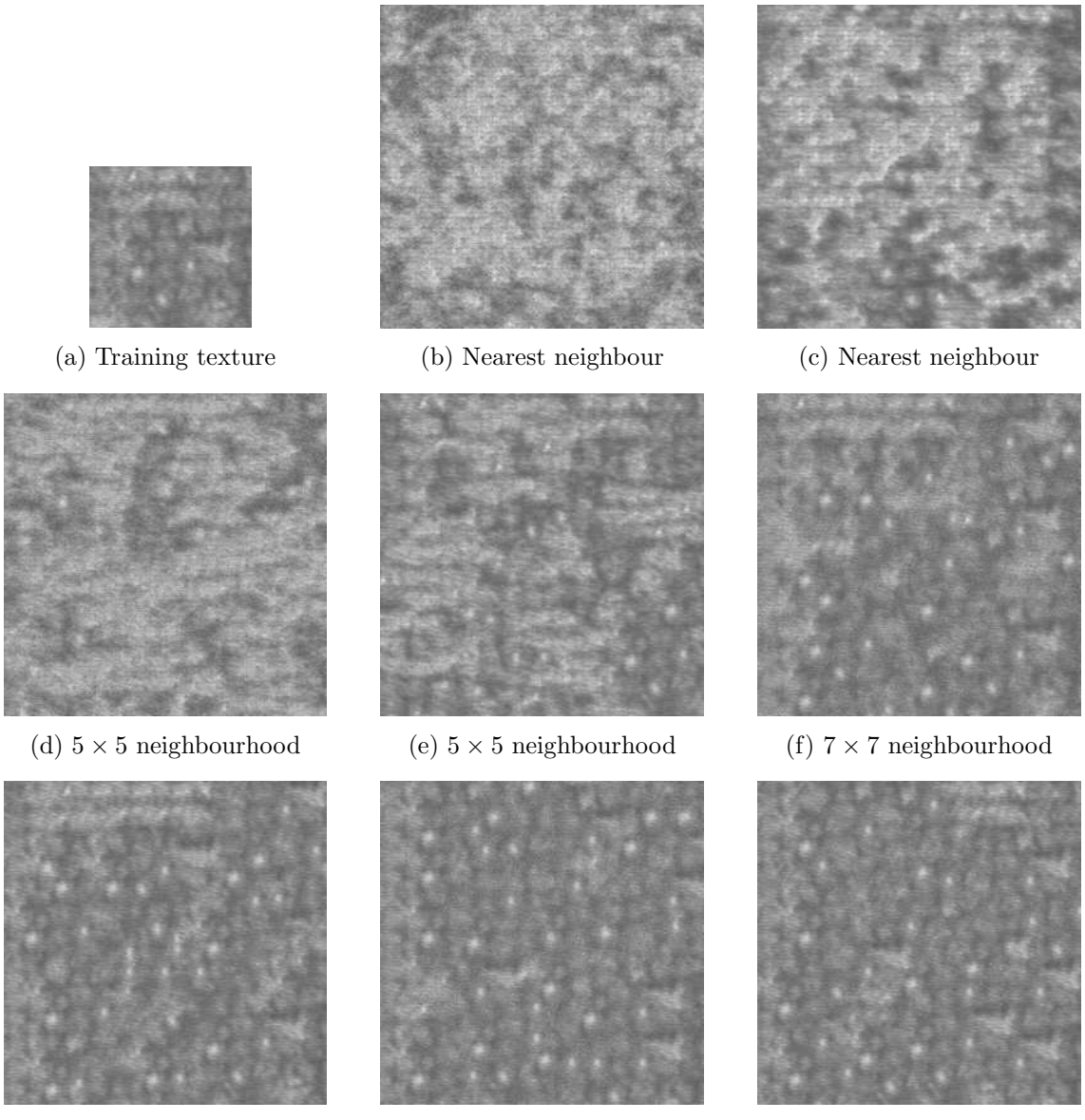


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.33: Brodatz texture D018a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

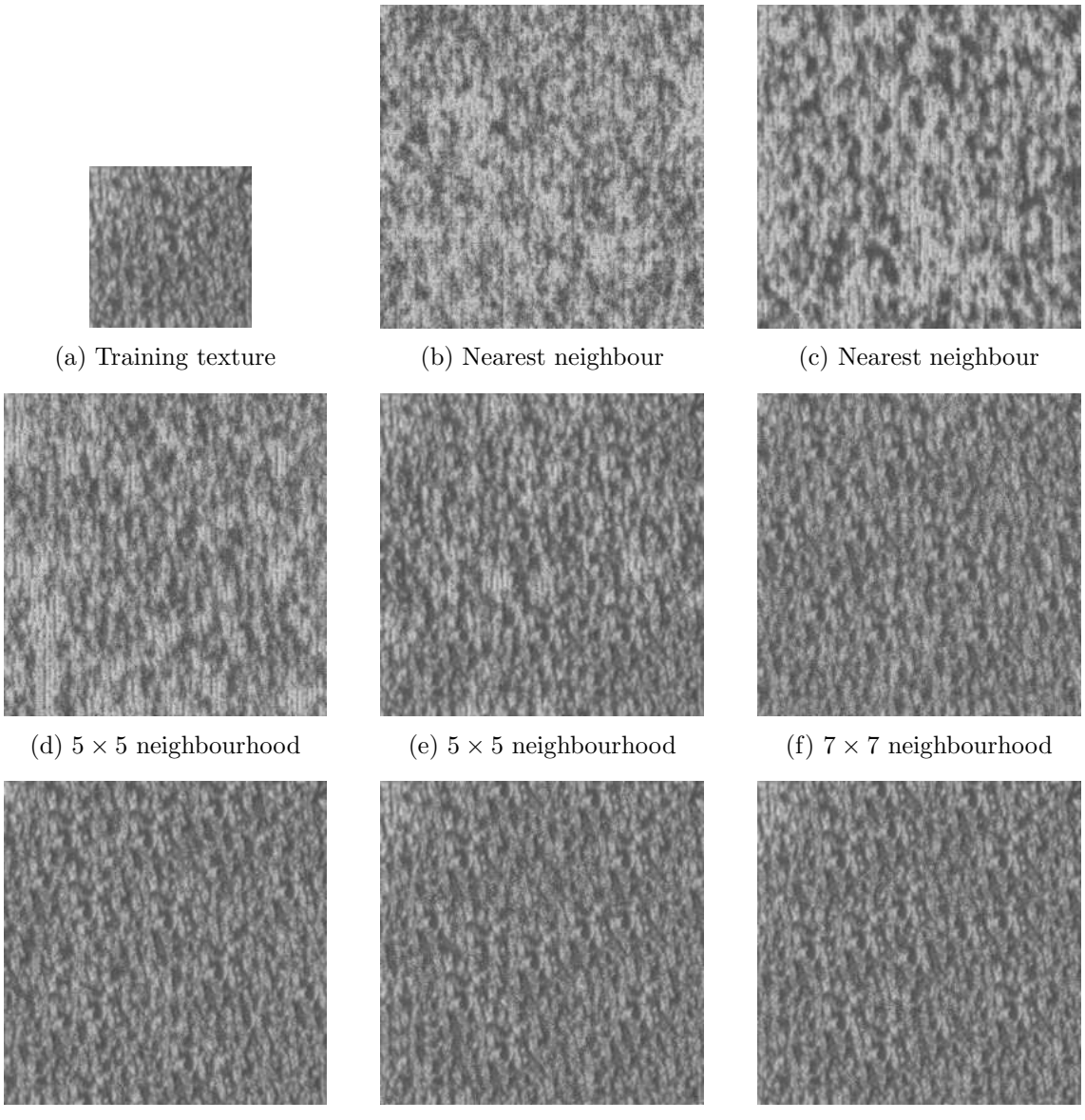


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.34: Brodatz texture D019a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

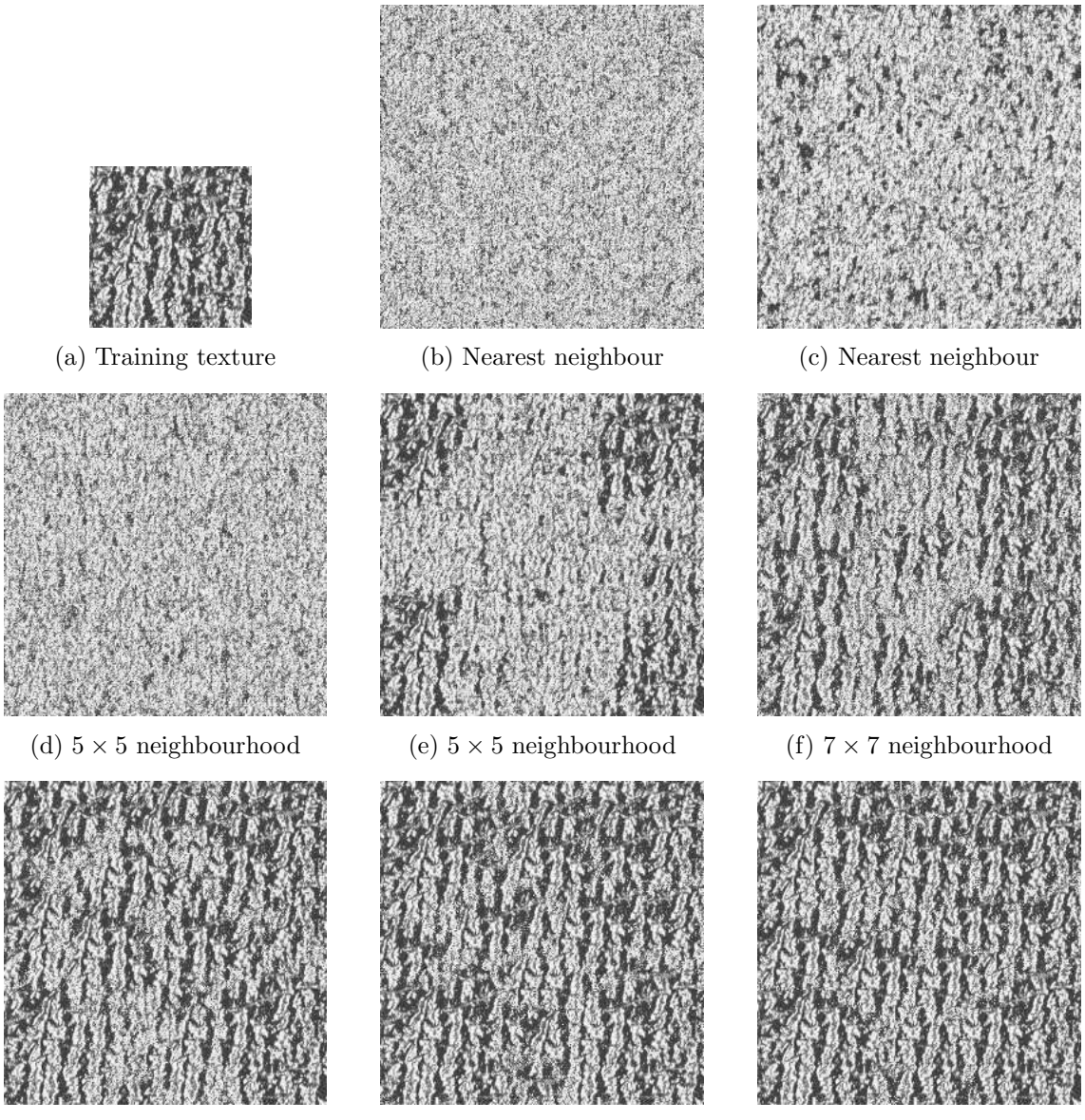


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.35: Brodatz texture D024a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

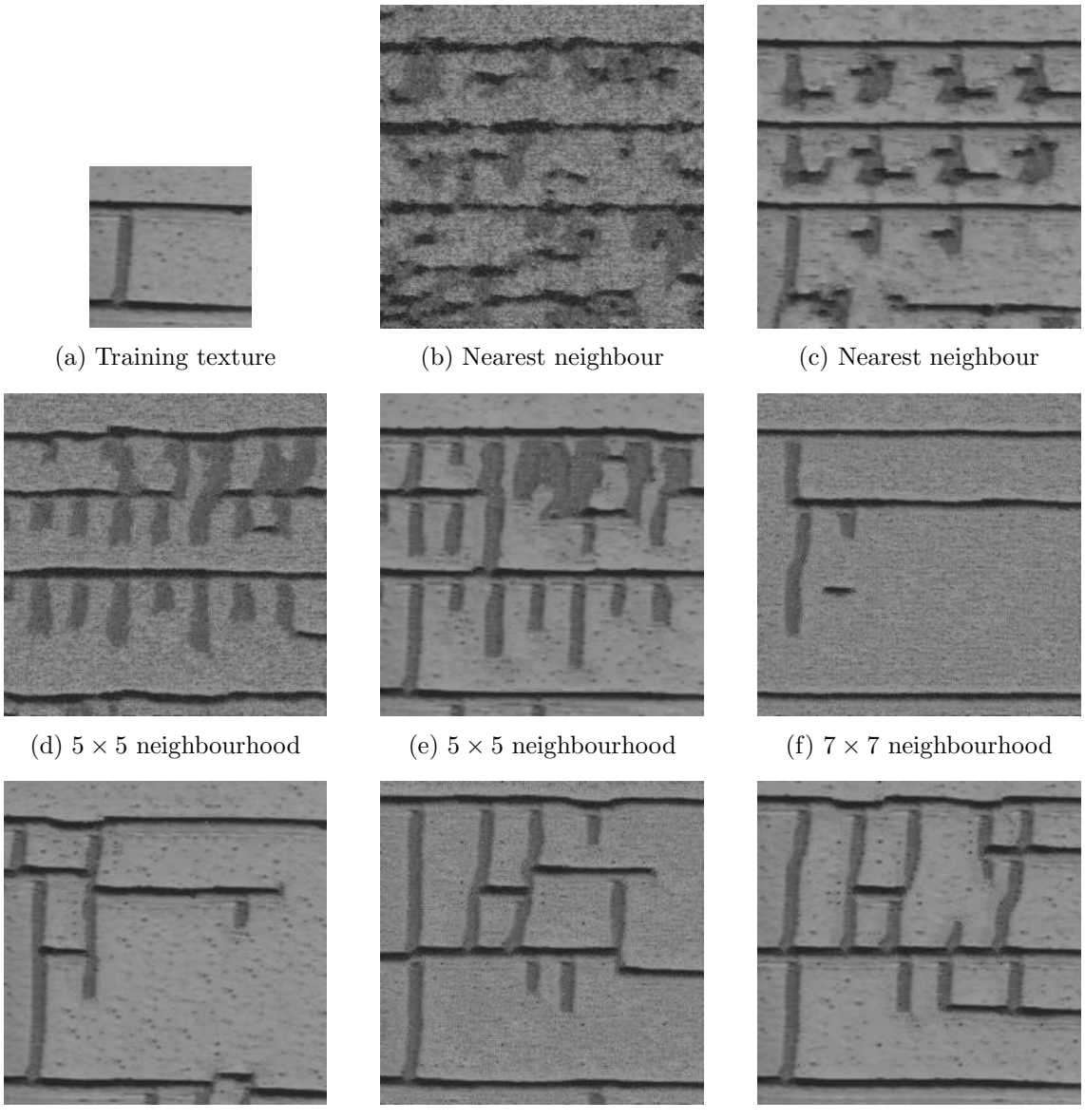


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.36: Brodatz texture D024b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

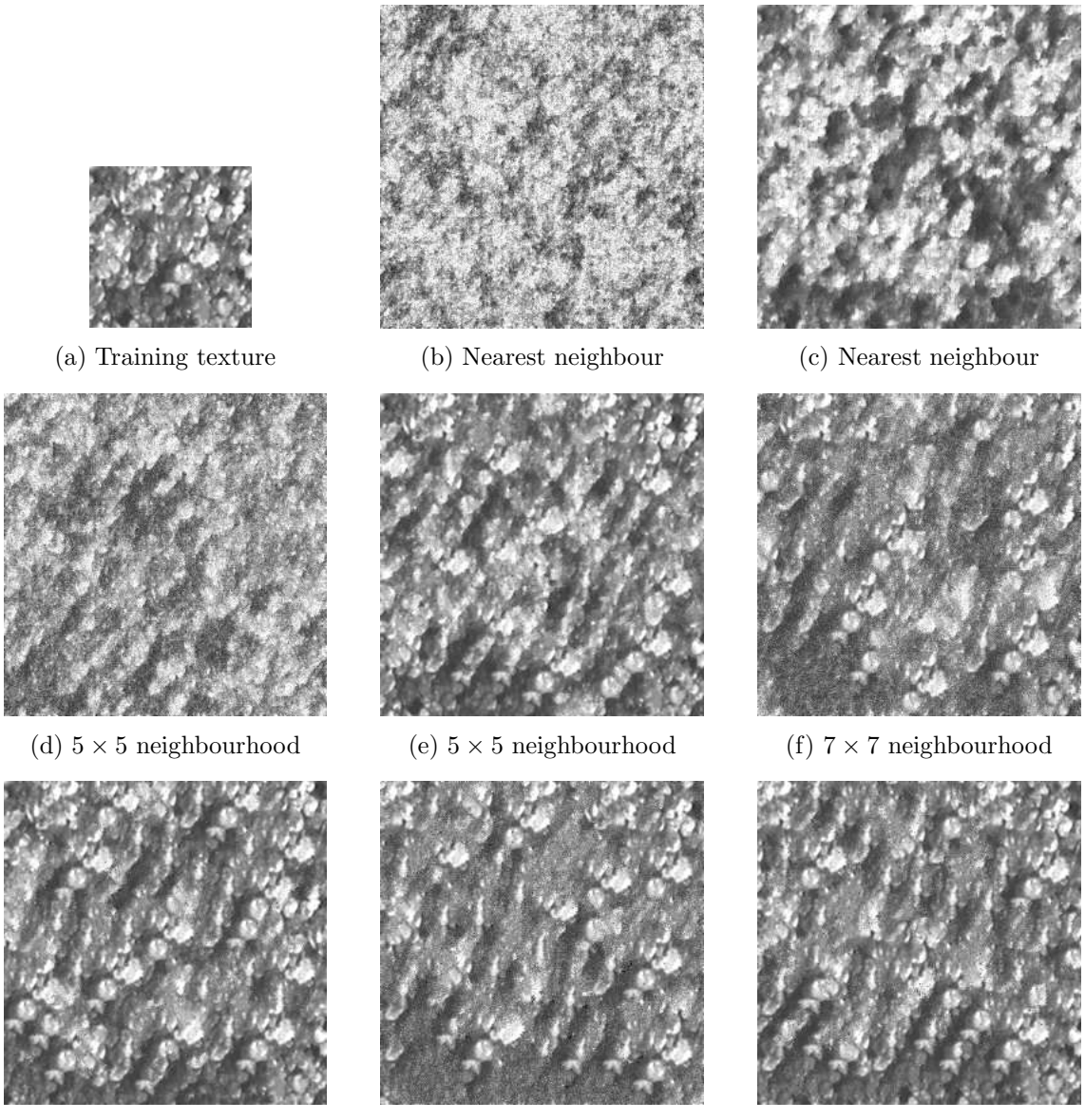


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.37: Brodatz texture D026a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

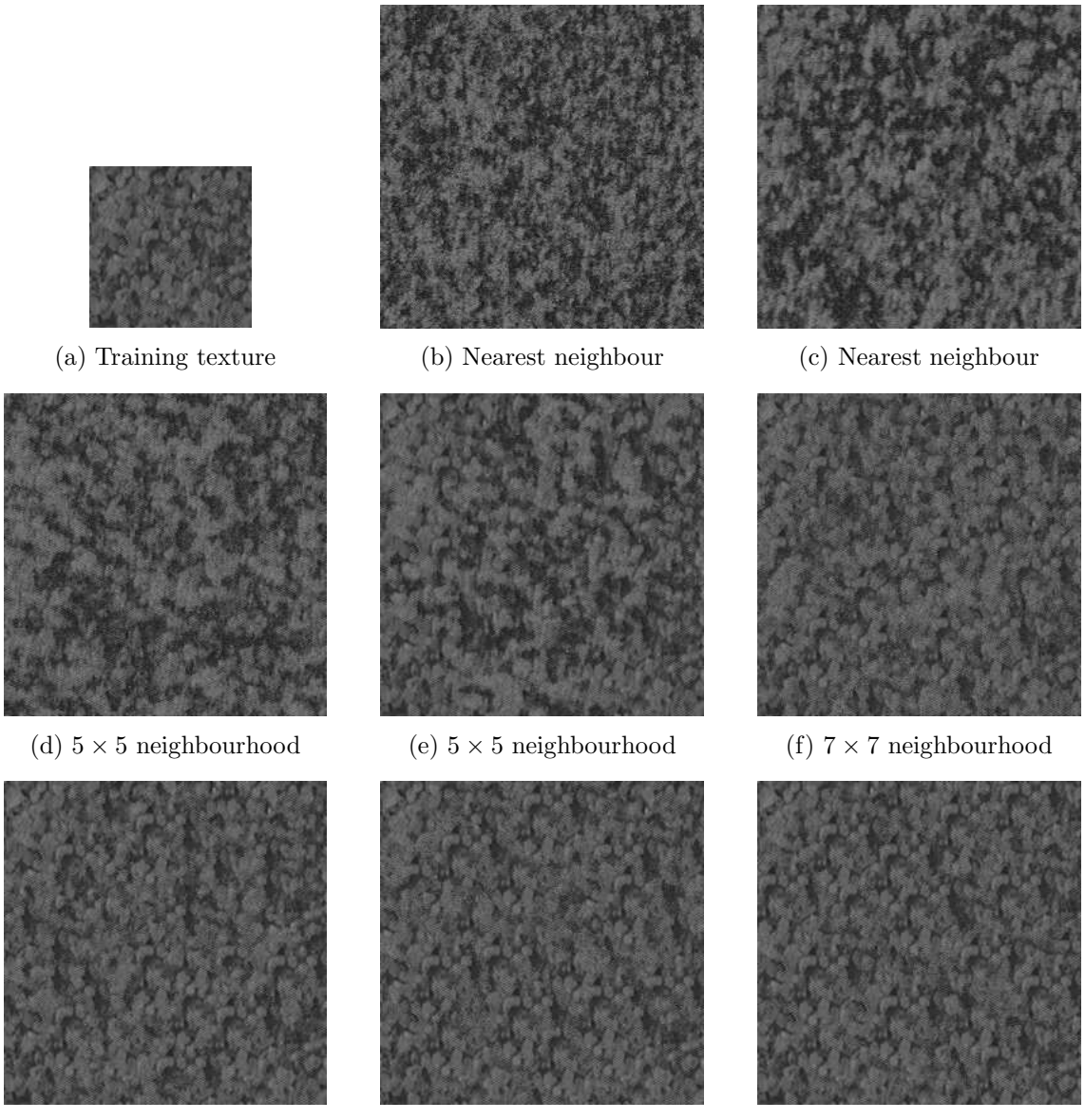


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.38: Brodatz texture D028a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

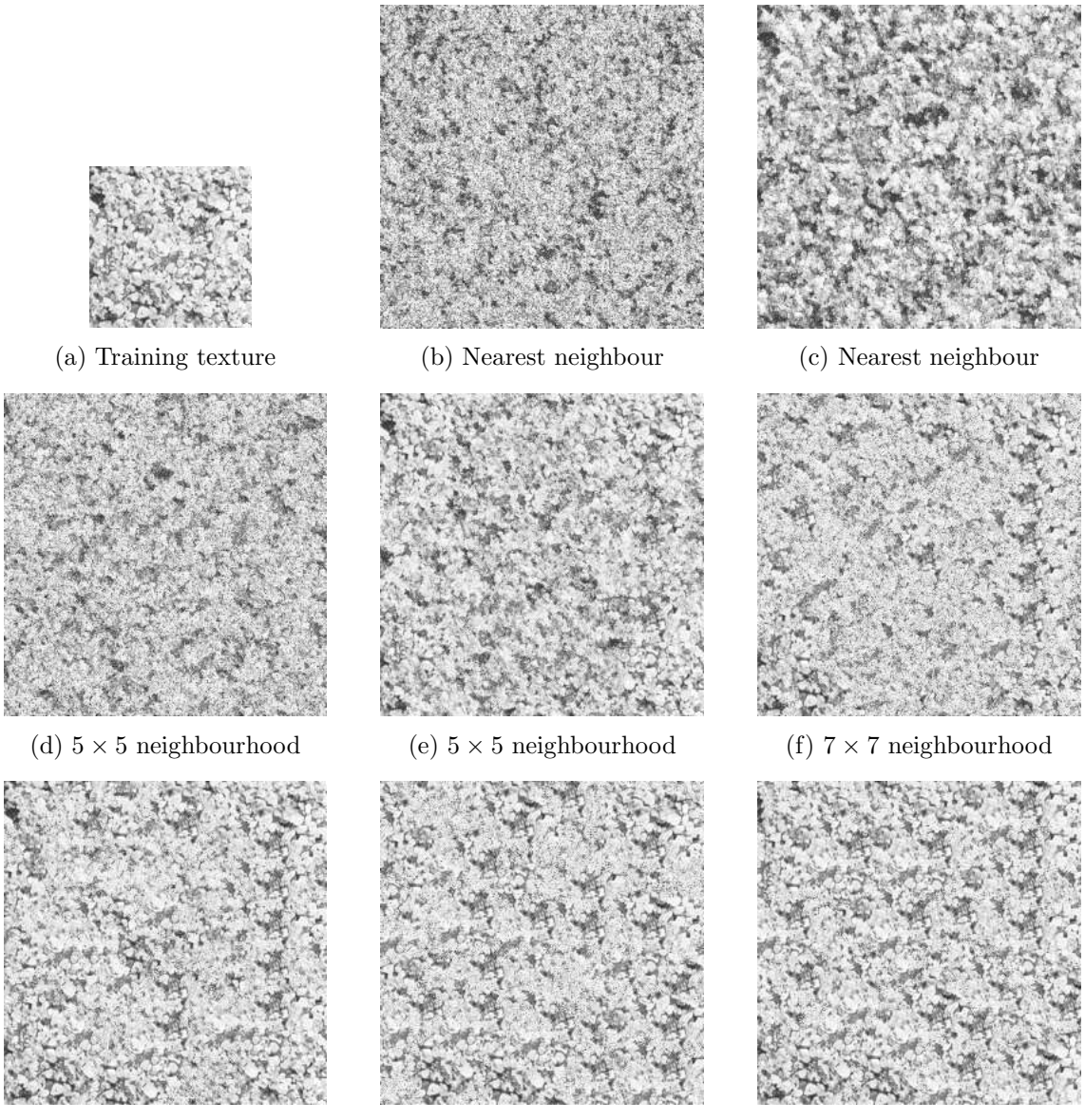


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.39: Brodatz texture D029a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

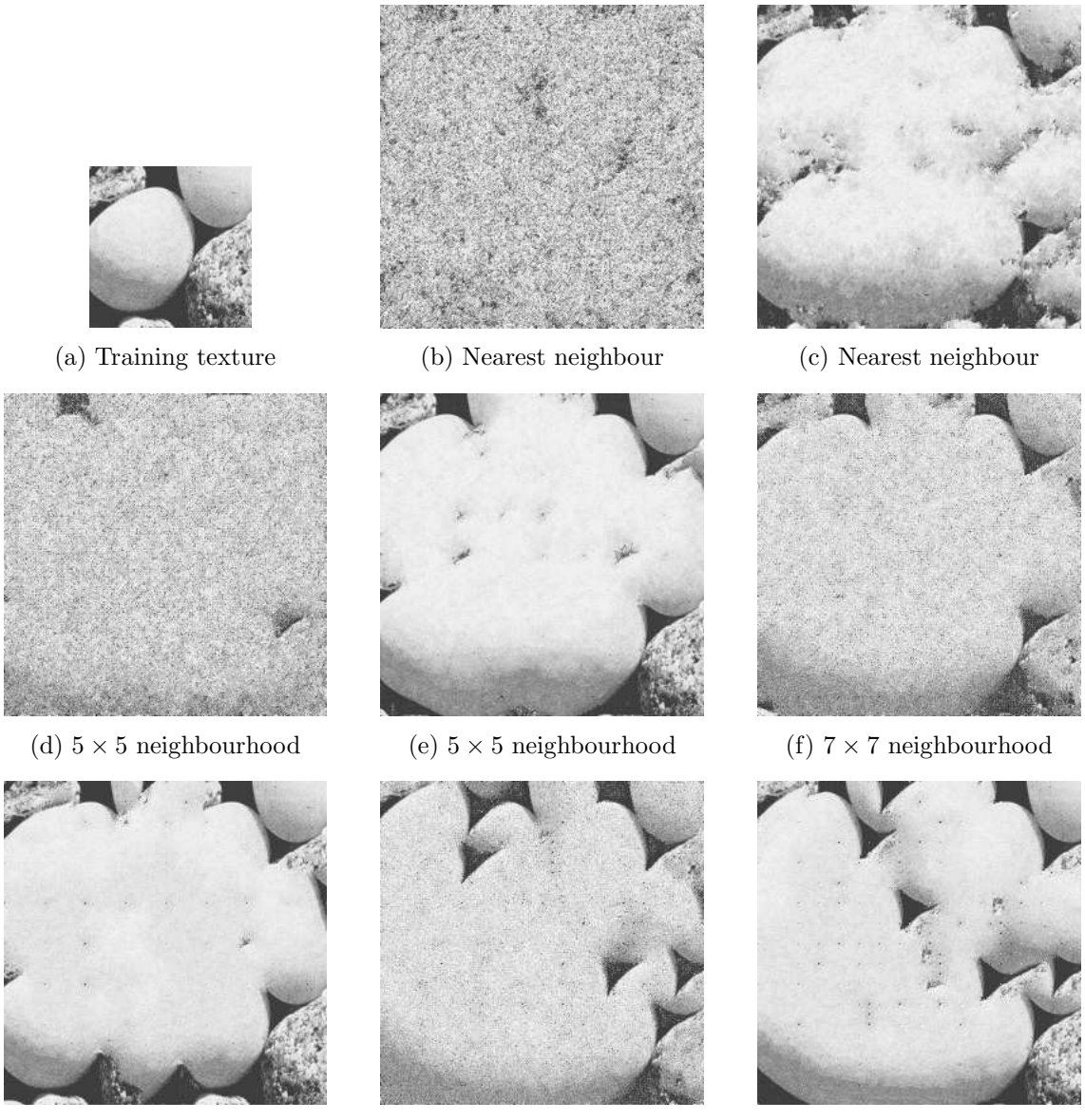


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.40: Brodatz texture D029b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

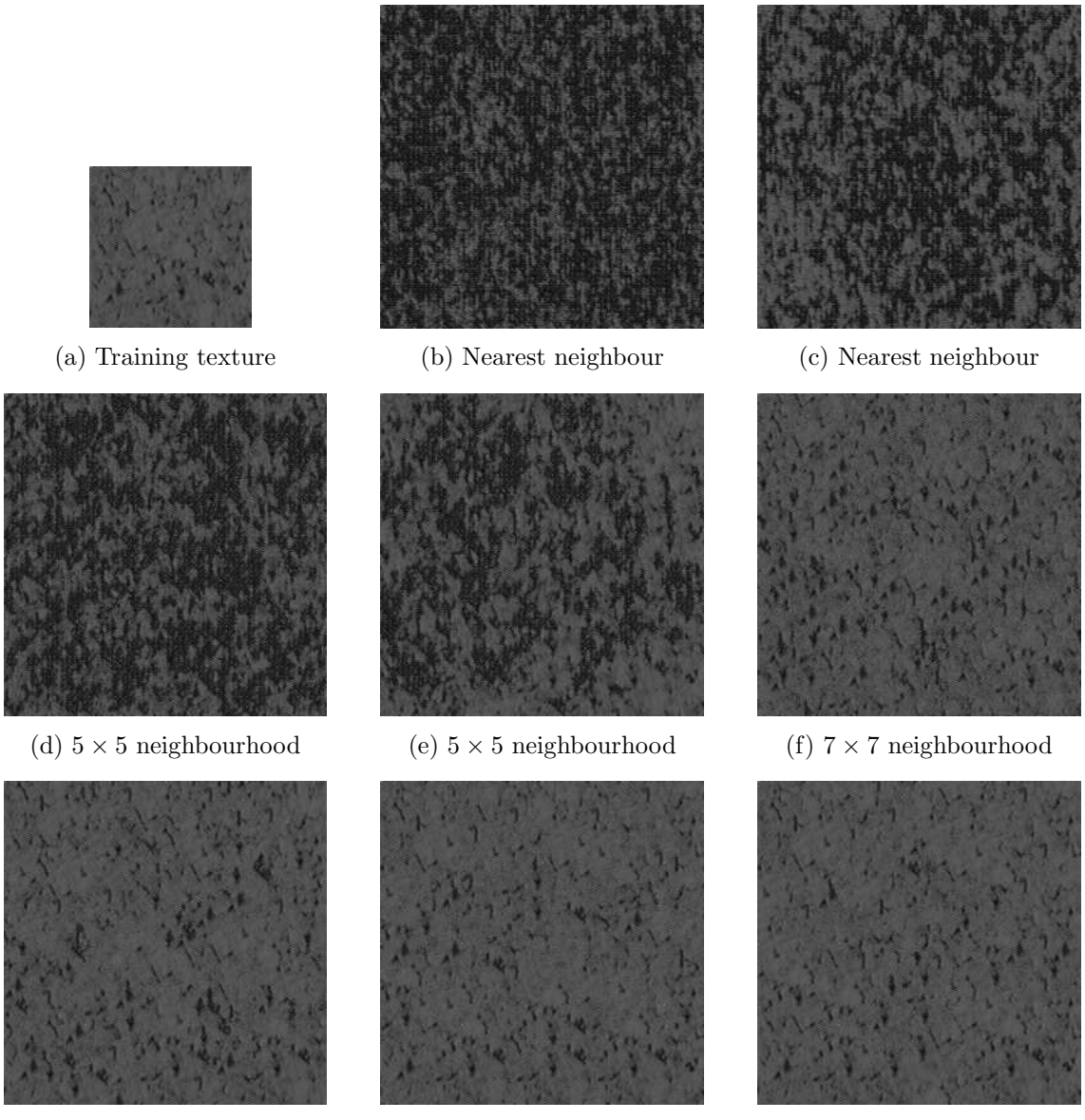


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.41: Brodatz texture D031a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

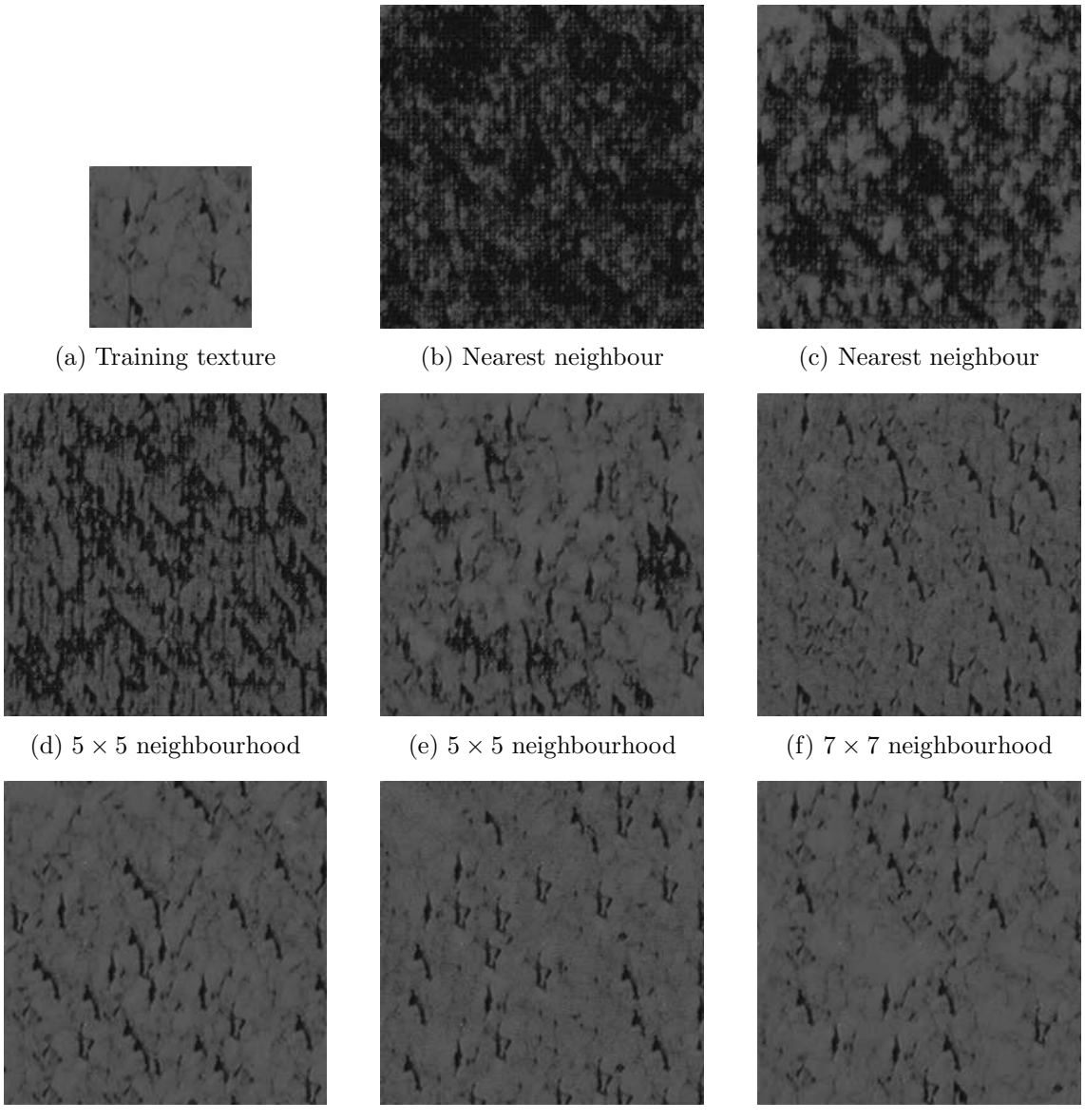


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.42: Brodatz texture D032a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

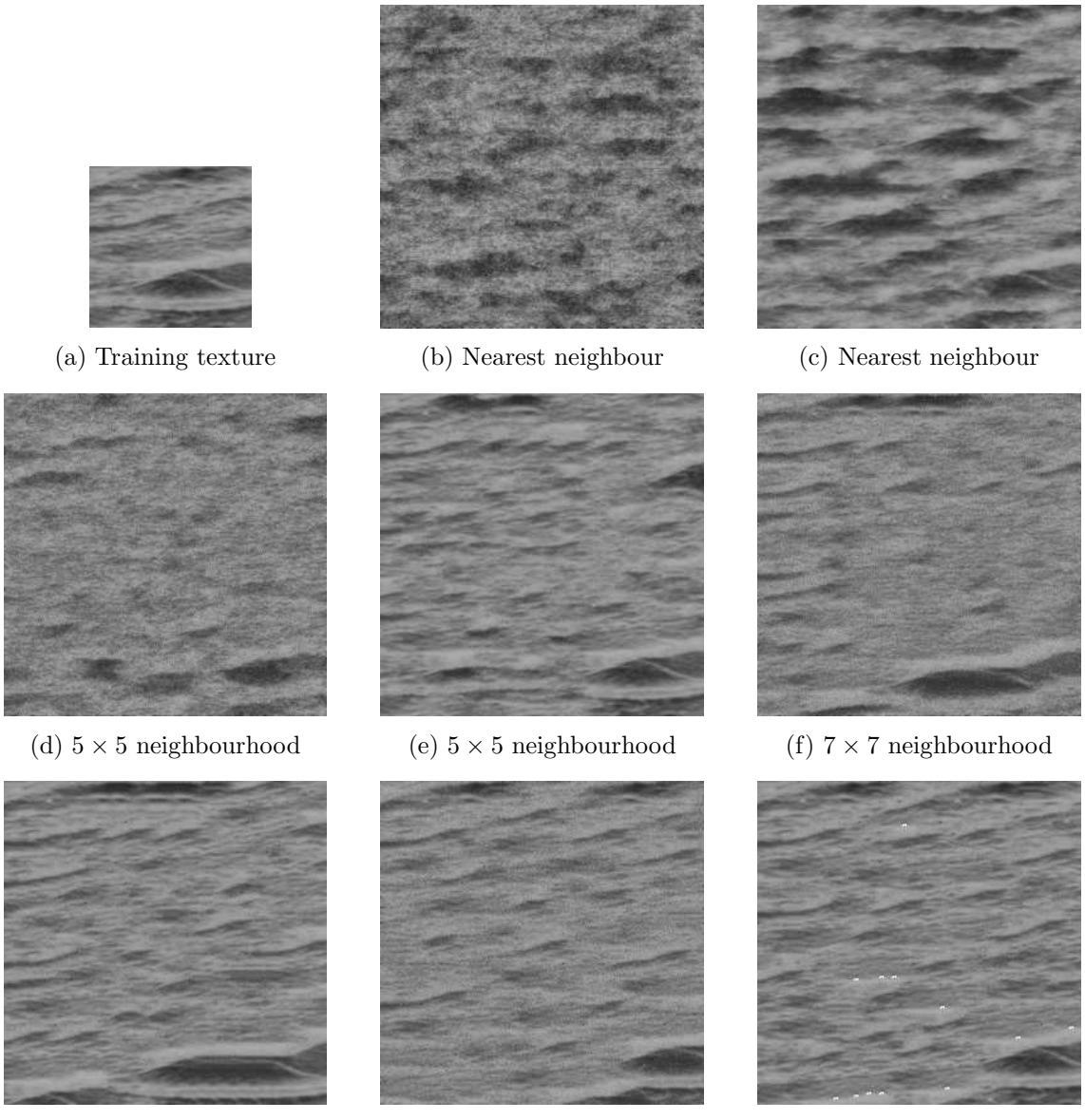


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.43: Brodatz texture D033a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

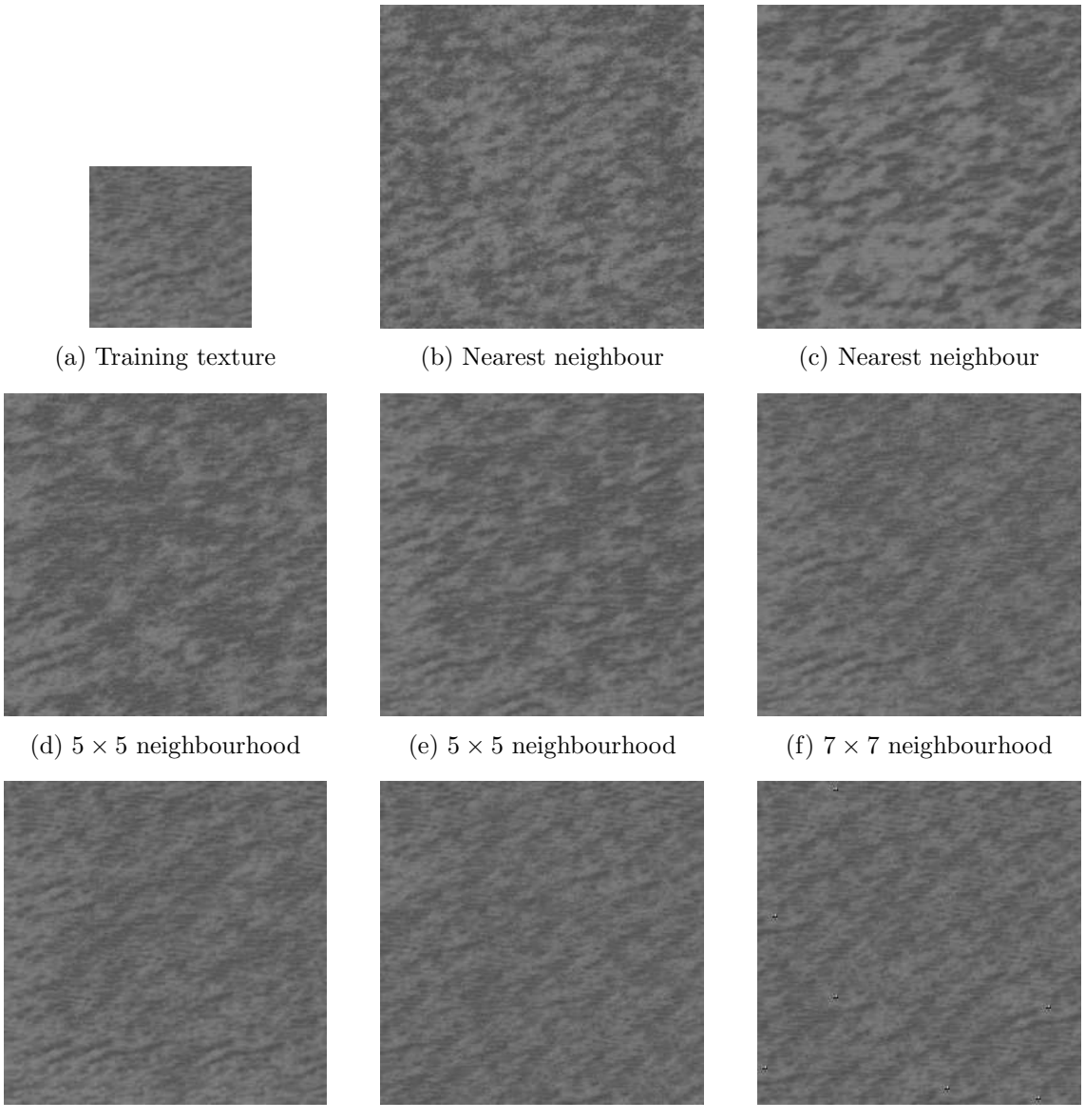


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.44: Brodatz texture D037a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

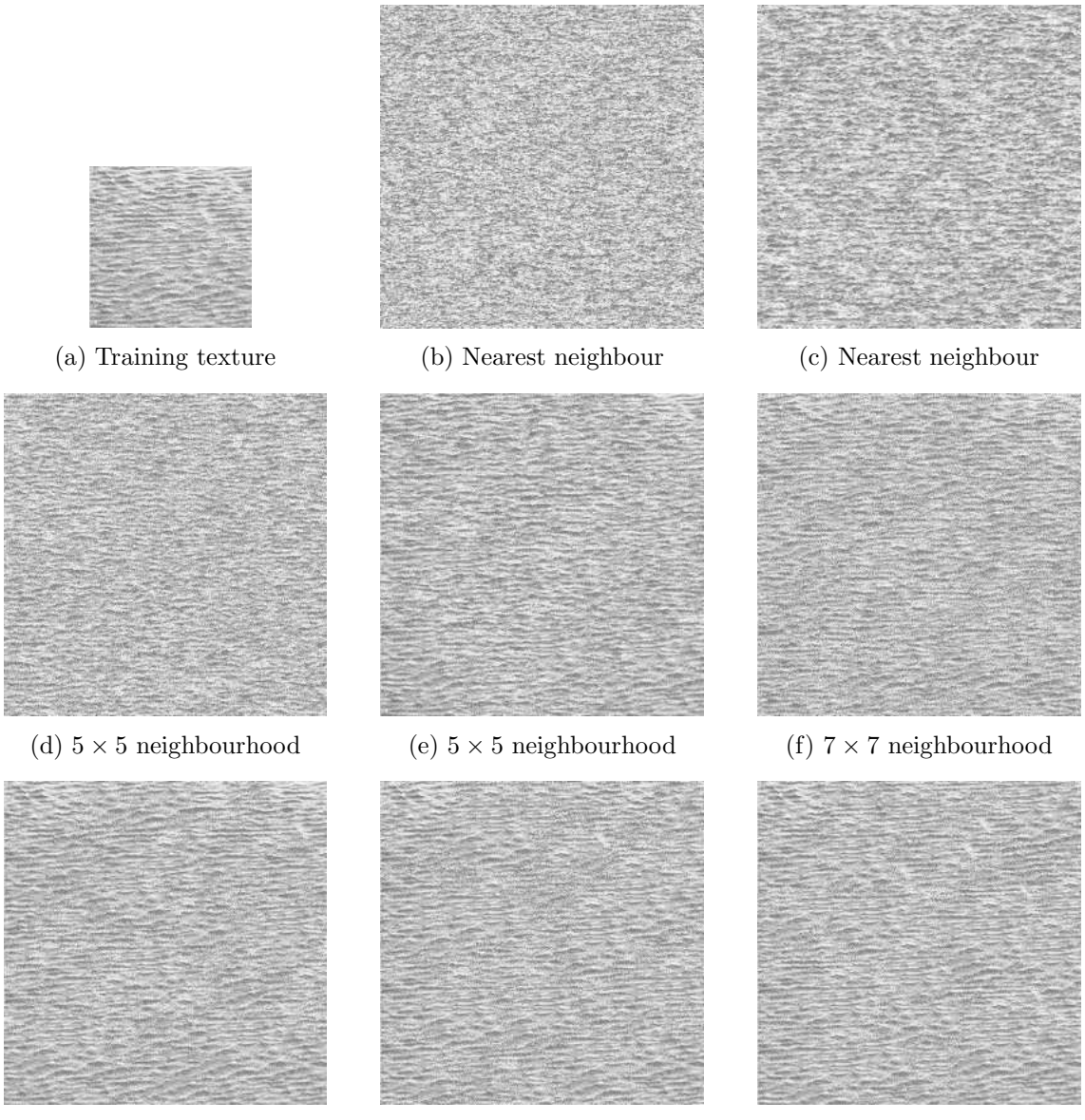


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.45: Brodatz texture D038a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

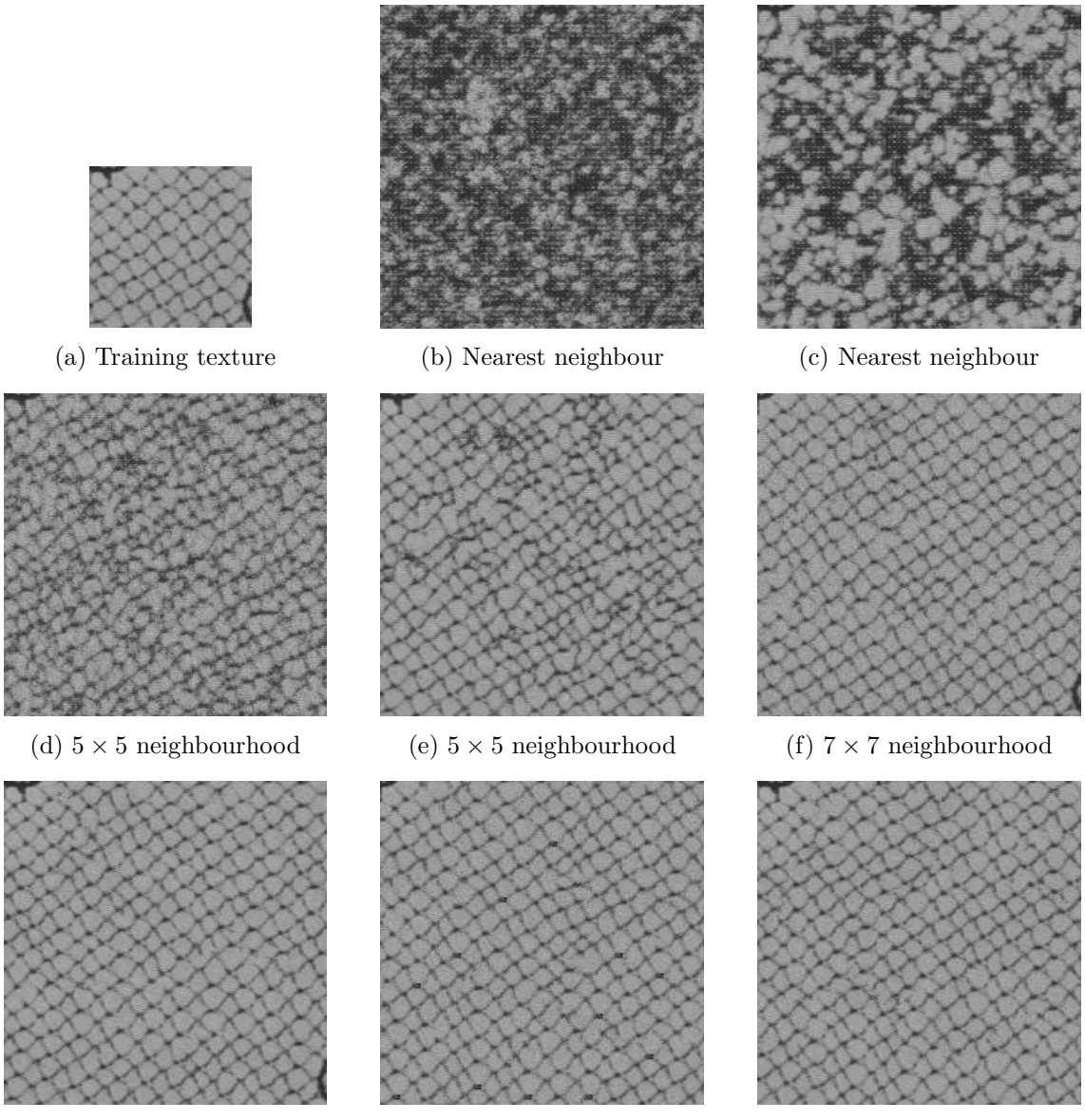


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.46: Brodatz texture D038b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

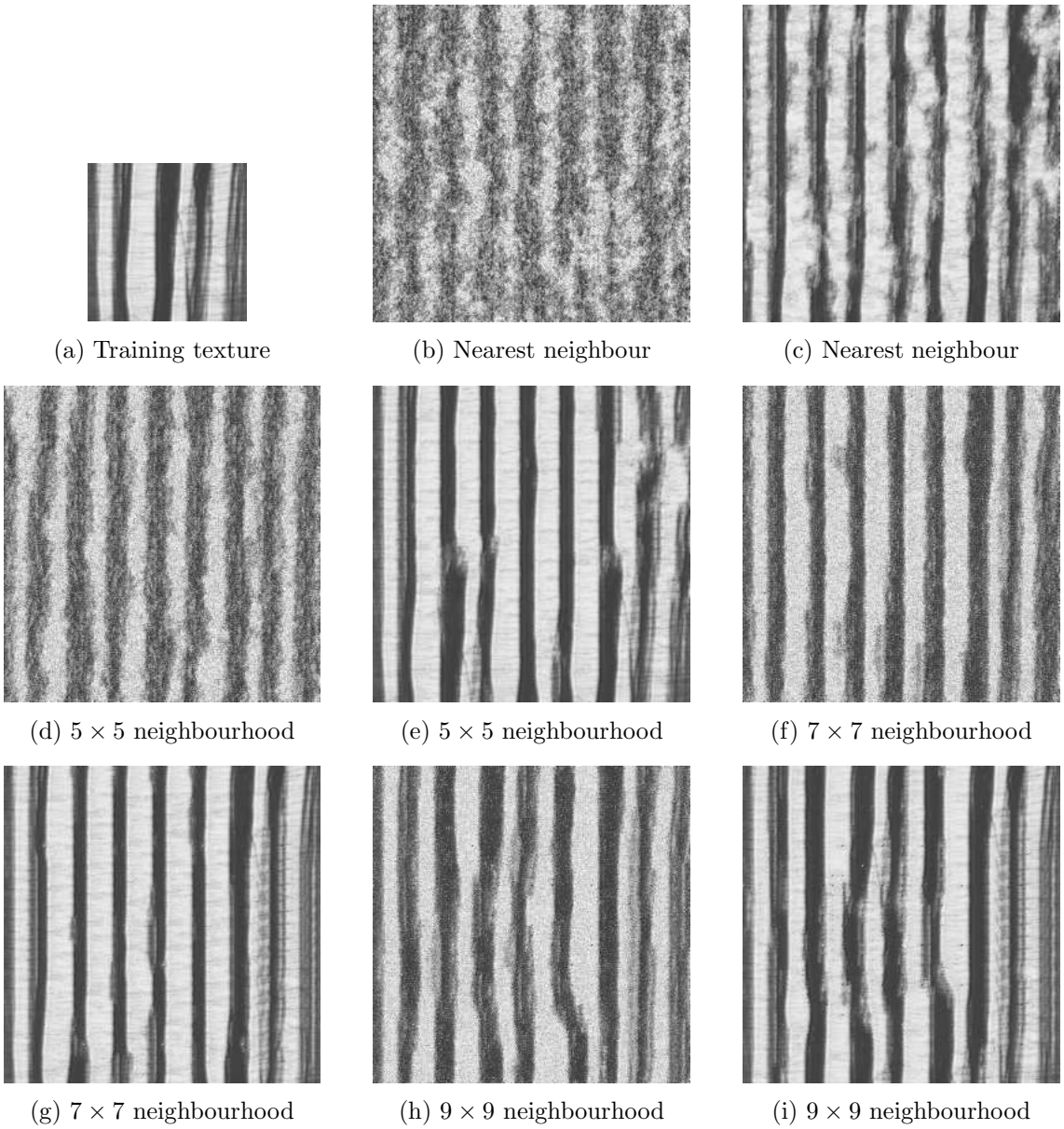


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.47: Brodatz texture D041a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

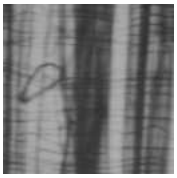


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

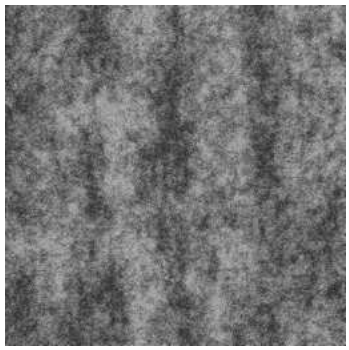
(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

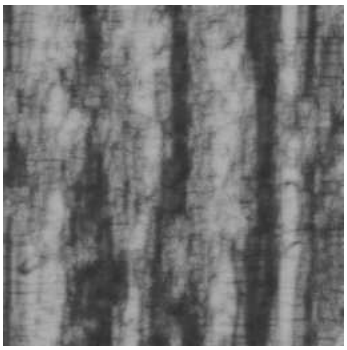
Figure B.48: Brodatz texture D051a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



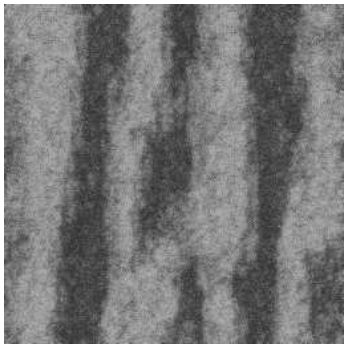
(a) Training texture



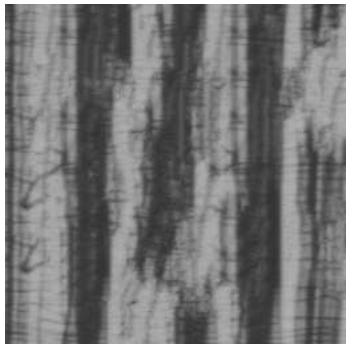
(b) Nearest neighbour



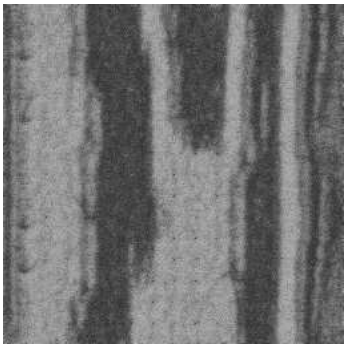
(c) Nearest neighbour



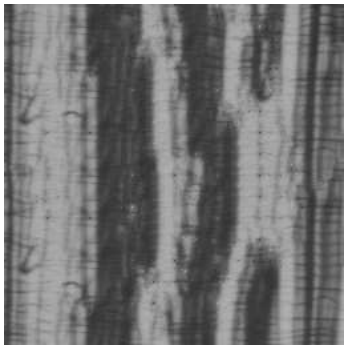
(d) 5×5 neighbourhood



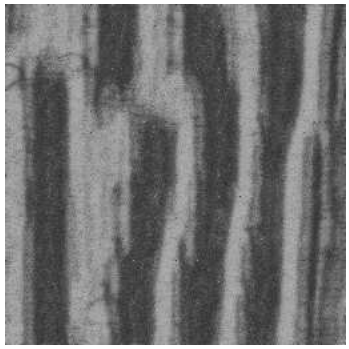
(e) 5×5 neighbourhood



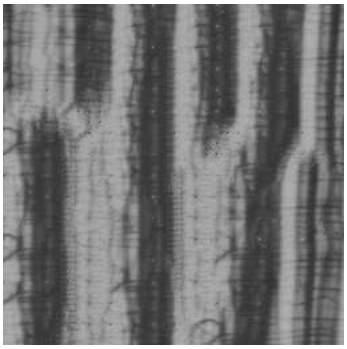
(f) 7×7 neighbourhood



(g) 7×7 neighbourhood

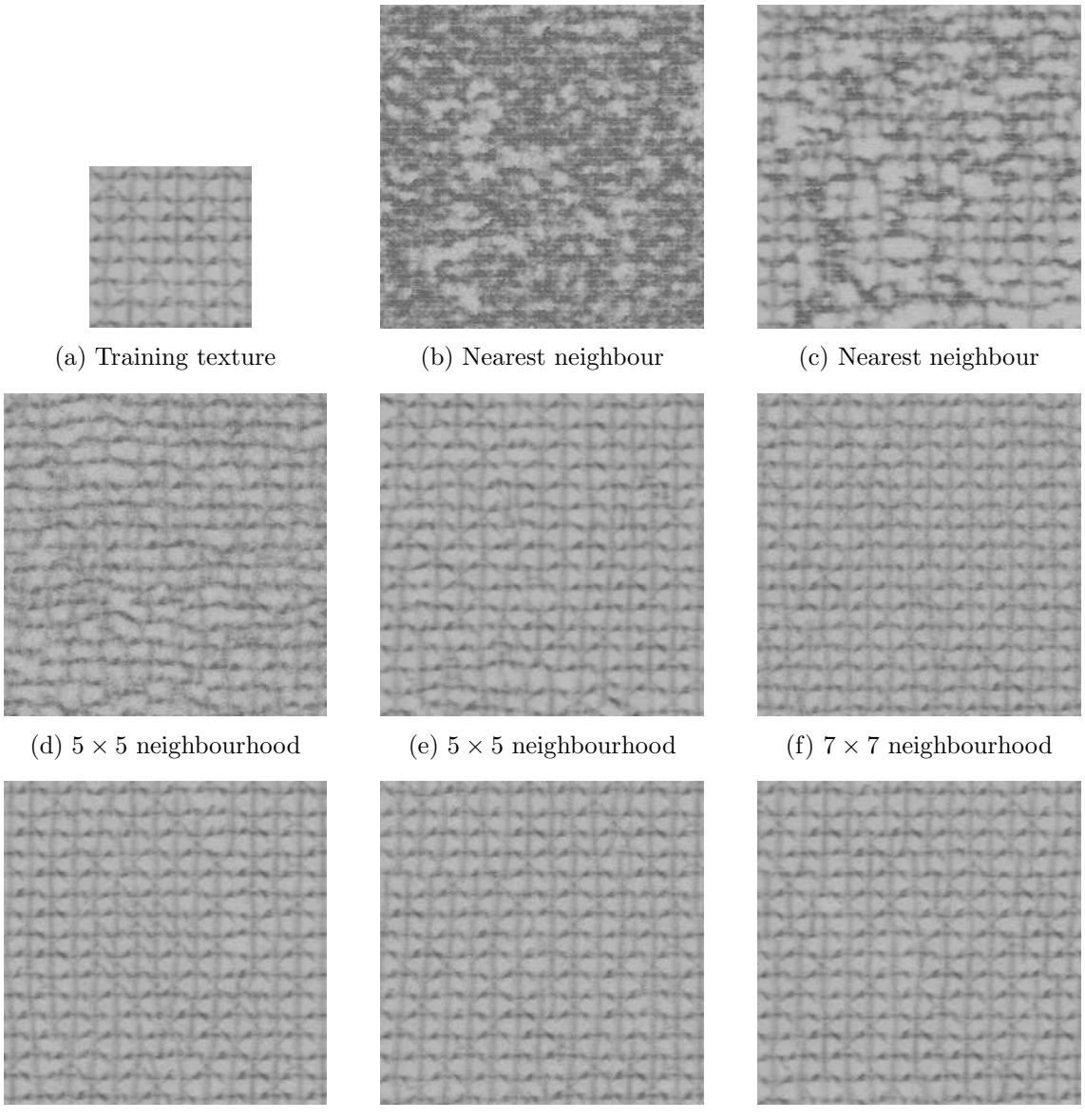


(h) 9×9 neighbourhood



(i) 9×9 neighbourhood

Figure B.49: Brodatz texture D051b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

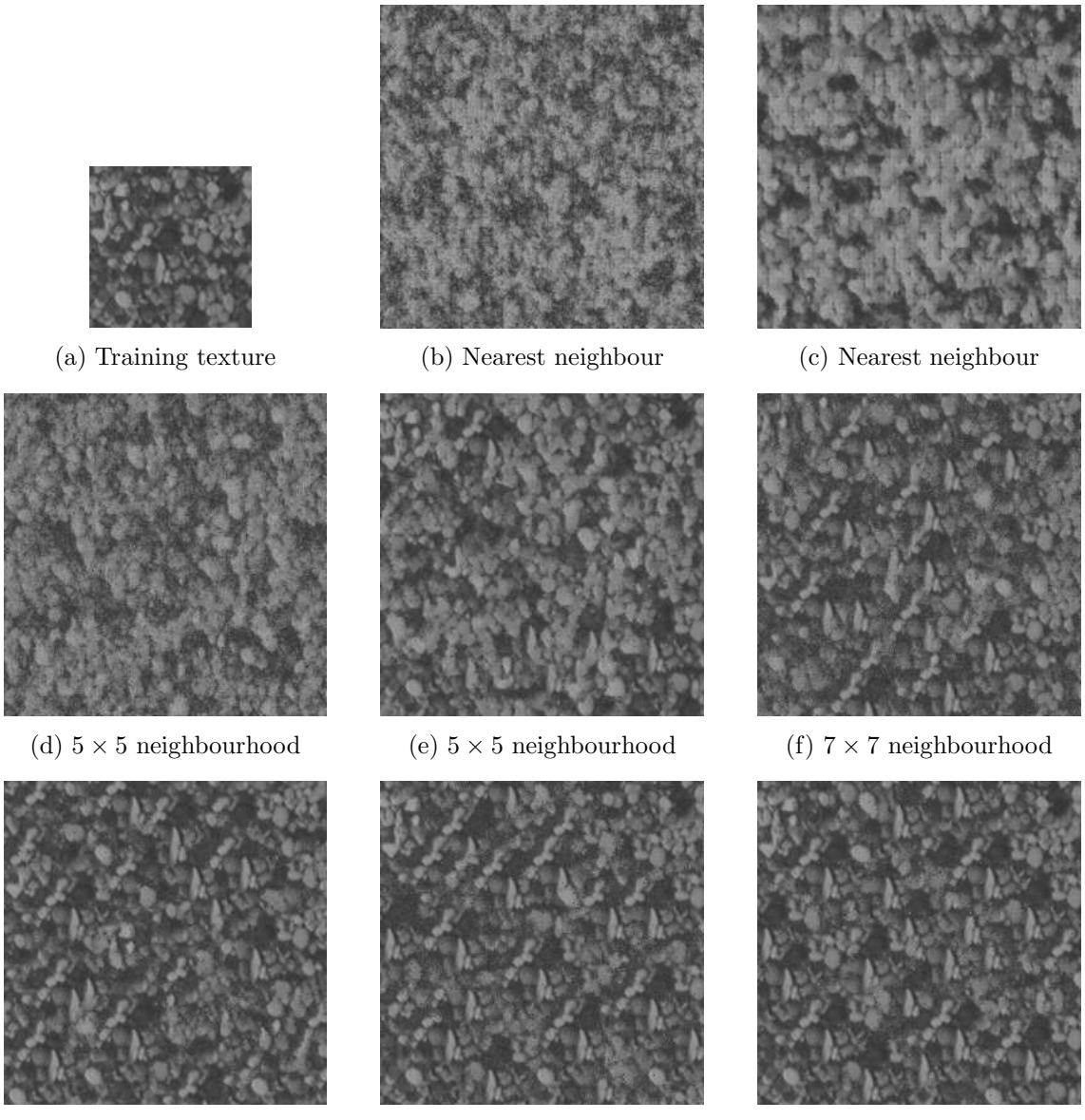


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.50: Brodatz texture D052a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

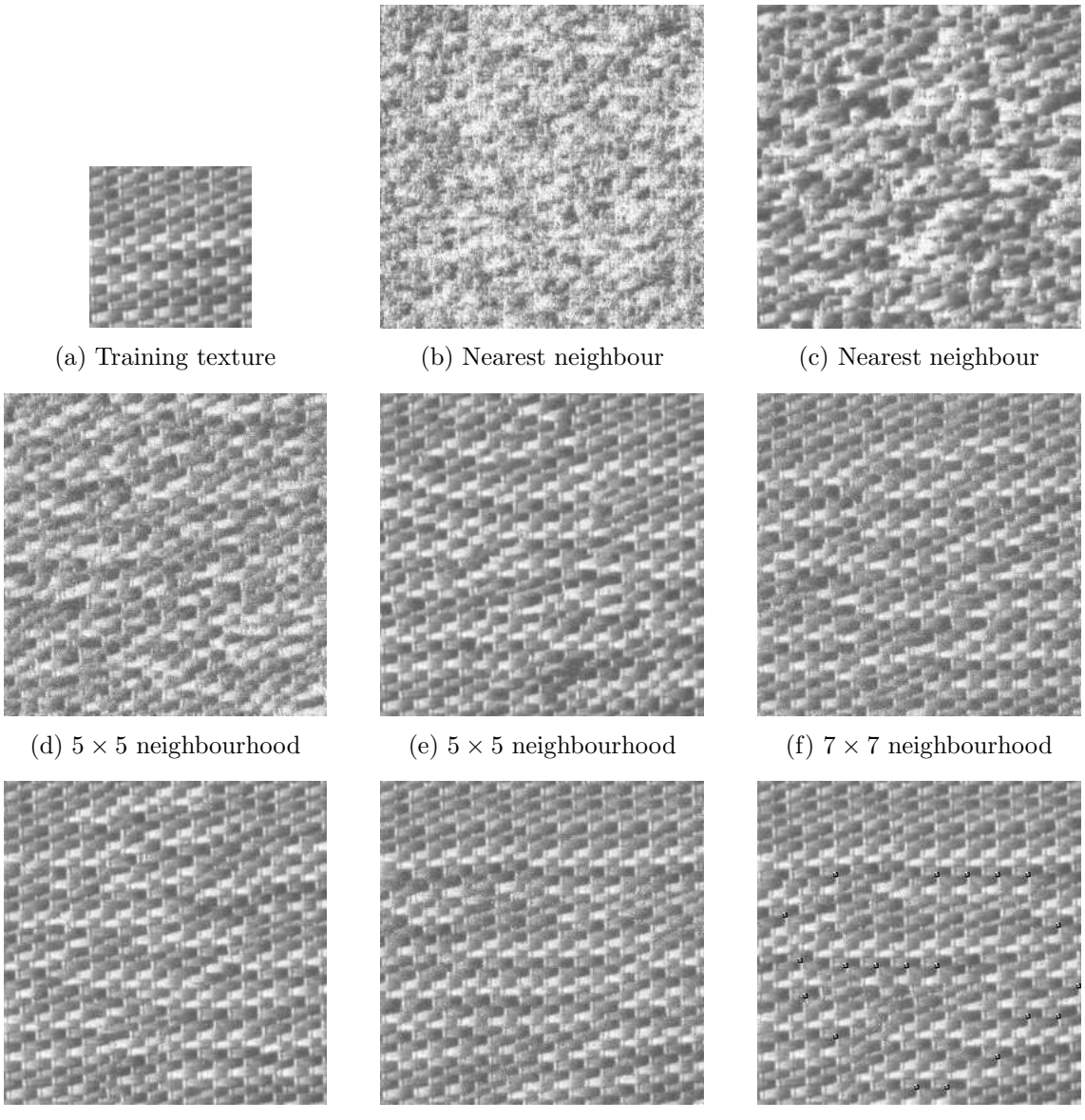


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.51: Brodatz texture D054a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

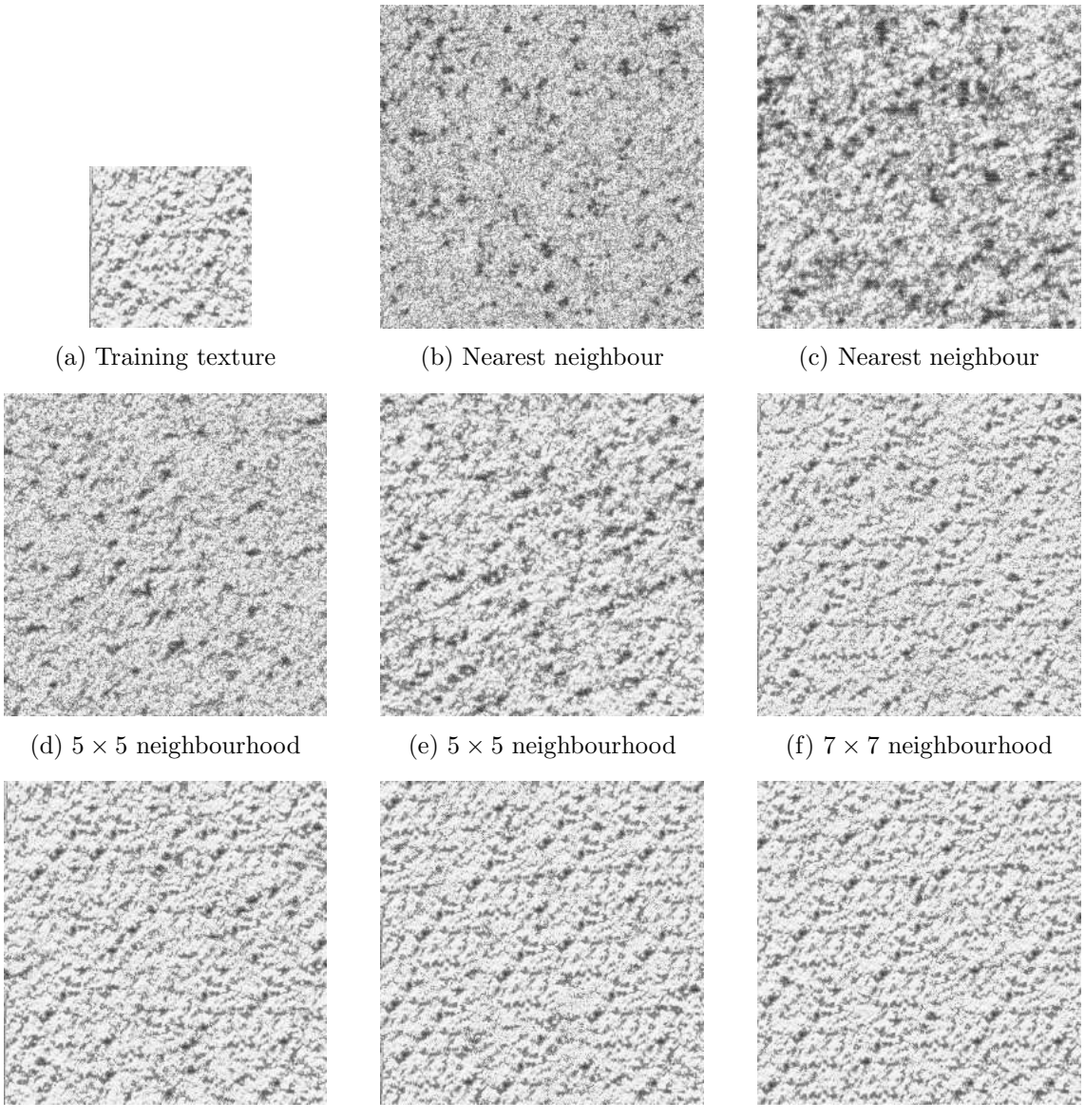


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.52: Brodatz texture D055a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

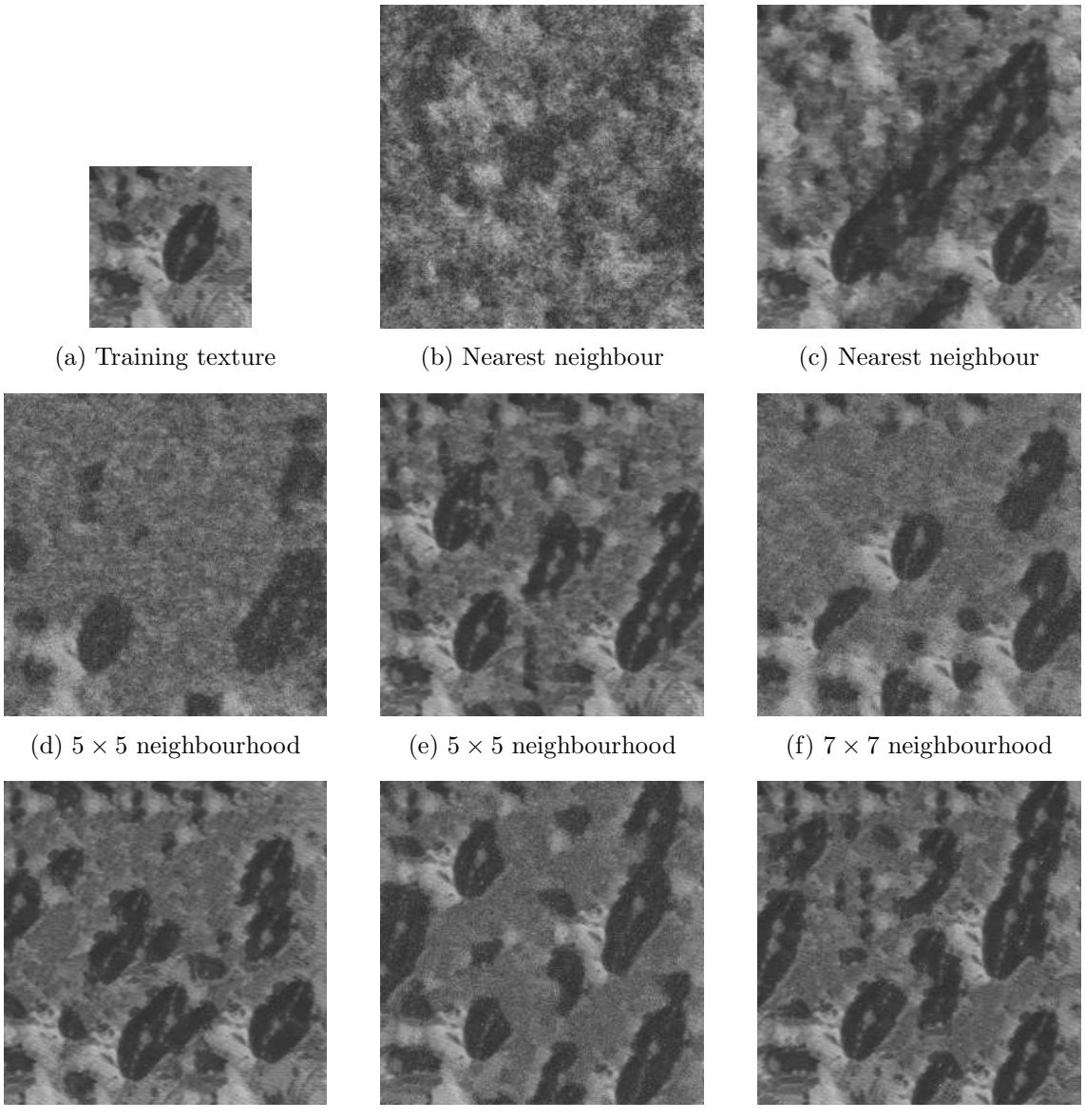


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.53: Brodatz texture D057a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

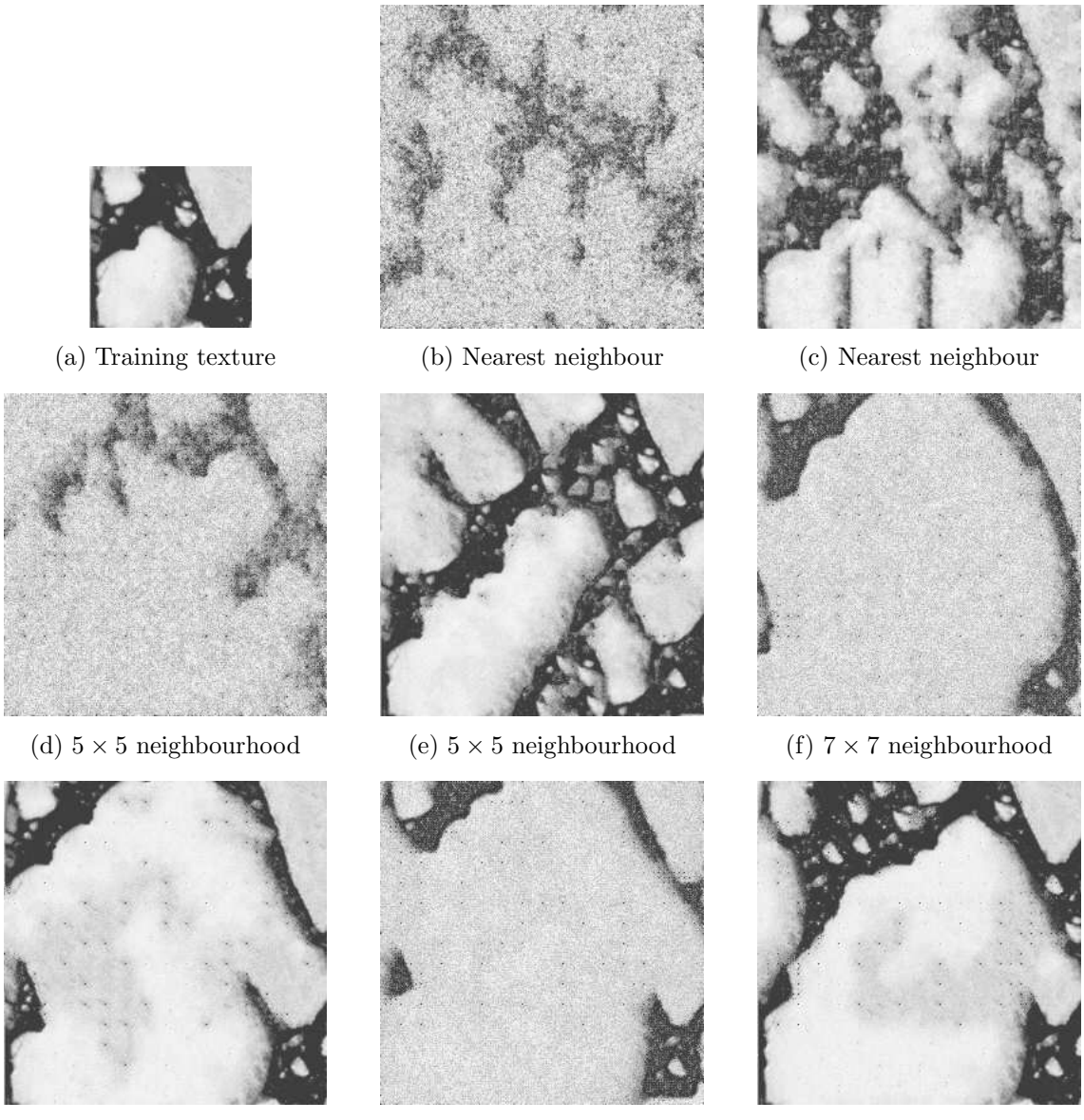


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.54: Brodatz texture D061a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

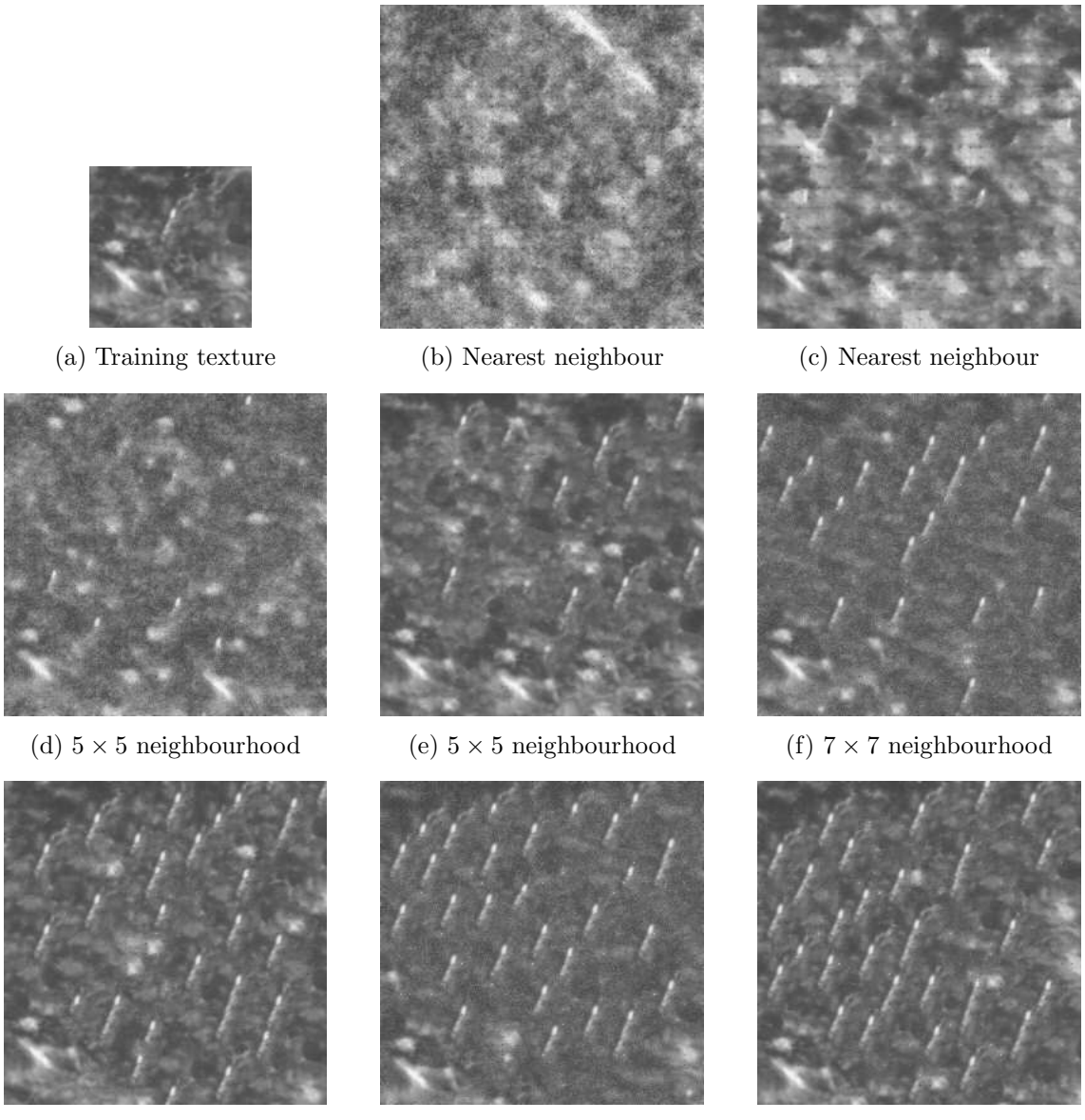


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.55: Brodatz texture D062a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

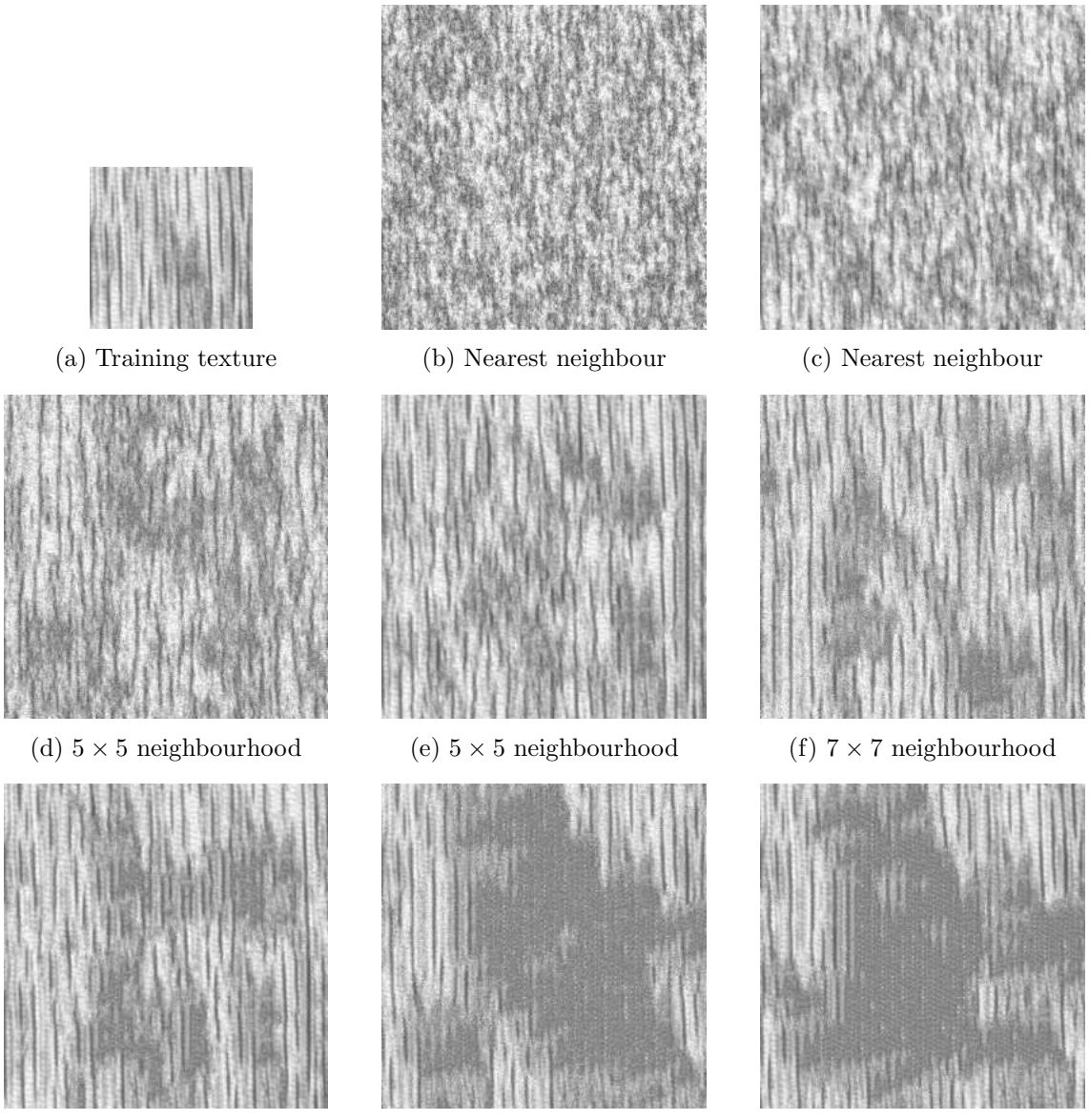


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.56: Brodatz texture D063a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

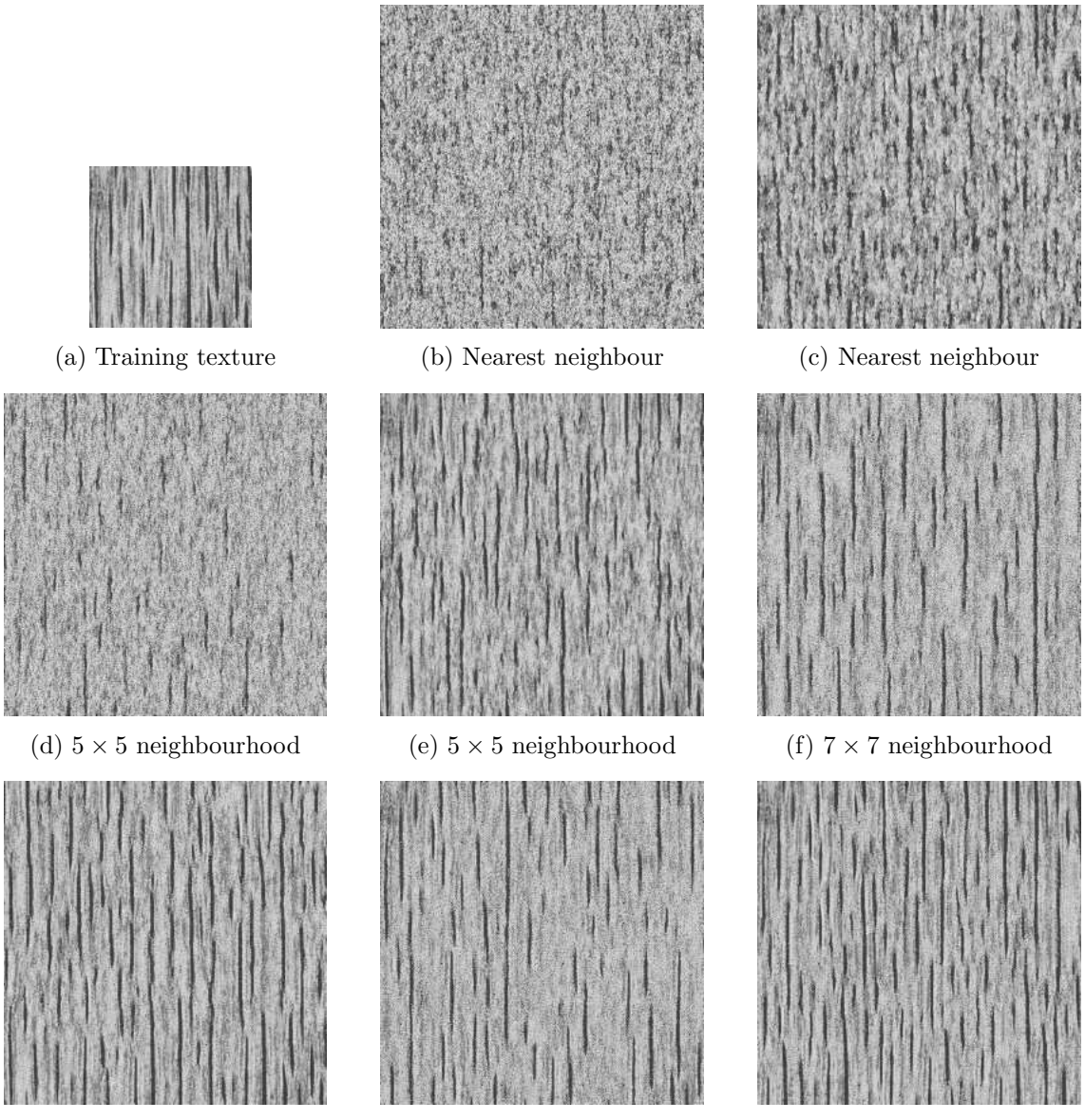


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.57: Brodatz texture D068a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

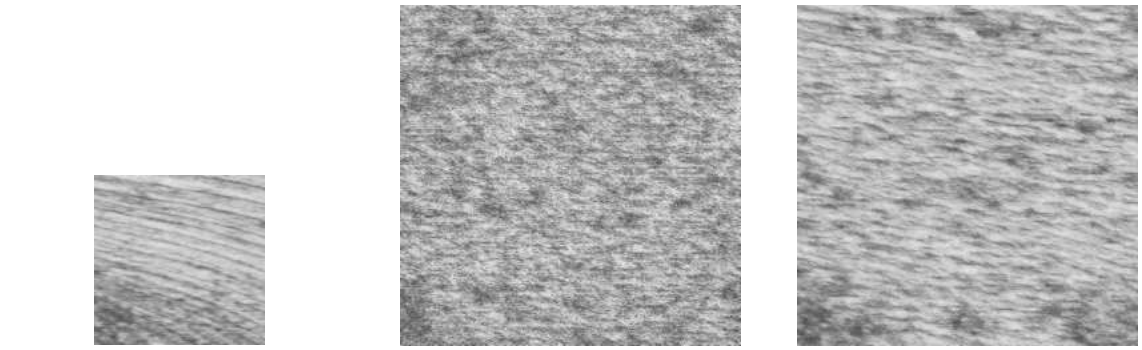


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

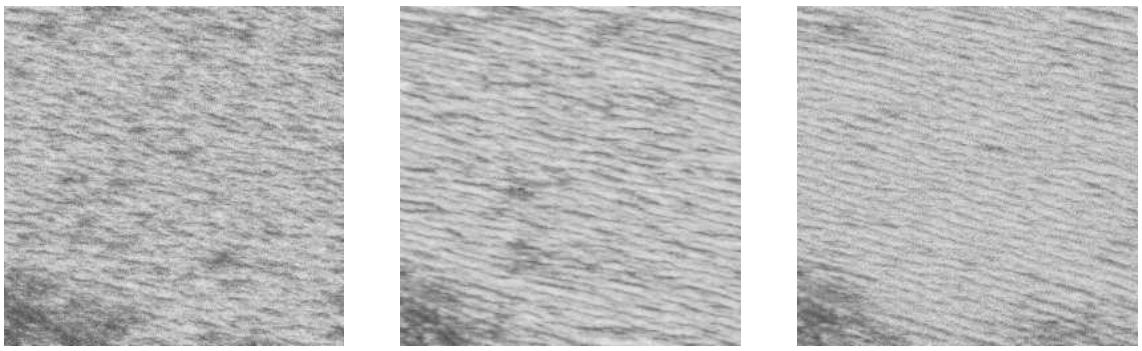
(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

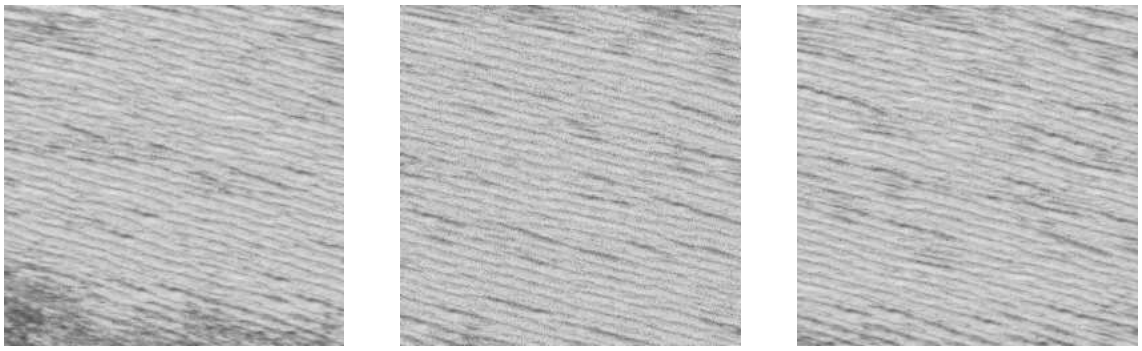
Figure B.58: Brodatz texture D068b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

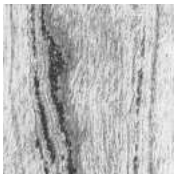


(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

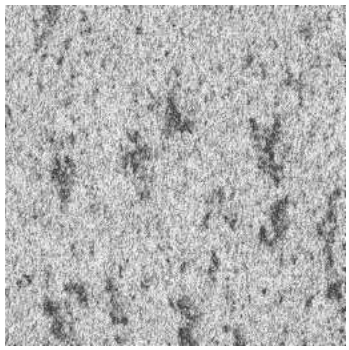


(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

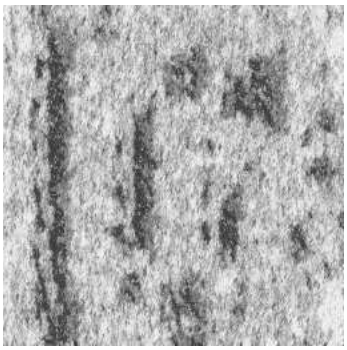
Figure B.59: Brodatz texture D069a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



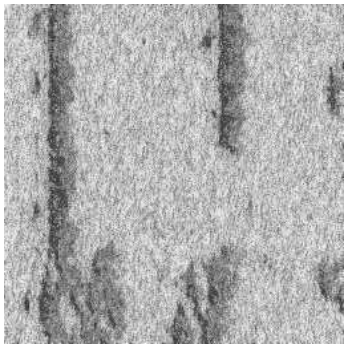
(a) Training texture



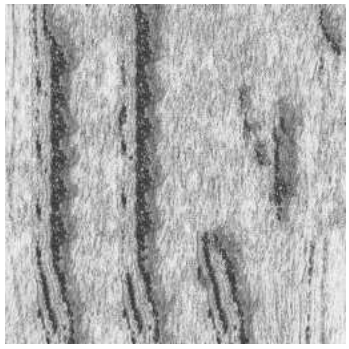
(b) Nearest neighbour



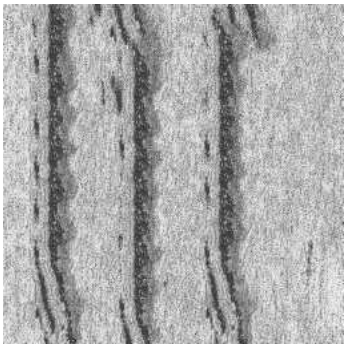
(c) Nearest neighbour



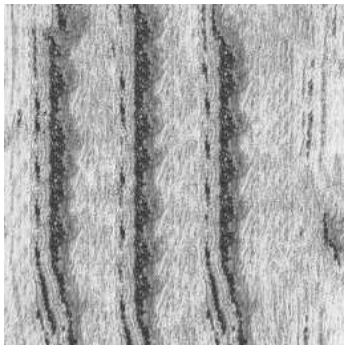
(d) 5×5 neighbourhood



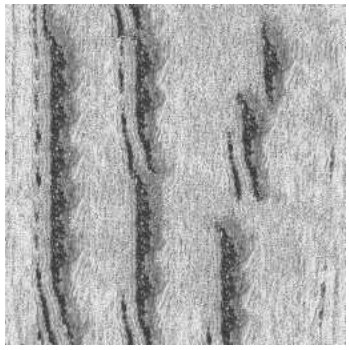
(e) 5×5 neighbourhood



(f) 7×7 neighbourhood



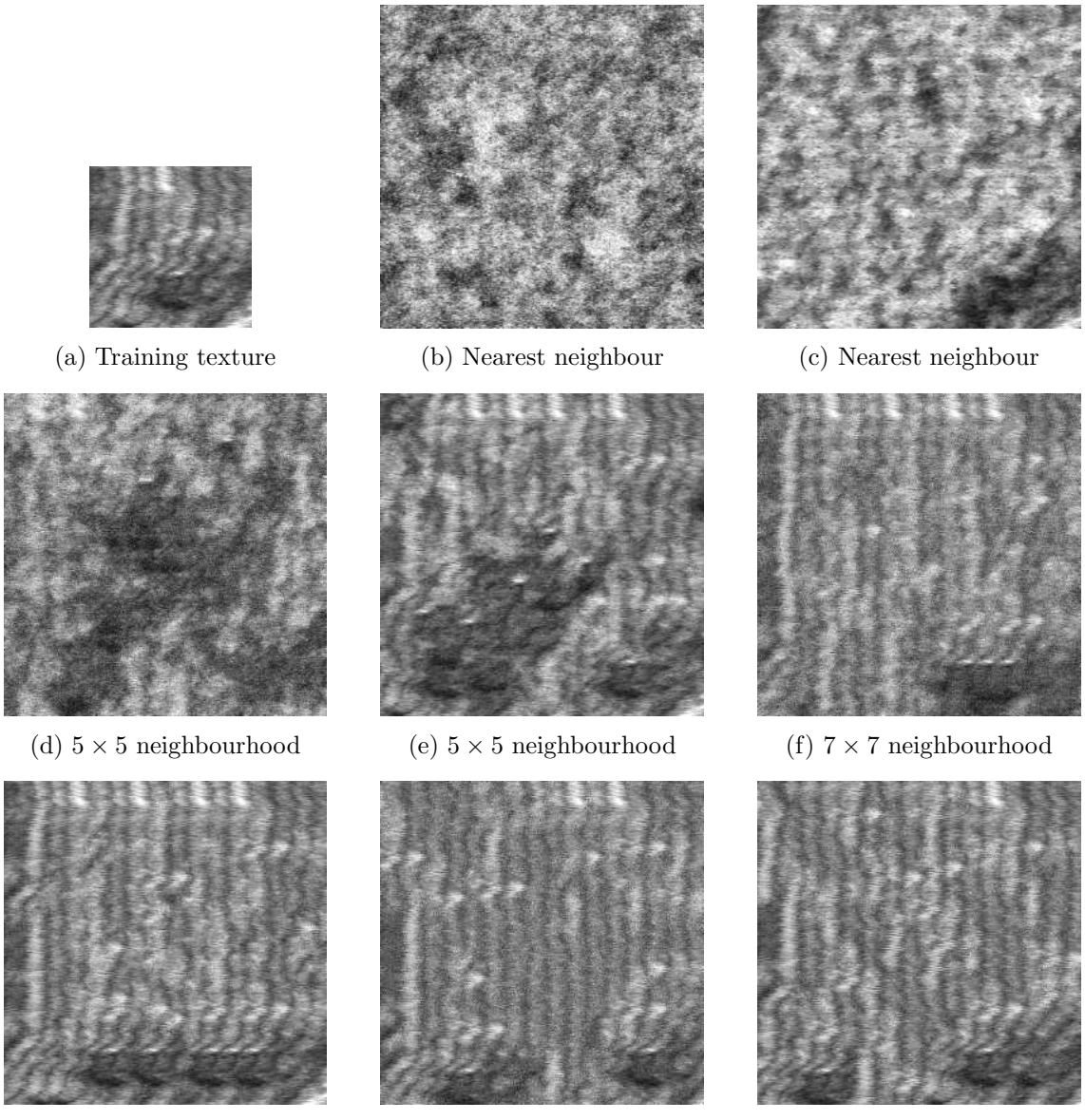
(g) 7×7 neighbourhood



(h) 9×9 neighbourhood

(i) 9×9 neighbourhood

Figure B.60: Brodatz texture D070a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

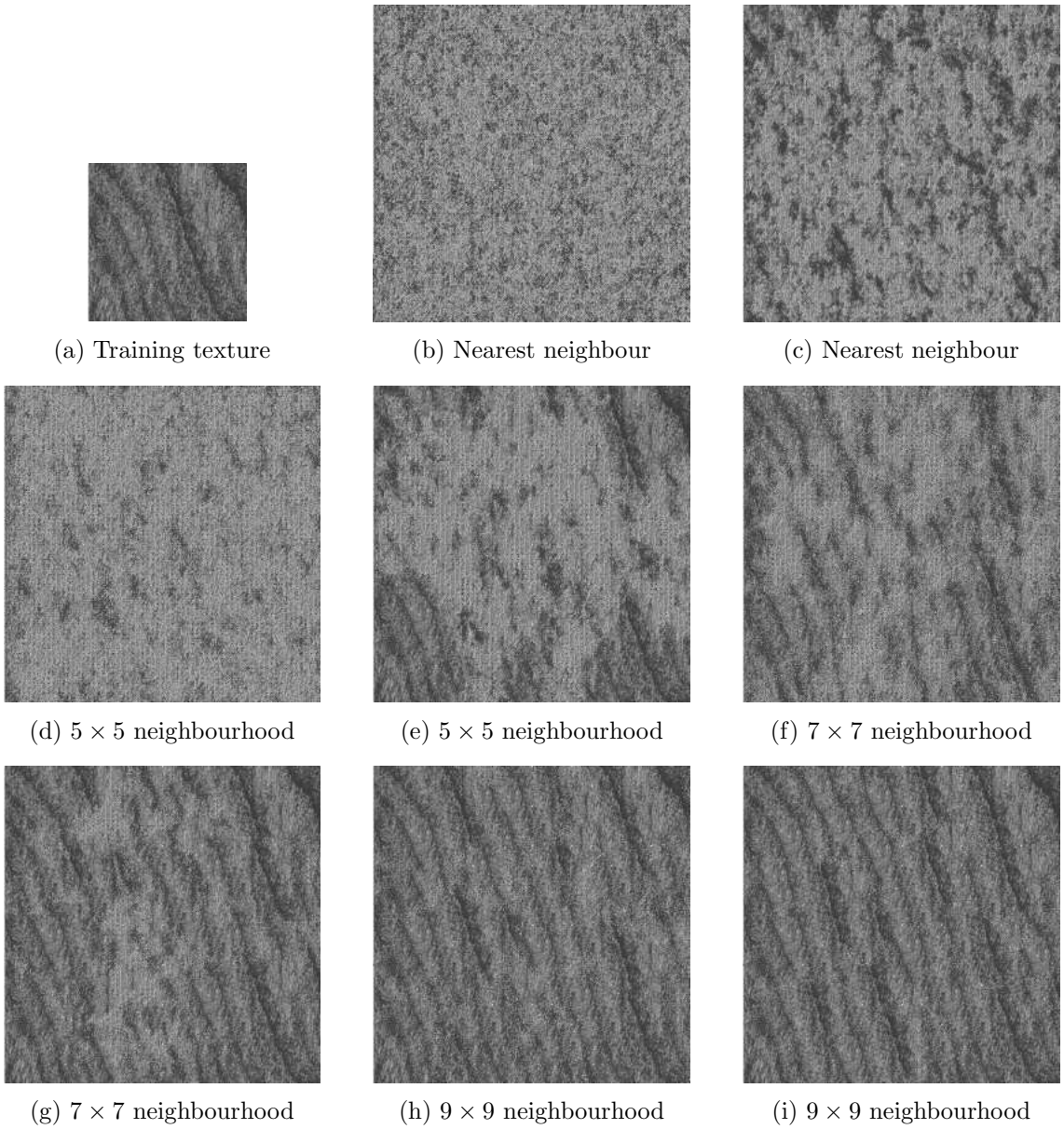


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.61: Brodatz texture D071a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

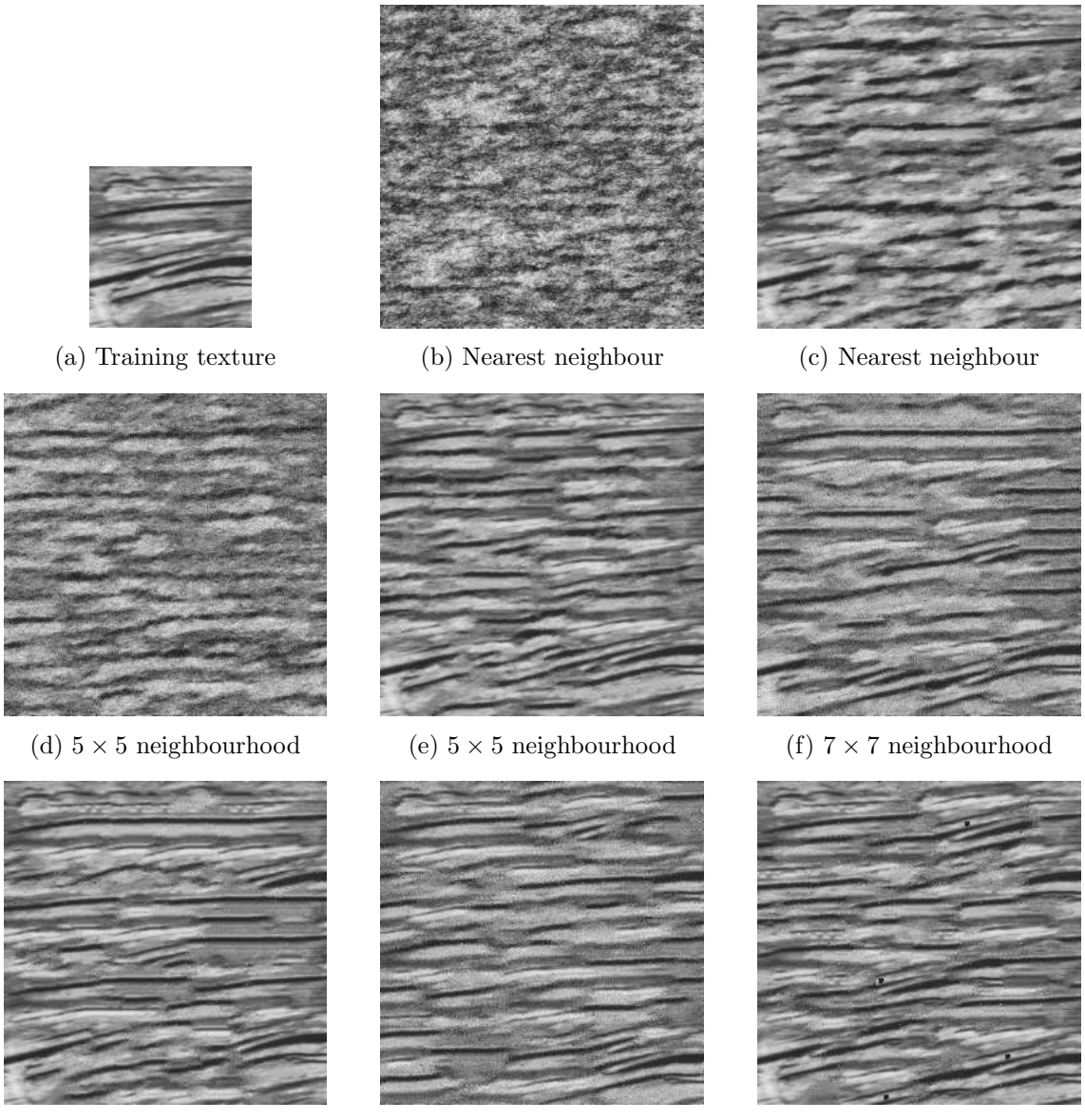


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.62: Brodatz texture D071b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



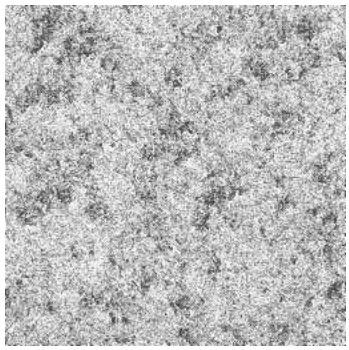
(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

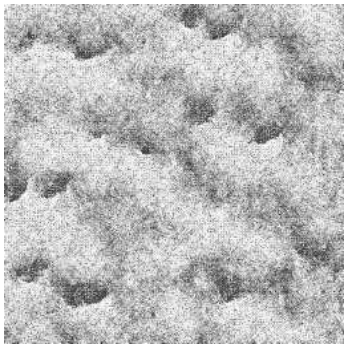
Figure B.63: Brodatz texture D072a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

(a) Training texture

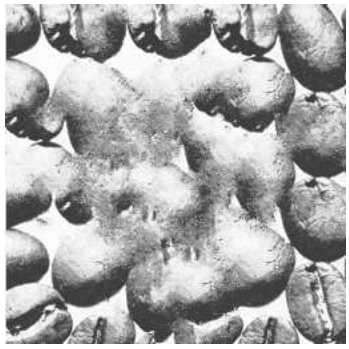


(b) Nearest neighbour

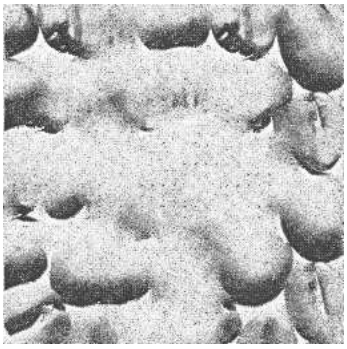
(c) Nearest neighbour



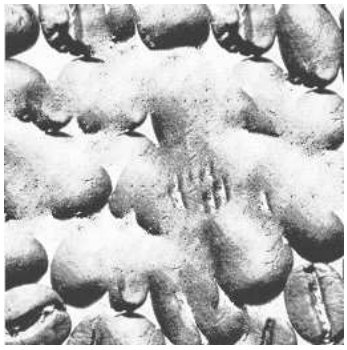
(d) 5×5 neighbourhood



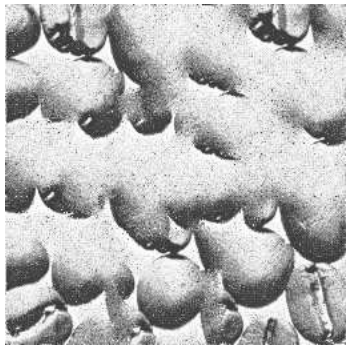
(e) 5×5 neighbourhood



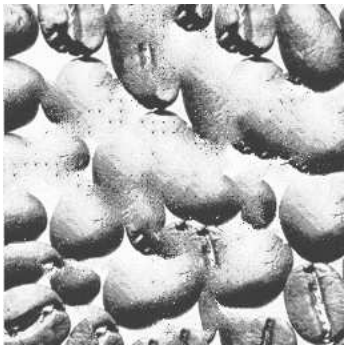
(f) 7×7 neighbourhood



(g) 7×7 neighbourhood

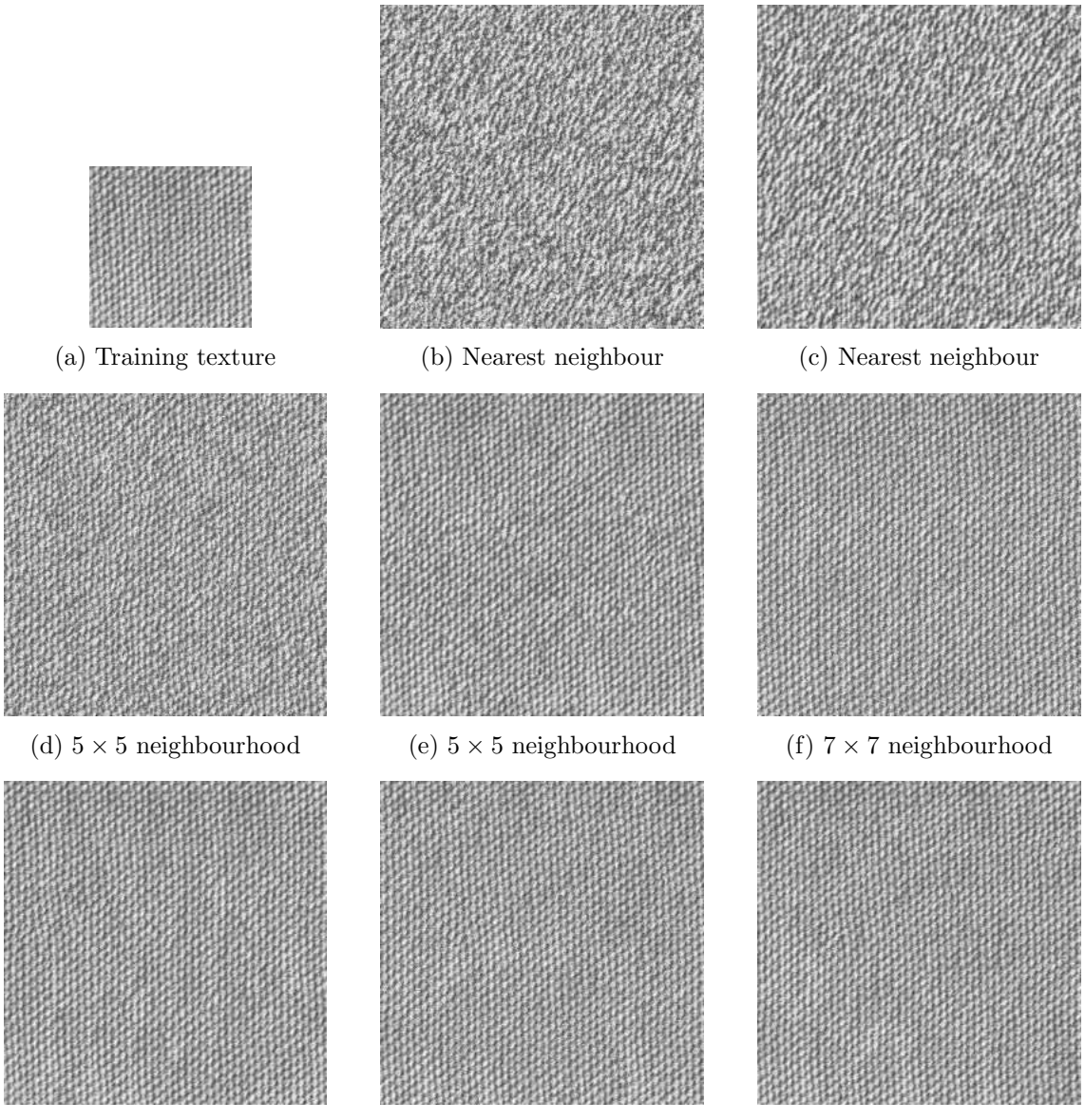


(h) 9×9 neighbourhood



(i) 9×9 neighbourhood

Figure B.64: Brodatz texture D074a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

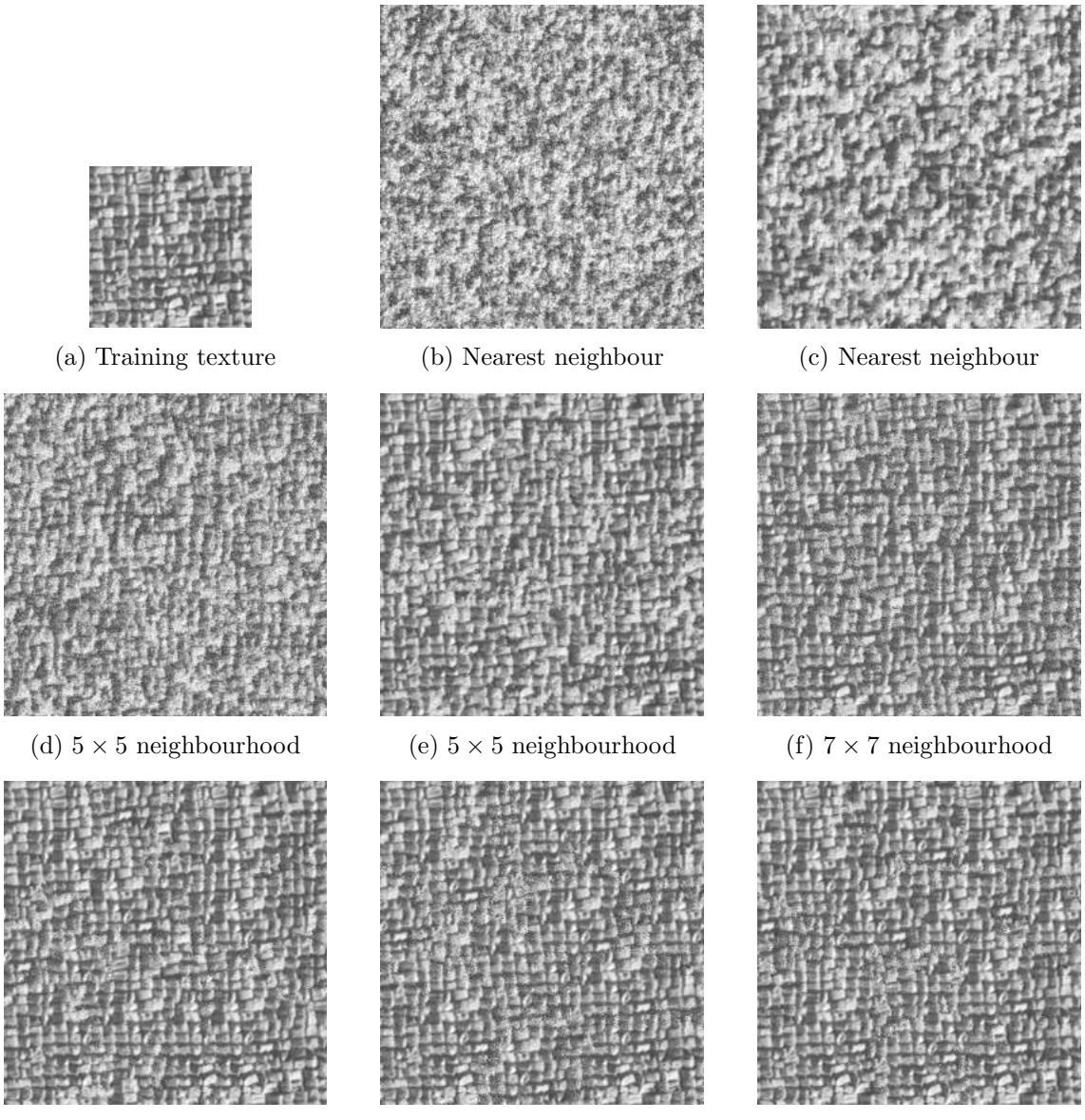


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.65: Brodatz texture D077a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

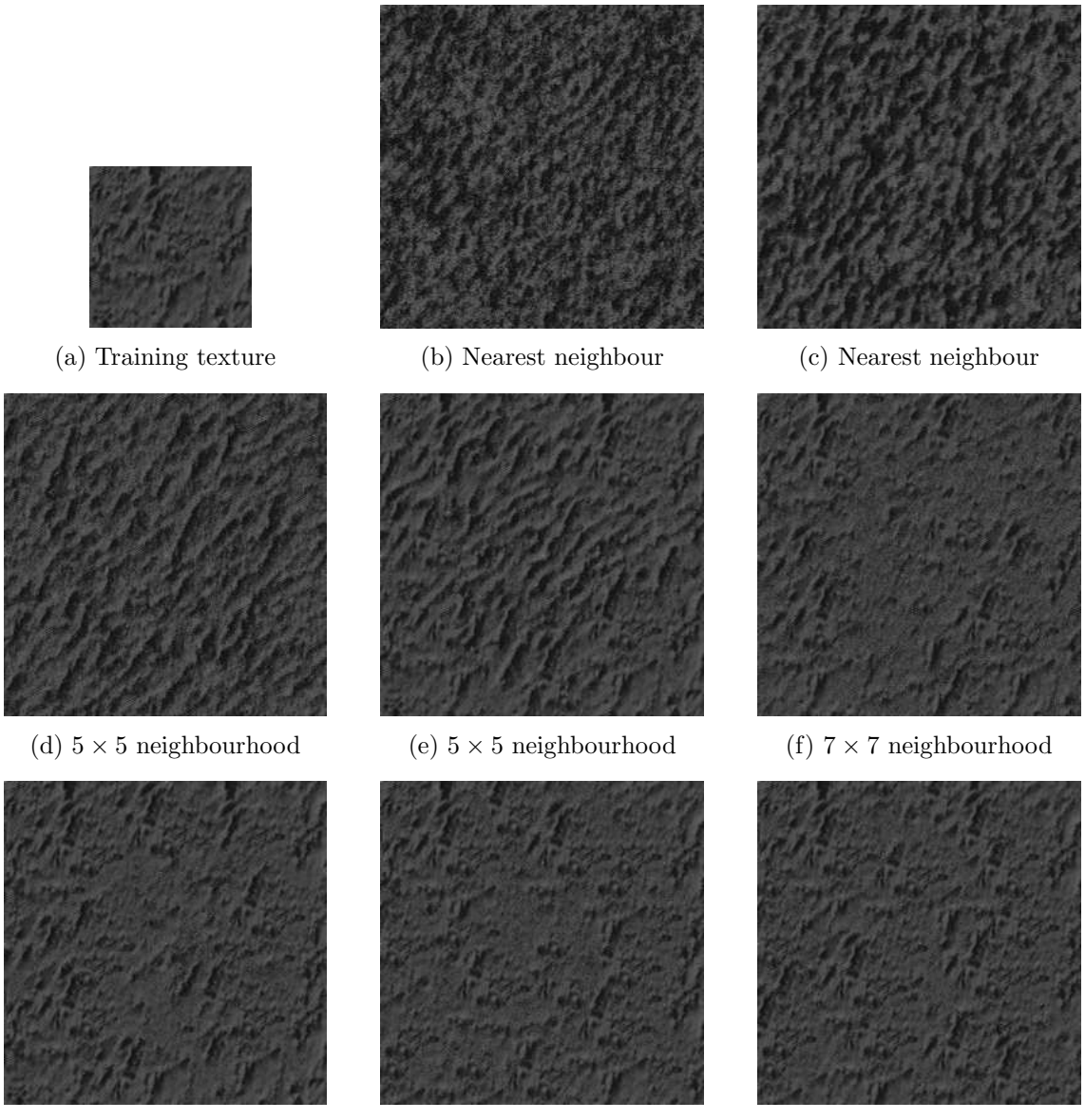


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.66: Brodatz texture D084a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

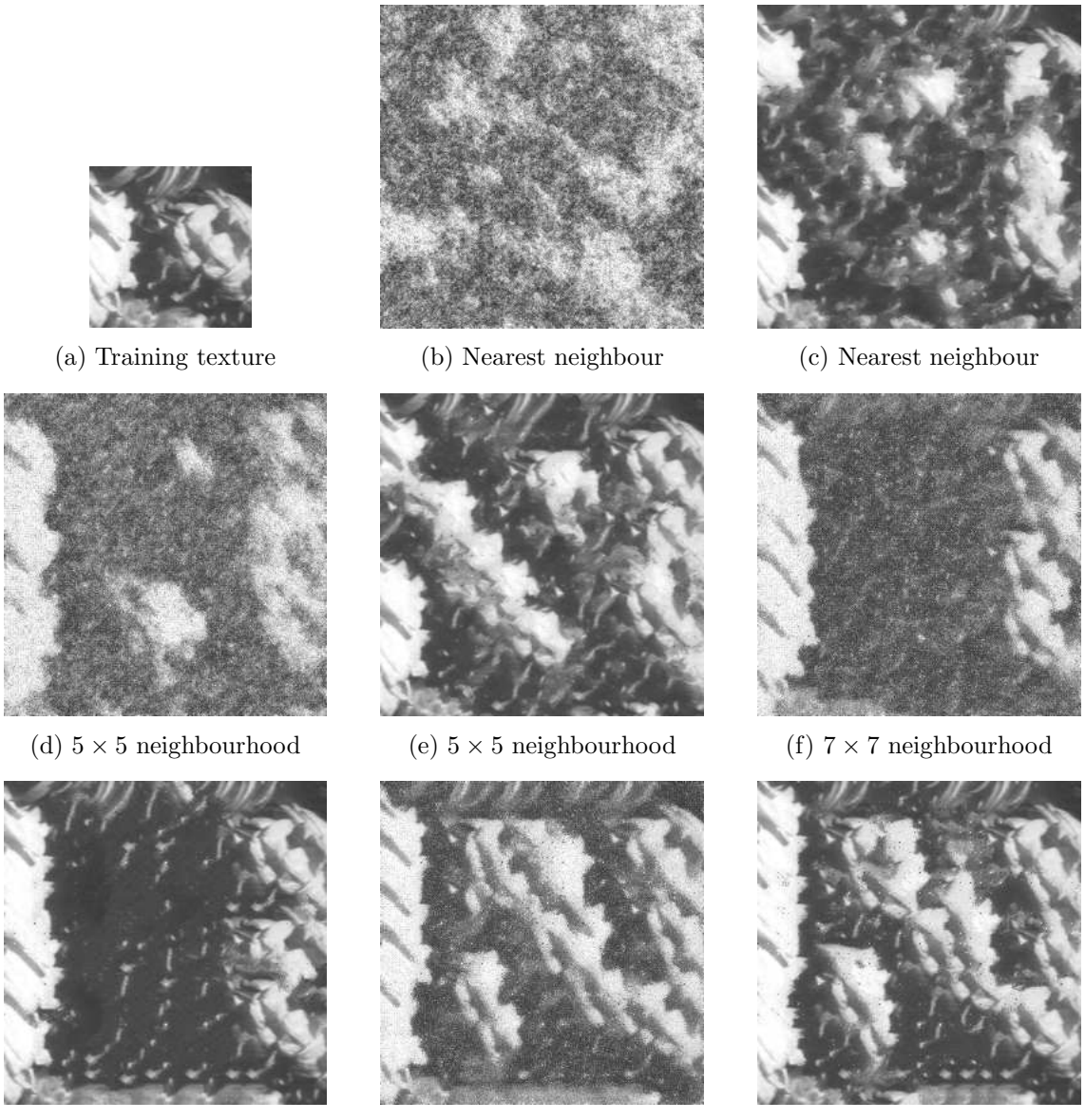


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.67: Brodatz texture D086a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

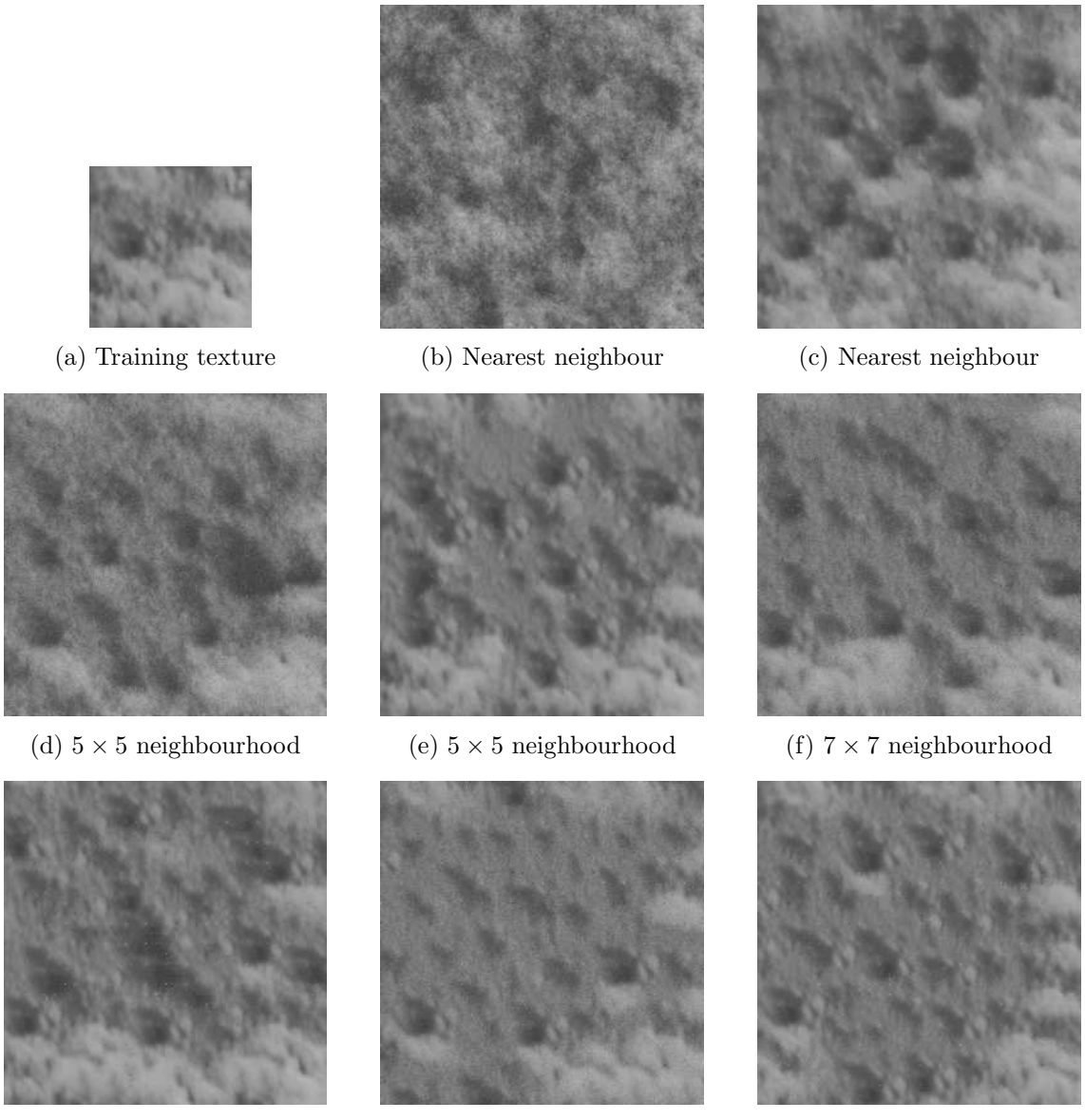


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.68: Brodatz texture D089a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

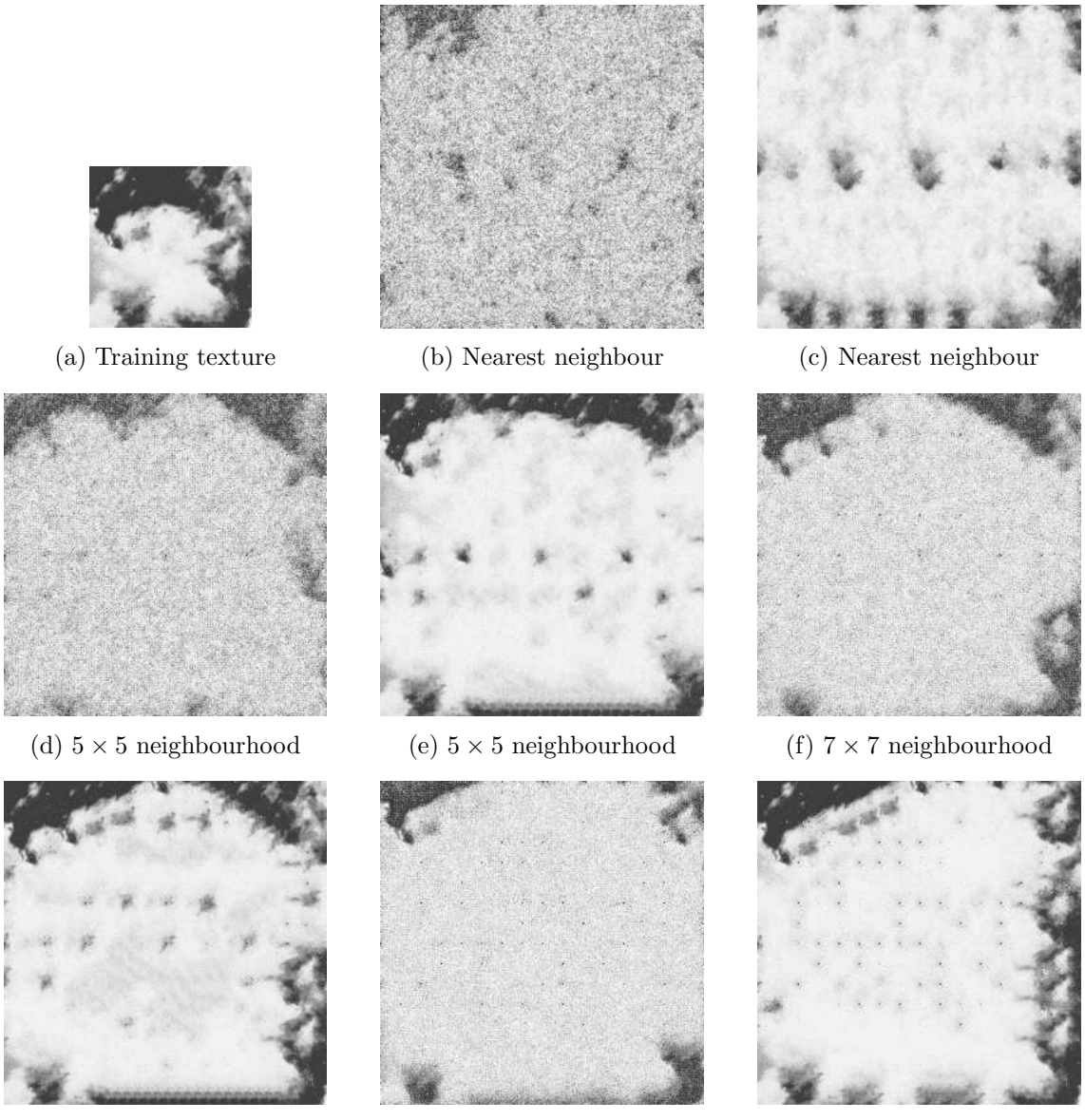


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.69: Brodatz texture D090a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

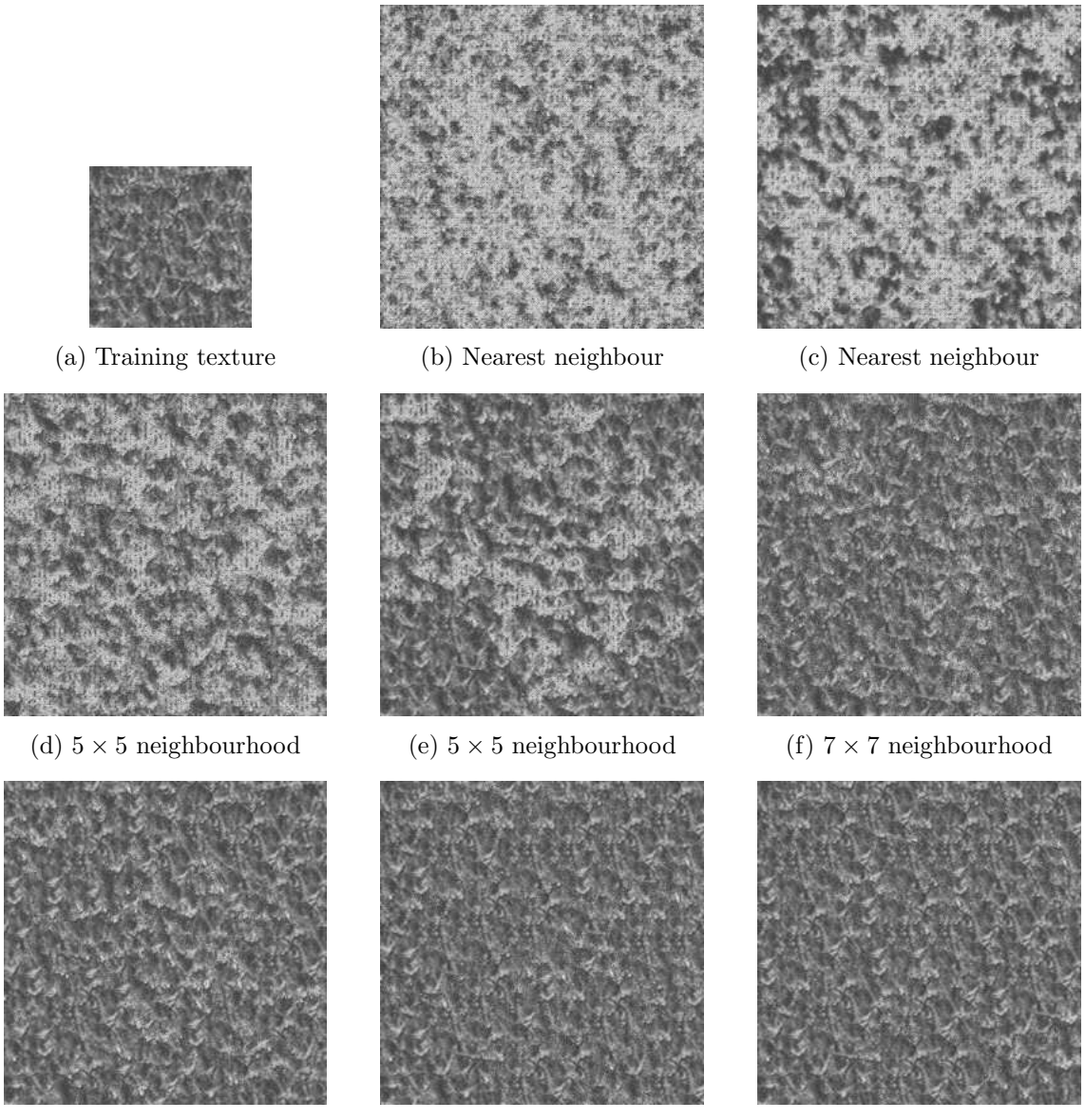


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

Figure B.70: Brodatz texture D091a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

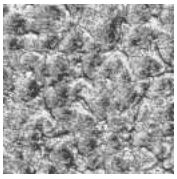


(a) Training texture (b) Nearest neighbour (c) Nearest neighbour

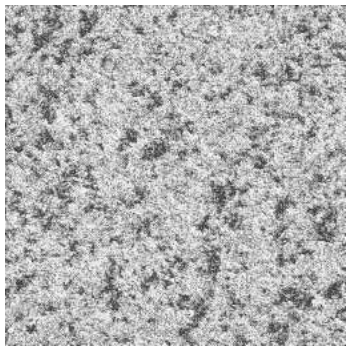
(d) 5×5 neighbourhood (e) 5×5 neighbourhood (f) 7×7 neighbourhood

(g) 7×7 neighbourhood (h) 9×9 neighbourhood (i) 9×9 neighbourhood

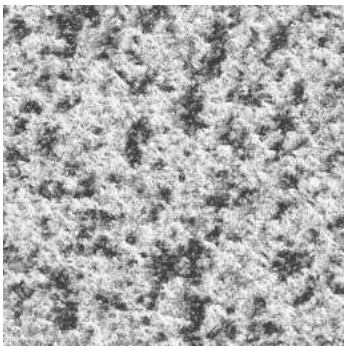
Figure B.71: Brodatz texture D092a: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.



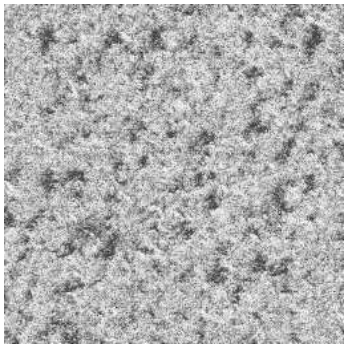
(a) Training texture



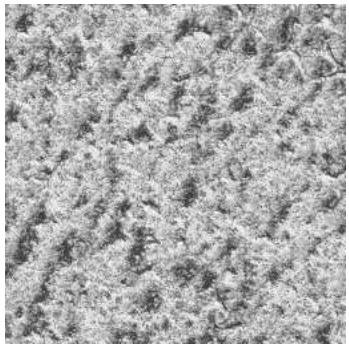
(b) Nearest neighbour



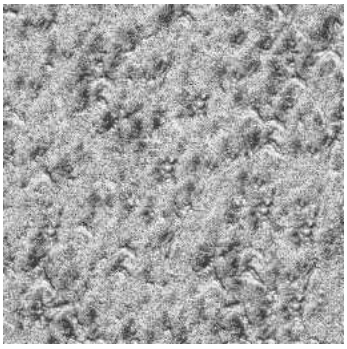
(c) Nearest neighbour



(d) 5×5 neighbourhood

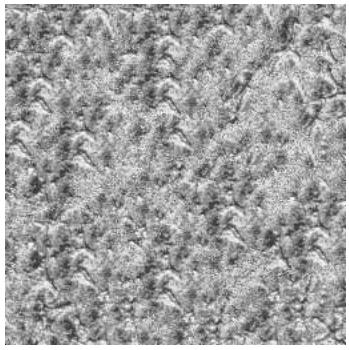


(e) 5×5 neighbourhood

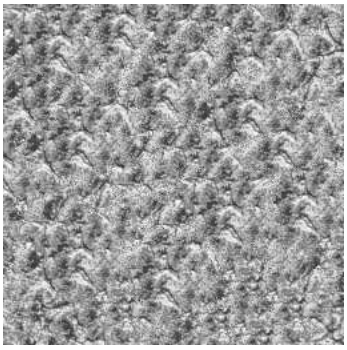


(f) 7×7 neighbourhood

(g) 7×7 neighbourhood



(h) 9×9 neighbourhood



(i) 9×9 neighbourhood

Figure B.72: Brodatz texture D092b: (a) original 128×128 image; (b–i) synthesised 256×256 images; (b) using Gibbs sampling and nearest neighbour neighbourhood; (c) using ICM sampling and nearest neighbour neighbourhood; (d) using Gibbs sampling and 5×5 neighbourhood; (e) using ICM sampling and 5×5 neighbourhood; (f) using Gibbs sampling and 7×7 neighbourhood; (g) using ICM sampling and 7×7 neighbourhood; (h) using Gibbs sampling and 9×9 neighbourhood; (i) using ICM sampling and 9×9 neighbourhood.

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