RandScapes

All I need to know I learned from staring at the wallpaper

References:
- RandScapes, Jeremy Smith, 2002
- The Algorithmic Beauty of Sea Shells 3rd ed, Hans Meinhardt, 2003.
- The Algorithmic Beauty of Seaweeds, Sponges and Corals, Jaap A. Kaandorp, Janet E. Kubler, 2001.
- Pattern Formation in Biology, Vision and Dynamics, Alessandra Carbone, Misha Gromov, 2002.
- The Self-Made Tapestry: Pattern Formation in Nature, Philip Ball, 2001.
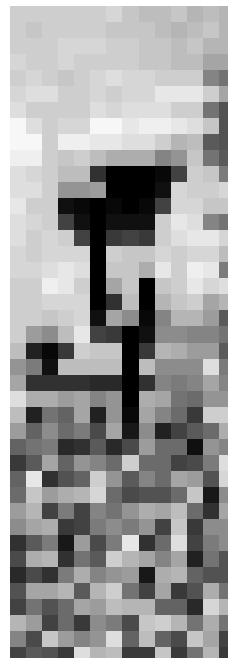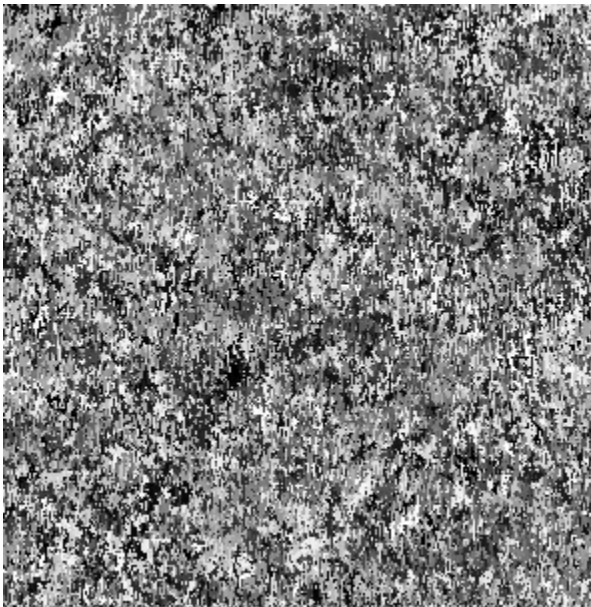- The Computational Beauty of Nature, Gary Flake, 2000.
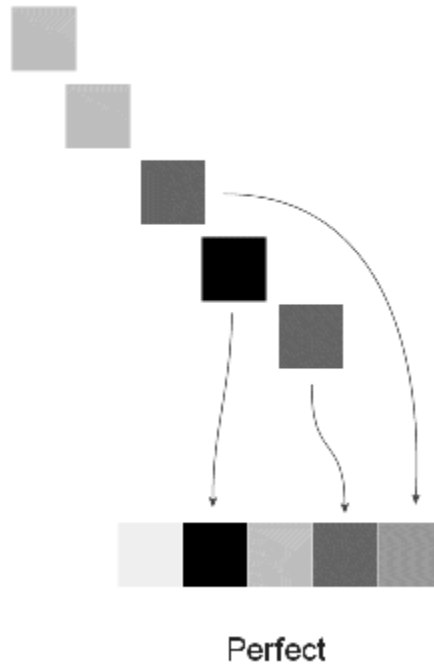
http://www.peak.org/~jeremy/randscape
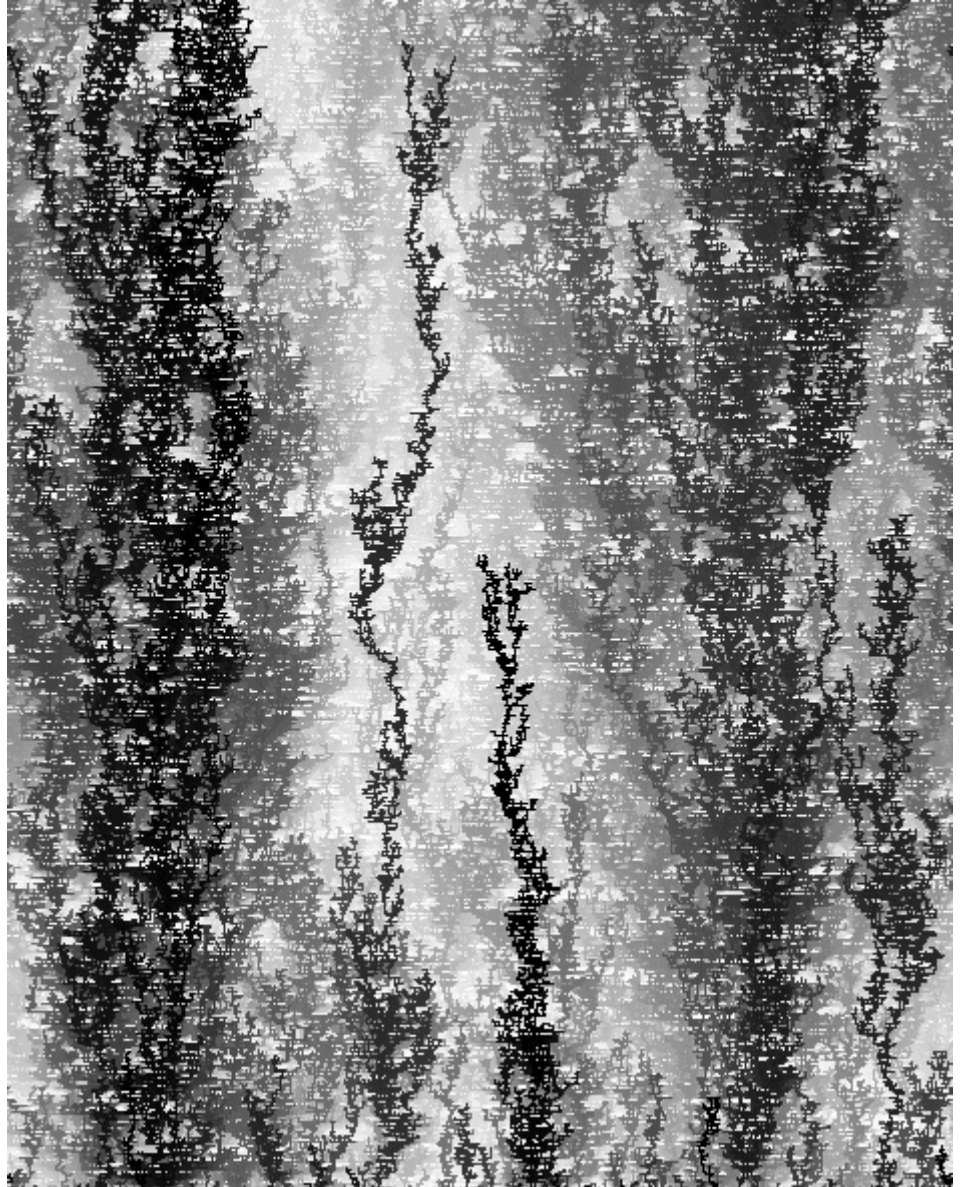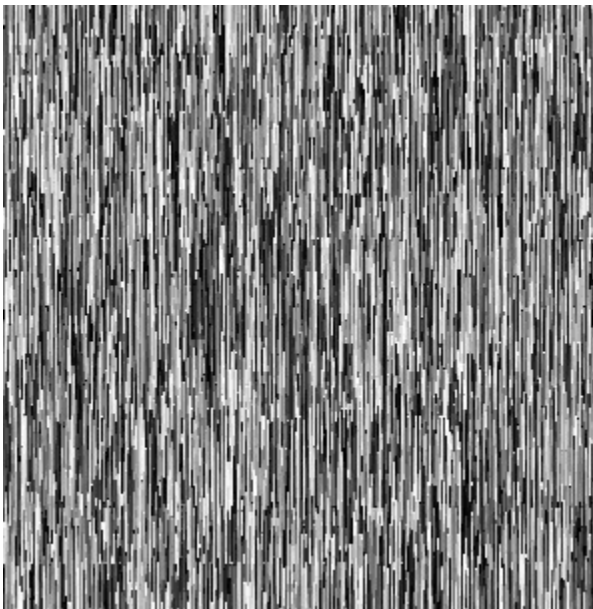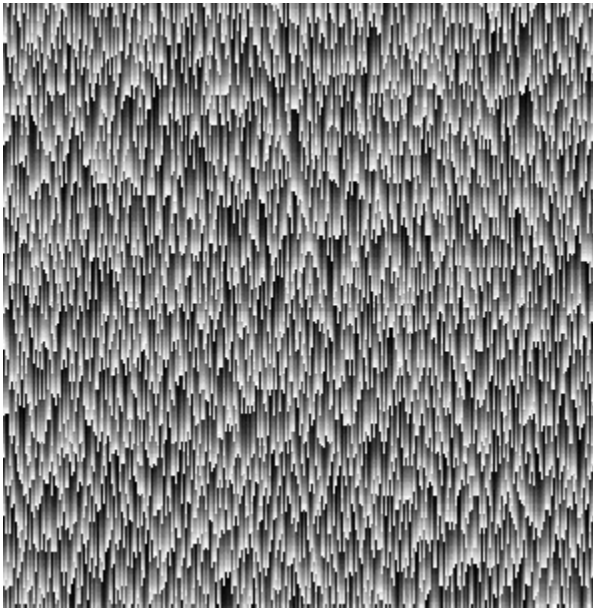
Next Available Slot
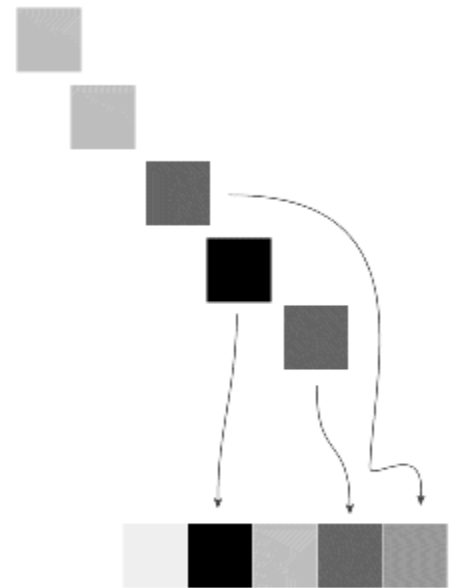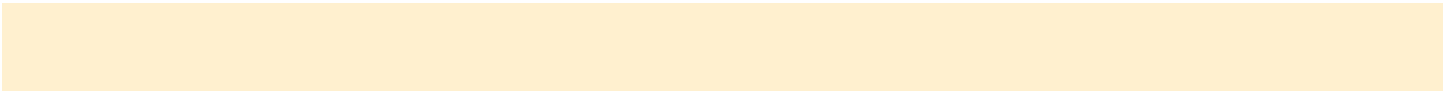

Next Available Slot

Algorithm:

- position pixel on nearest matching colour
- if position is taken, search sideways for next available slot
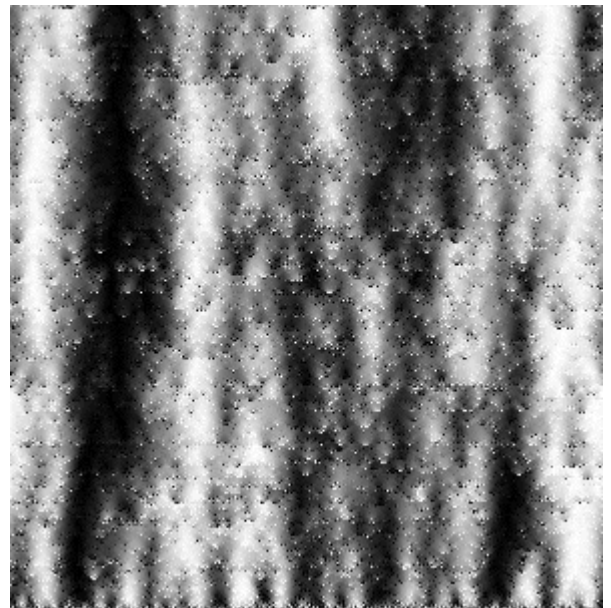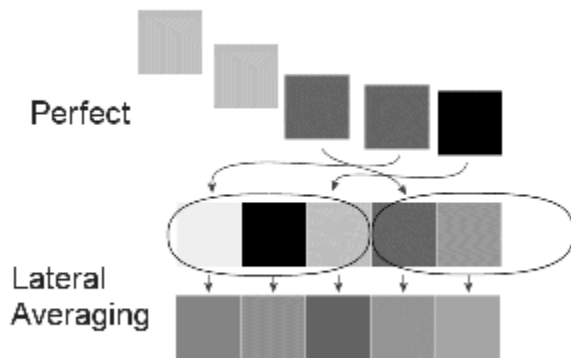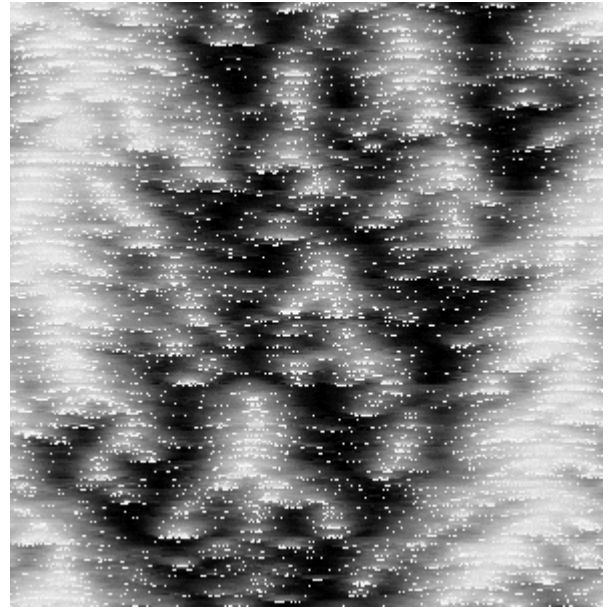
Perfect

Perfect

Algorithm:
- position pixel on closest shade (available)

Perfect

Algorithm:
- position pixel on closest (laterally averaged) shade (available)

Smoothing

Smoothing

Algorithm:
- match darkest pixels, then next darkest pixels, and so on.

Peaks

Peaks

Algorithm:
- Assign darkest pixels as peaks (say, half of them)
- position pixel on arbitrary peak
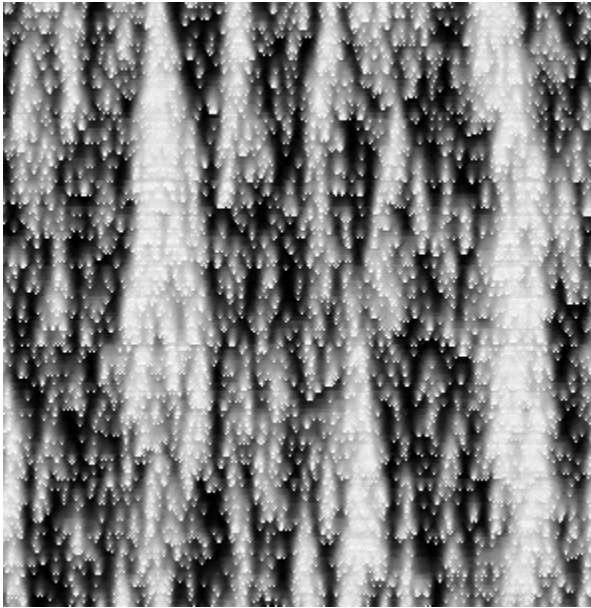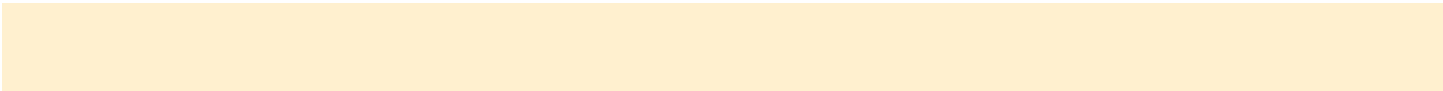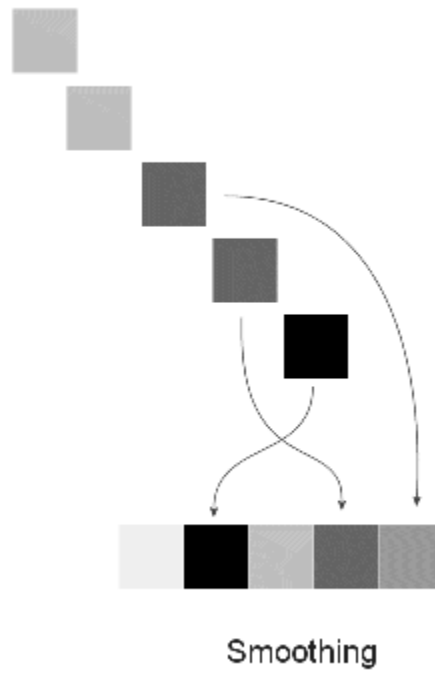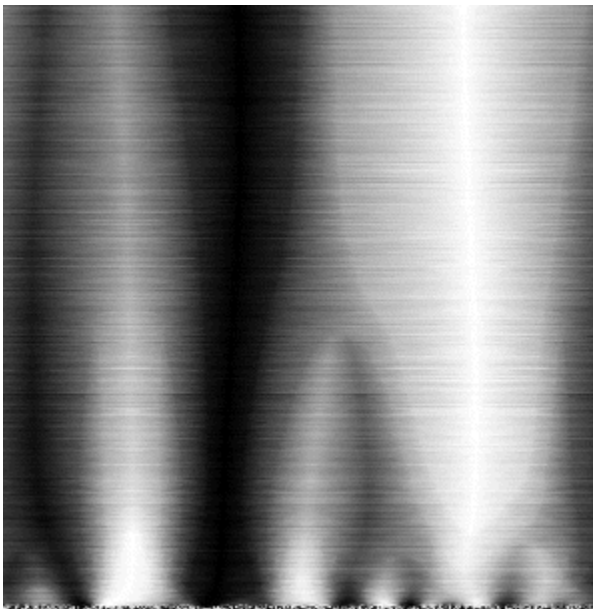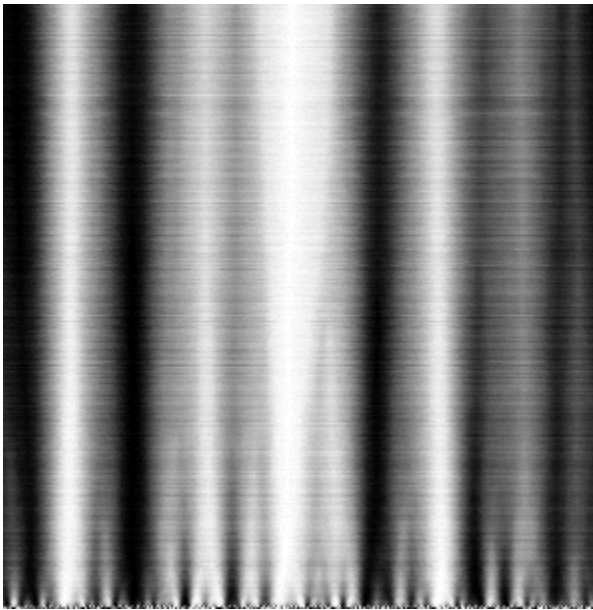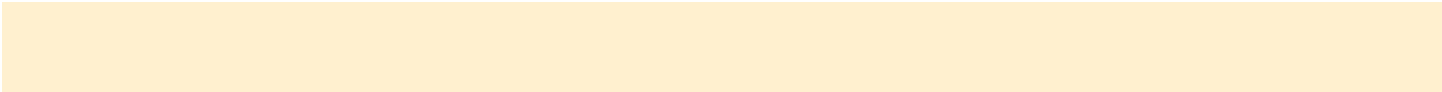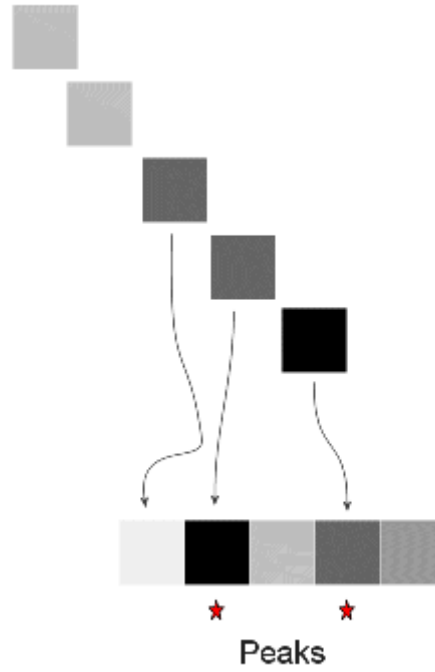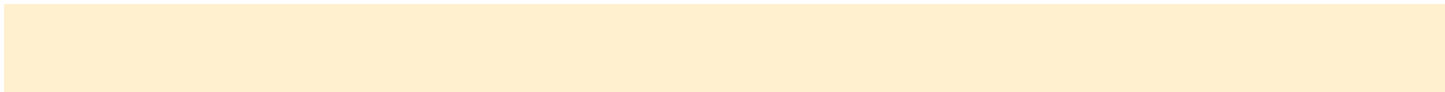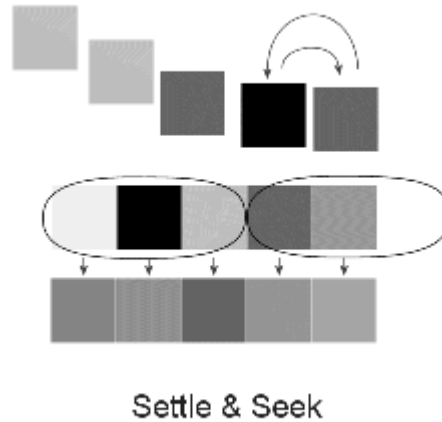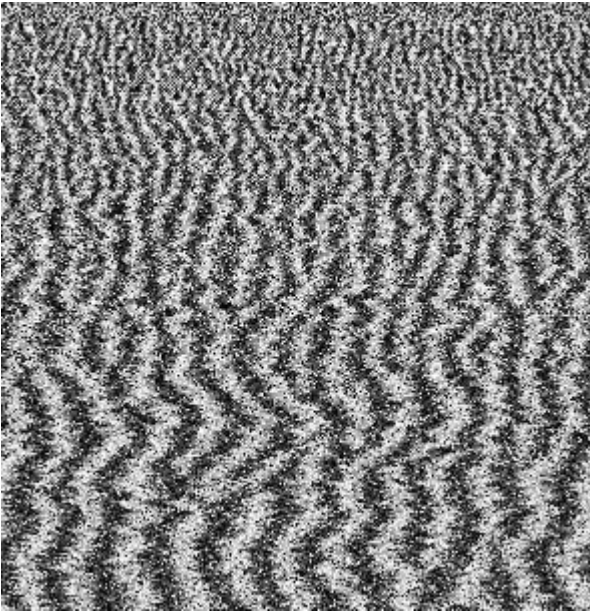- if position is taken, search sideways for next available slot

Settle & Seek

Settle & Seek

Algorithm:

- The new row of pixels is laid down completely.
- For each pixel, closest match is determined - left, center, and right.
- If left or right is closer then adjacent pixels are swapped, respectively.
- Lateral value determines swapping scope per pixel (settle).
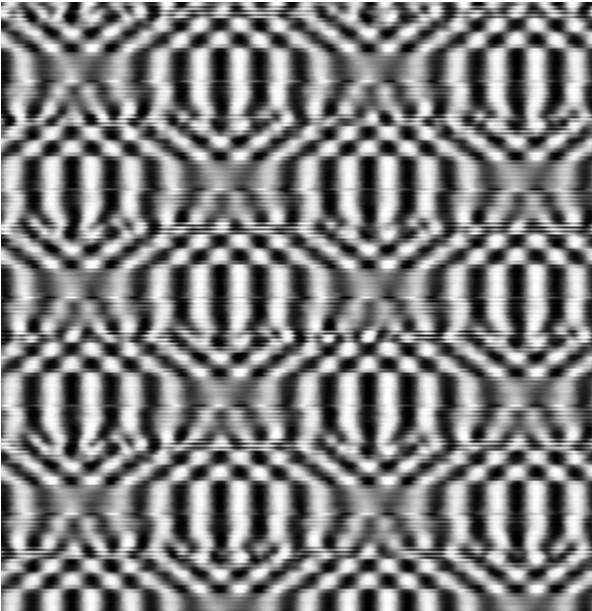- Seek does lateral averaging.

Mix

Algorithm:
- process part of row with one algorithm (say, first third - perfect)
- process part of row with another algorithm (say, remainder - next available slot)
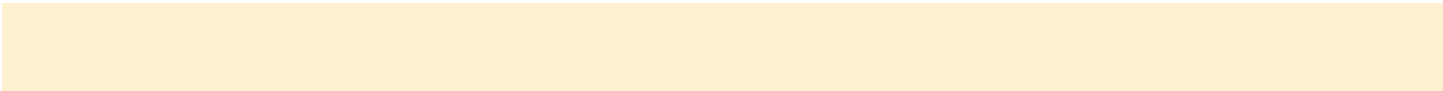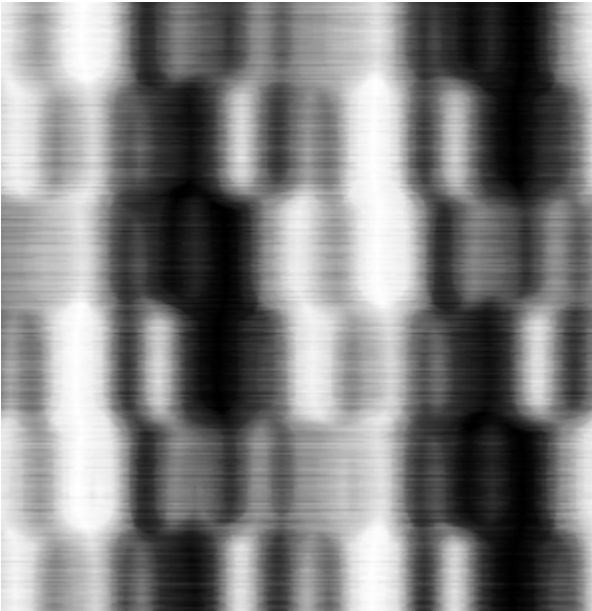
Icing

Algorithm:

- match darkest pixels, then next darkest pixels, and so on (Smoothing algorithm).
- lateral value undulates (min to max) and averaging is inverted
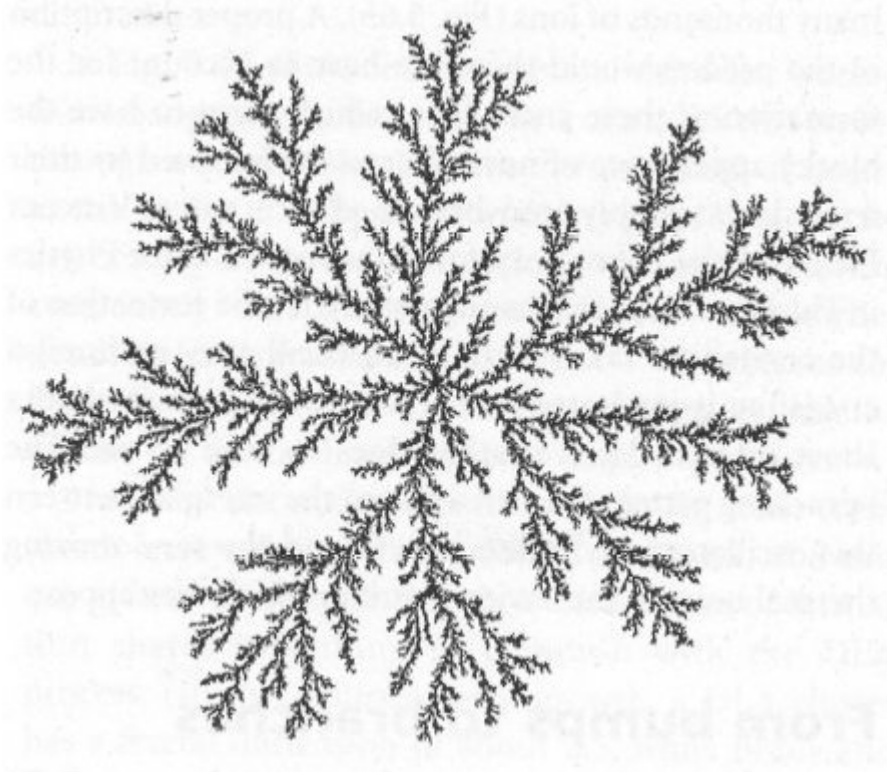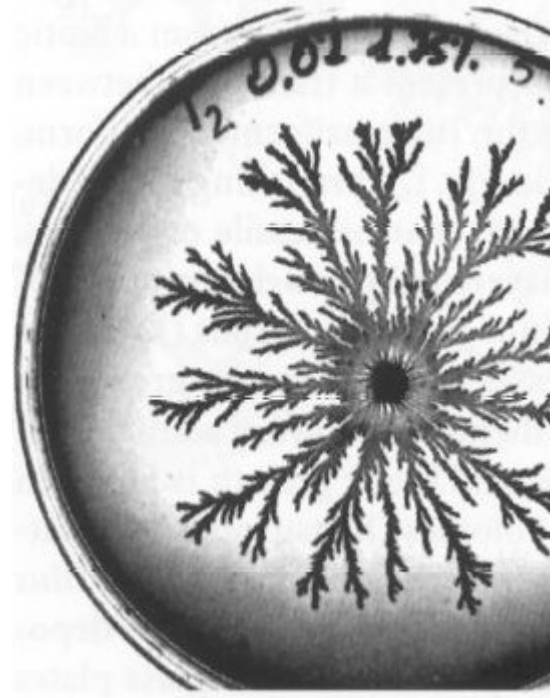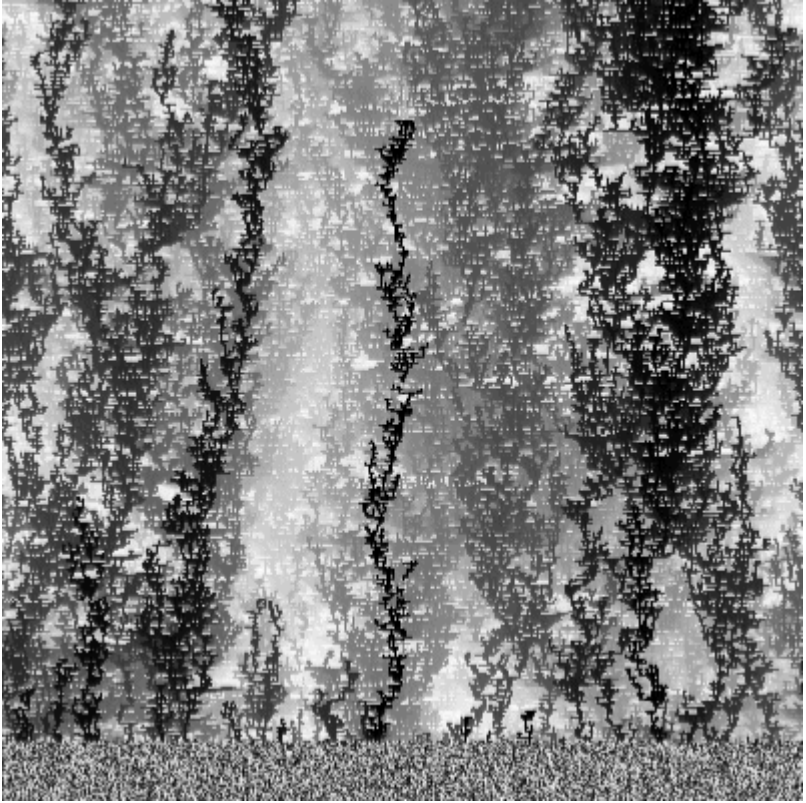- (vertical value causes oscillations)
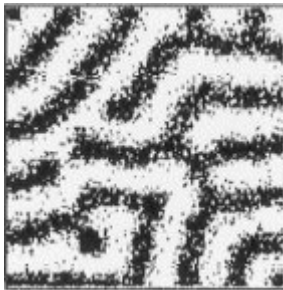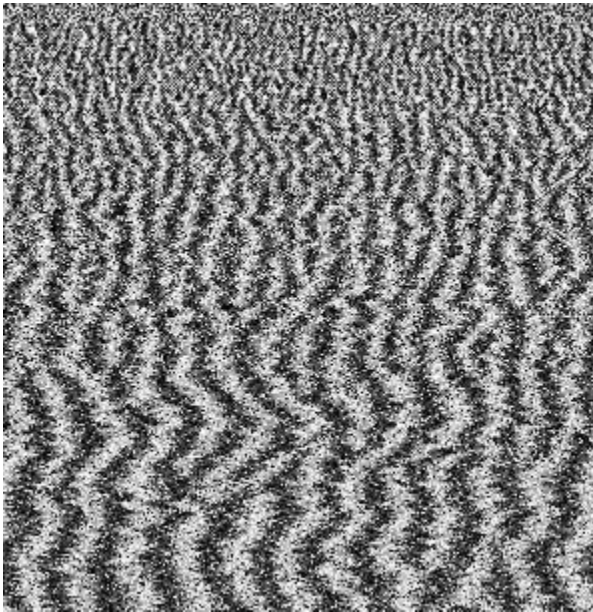
Second Layer

Algorithm:
- match darkest pixels, then next darkest pixels, and so on (Smoothing algorithm).
- but undulates between prior row and row from second layer (undulation controlled by vertical value)
- (second layer is actually an $^N/_2$ prior row)

Next Available Slot

Settle & Seek

Icing