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RESEARCH ARTICLE OPEN ACCESS

# Generation of New Halftone Blind Effects

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**ABSTRACT**
This paper deals with two special halftoning effects viz. horizontal and vertical halftone blind effects and one combination of both horizontal and vertical halftone blind effects in grid form. These halftone effects are quite new in digital halftoning field.
**Keywords:** Horizontal halftone blind, vertical halftone blind, analog mezzotint, vertical mezzotint

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## I. INTRODUCTION

Various kinds of special effects halftone screens were available for conventional halftone and one of them is analog mezzotint. Here author has used digital mezzotint screen as a basis for further generation of special halftones. Any other digital mezzotint screen can also be used as a basis.

## II. EXPERIMENTAL PROCEDURES

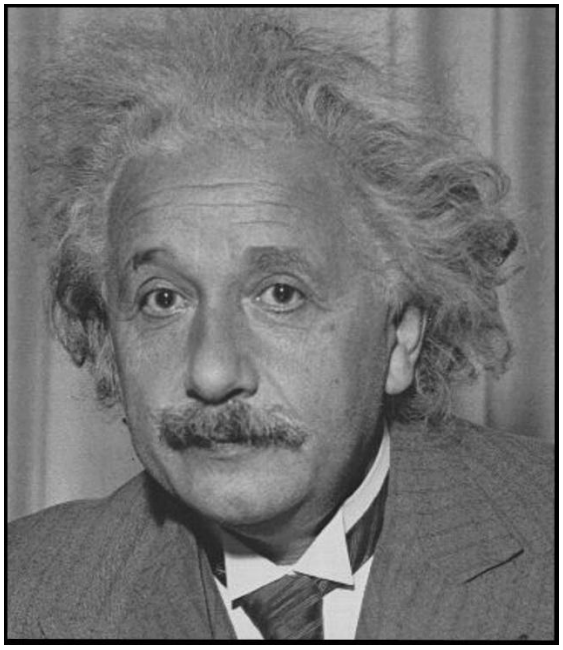

Figure 1: Sample gray image

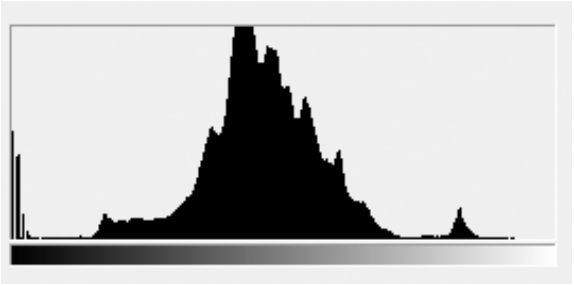

Figure 2: Histogram of figure 1

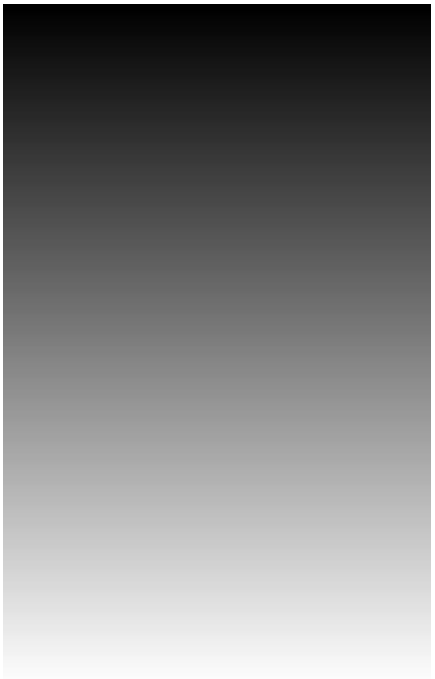

Figure 3: Sample gray gradient

Figure 4: Histogram of figure 3

Figure 5: Digital mezzotint

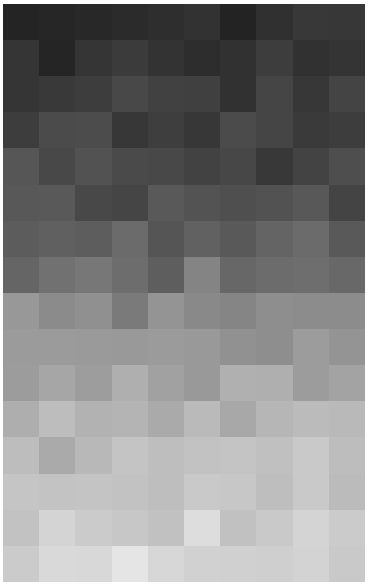

Figure 6: Pattern of gray

Figure 7: Histogram of figure 6

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 36 | 38 | 40 | 43 | 46 | 50 | 35 | 48 | 56 | 55 |
| 53 | 37 | 53 | 59 | 51 | 45 | 49 | 61 | 49 | 52 |
| 53 | 57 | 61 | 72 | 65 | 64 | 49 | 69 | 55 | 68 |
| 61 | 75 | 76 | 55 | 62 | 55 | 75 | 69 | 58 | 61 |
| 86 | 72 | 82 | 74 | 72 | 66 | 71 | 56 | 67 | 78 |
| 88 | 89 | 72 | 69 | 89 | 83 | 79 | 82 | 88 | 68 |
| 92 | 96 | 93 | 107 | 85 | 97 | 89 | 100 | 107 | 89 |
| 101 | 113 | 119 | 109 | 94 | 132 | 103 | 108 | 110 | 104 |
| 152 | 139 | 144 | 122 | 148 | 137 | 133 | 142 | 140 | 140 |
| 155 | 155 | 154 | 153 | 155 | 153 | 145 | 142 | 156 | 148 |
| 156 | 166 | 157 | 175 | 161 | 153 | 176 | 175 | 156 | 163 |
| 174 | 189 | 178 | 180 | 170 | 186 | 168 | 182 | 187 | 185 |
| 189 | 170 | 184 | 196 | 190 | 194 | 196 | 192 | 201 | 189 |
| 197 | 195 | 196 | 194 | 190 | 201 | 199 | 190 | 201 | 187 |
| 194 | 212 | 203 | 199 | 193 | 221 | 193 | 201 | 212 | 203 |
| 203 | 217 | 216 | 229 | 215 | 209 | 208 | 207 | 211 | 201 |

Figure 8: 16 x 10 image matrix

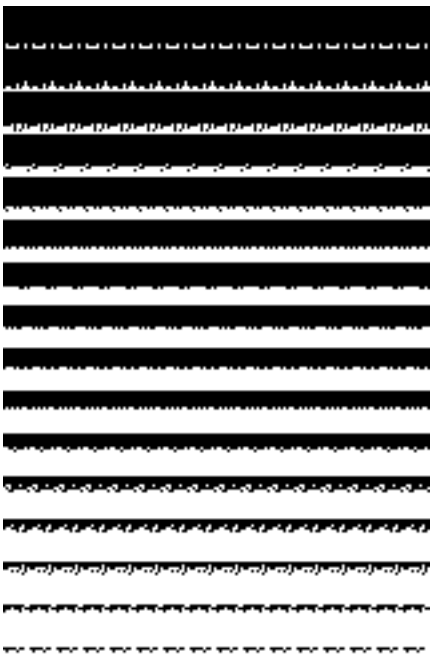

Figure 9: Halftone image of gray gradient (Figure 3)

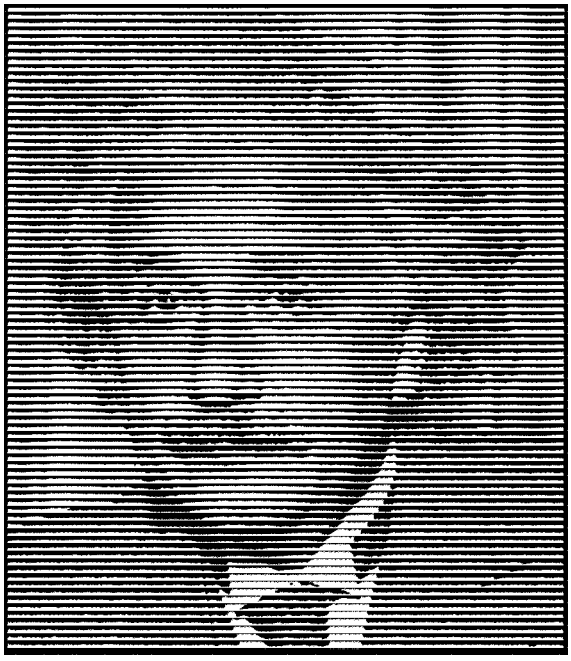

Figure 10: Horizontal halftone blind effects

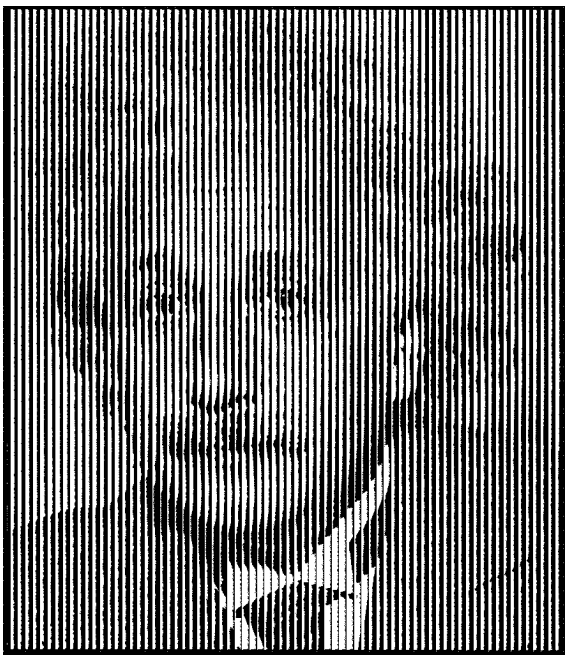

Figure 11: Vertical halftone blind effect

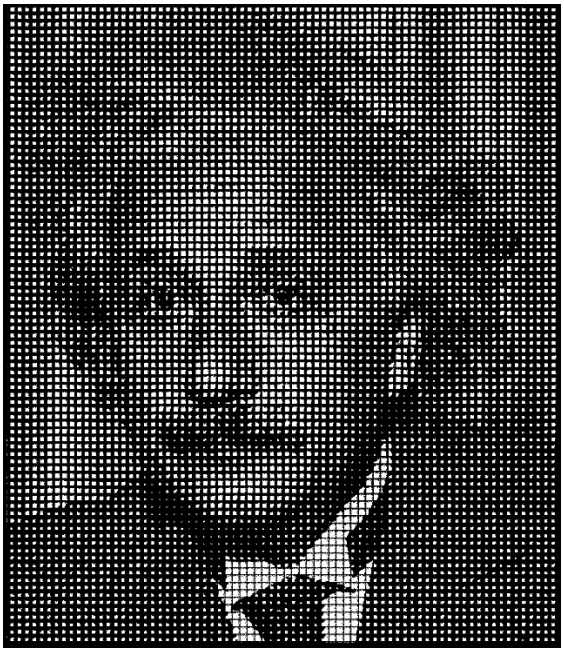

Figure 12: Combination of horizontal and vertical blind effects

Figure 1 is a sample gray image and figure 2 is the histogram with image details mostly in middle-tone area. Similarly figure 3 is a sample gray gradient and its histogram is figure 4 which shows its uniform tonal distribution. Figure 5 is a digital mezzotint (consisting of fine dots) filter effect applied on figure 3. Figure 6 is a pattern of grays obtained after converting the figure 5 to sixteen bit gray. Figure 7 is a histogram of figure 6 and its

image details mostly in the both sides of middle-tone area. Figure 8 is 16 x 10 image matrix of figure 6. Figure 9 is a halftone image after applying figure 6 on figure 3.

## III. RESULTS AND DISCUSSIONS

Figure 10 is a horizontal halftone blind effect, figure 11 is a vertical halftone blind effect and figure 12 is a combination of horizontal and vertical halftone blind effect in grid form. Matlab array multiplication for image of figure 10 and figure 11.

## IV. CONCLUSIONS

This presented work has two methods of halftone blind viz. horizontal and vertical blind effects and one method which is combination of both horizontal and vertical blind effects. The method used and effects are quite new in this field. One possible application of this is special effect digital halftoning.

## ACKNOWLEDGEMENTS

1. Adobe Photoshop 7.0, Adobe Systems Incorporated, 1990-2002, USA
2. Matlab 6.1, The Mathworks, Inc, 1984-2001, USA

## REFERENCES

[1]. The Contact Screen Story, Du Pont