

Supplementary Material

Visibility Maps for Improving Seam Carving

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1 Further Results

We now present an extended set of results, for all 100 images in our test database. We halve the width of these images for a number of combinations of parameters for our algorithm.

For each figure, the images we show are:

- (a) Input image
- (b) Scaling
- (c) Visibility map for (d)
- (d) Seam carving
- (e) Visibility map for (f)
- (f) Seam carving energy terms
(distortion energy: absolute magnitude distance, $n_D = 1$)
- (g) Visibility map for (h)
- (h) Distortion energy: absolute magnitude distance, $n_D = 1$; unary with $n_U = 1$
- (i) Visibility map for (j)
- (j) Distortion energy: absolute magnitude distance, $n_D = 1$; seam term: repeat cost for intermediate seams; unary with $n_U = 1$
- (k) Visibility map for (l)
- (l) Improved seam carving
(distortion energy: absolute magnitude distance, $n_D = 1$; seam term: average unary cost for intermediate seams; unary with $n_U = 1$)
- (m) Visibility map for (n)
- (n) Improved seam carving with blending ($w = 0.25$)
- (o) Visibility map for (p)
- (p) Improved seam carving with refinement

Acknowledgements: We would like acknowledge the following Flickr users for making their images available for our research work under Creative Commons licenses: `poet` for 1, ‘J’ for 2, `pheanix` for 3, `Dimitri` for 4, `drurydrama` for 5, `Sverrir Thor` for 6, `druidabruxux` for 7, `Rikki Nadir` for 8, `carlotadarni`

for 9, antonychammond for 10, Jose Luis Mieza for 11, jimg2_peace2011 for 12, amanky for 13, papalars for 14 and 43, Tambako the Jaguar for 15, 20, 32, 38 and 61, Zephyrance for 16 and 18, Jenna Carver for 17, Dene Miles for 19, Orangeya for 21, Paulo Brandao for 22, 26 and 30, telmo32 for 23, James Jordan for 24, gin_able for 25, pareeerica for 27, Panoramas for 28 and 74, yamiq for 29, Amir Kuckovic for 31, stephcarter for 33 and 45, Chuck Coker for 34 and 42, Pierluigi Riccio for 35, Gianni Dominici for 36, Gabriela Camerotti for 37, muha... for 39, wolfpix for 40 and 71, Bill and Mavis for 41, papalars for 43, nrbelex for 44, Elina Nilsson for 46, Hamed Saber for 47, 65 and 66, visualpanic for 48, mikebaird for 49 and 69, joiseyshowaa for 50, 58 and 72, SF Brit for 51, Mr. Theklan for 52, d o l f i for 53, Jule_Berlin for 54, liber for 55 and 78, chris bartnik for 56, Claude Renault for 57, yewenyi for 59, Brandon Christopher Warren for 60, Jaye for 62, Kivanc Nis for 63, robokow for 64, Al.HikesAZ for 67, Trois Tetes for 68, law.keven for 70 and 97, Michal Osmenda for 73, Ben Chau for 75, Dark L. Hacedor for 76, mathias-erhart for 77, N Gomes for 79, Millzero for 80, aussiegall for 81, dreamglowpumpkincat210 for 82, Rev Dan Catt for 83, Eneas for 84, Eduardo Amorim for 85, Claudia Assad for 86, . : sandman for 87, Wagman_30 for 88, paul (dex) for 89, tochis for 90, John Steven Fernandez for 91, SergioTudela for 92, Stuck in Customs for 93, tochis for 90, crsan for 94, Loca Luna for 95, Thomas Hawk for 96, ecstaticist for 98, MorBCN for 99 and magdalar for 100.

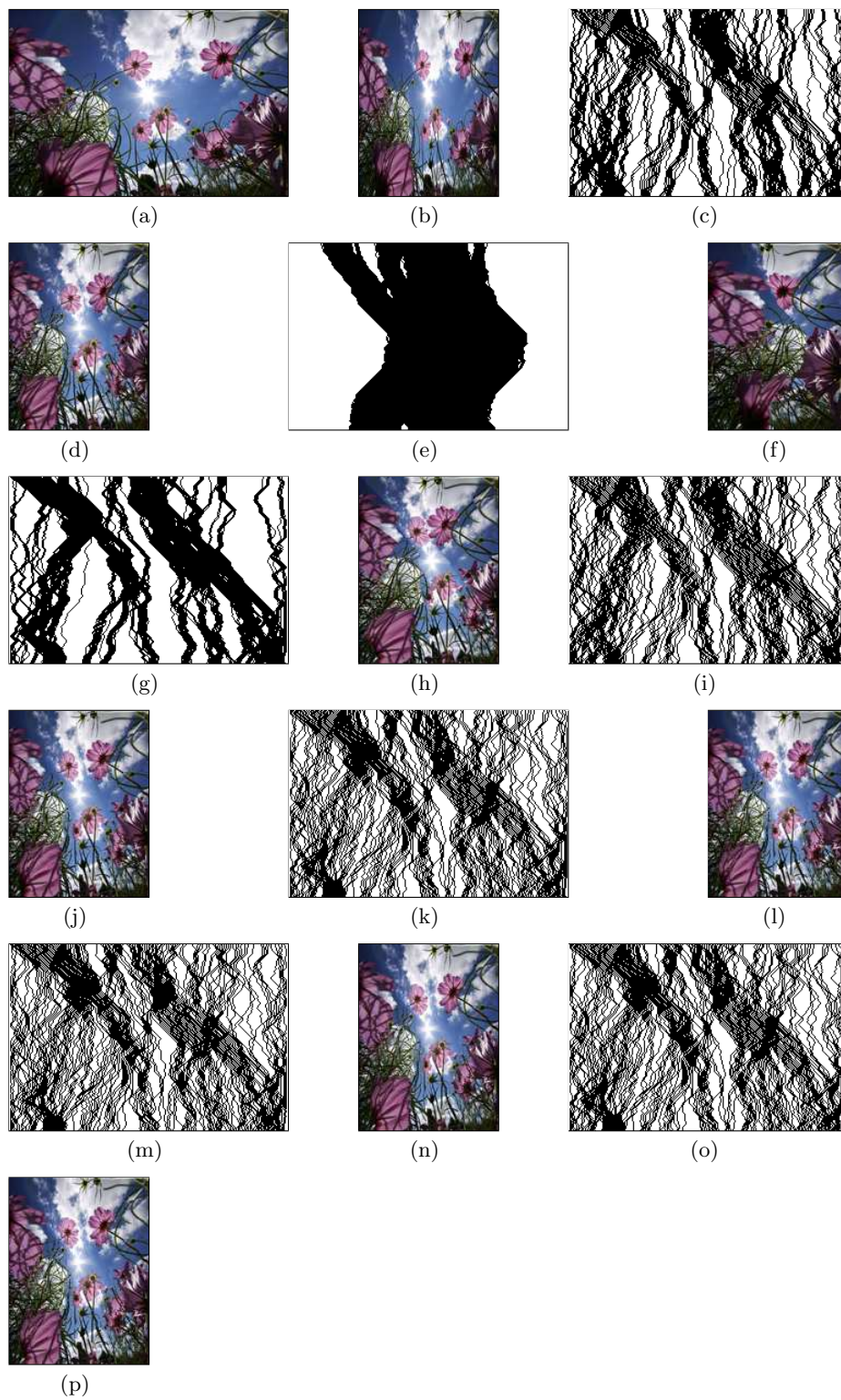


Fig. 1: Image 1

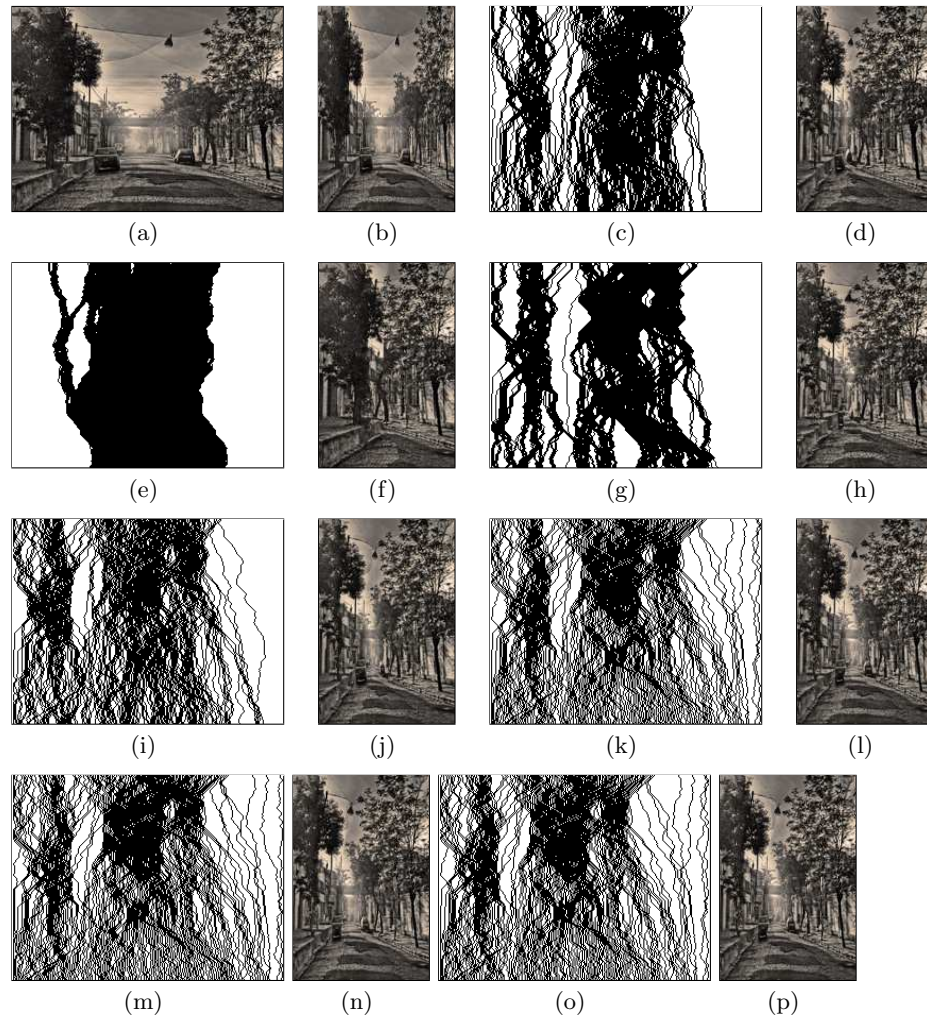


Fig. 2: Image 2

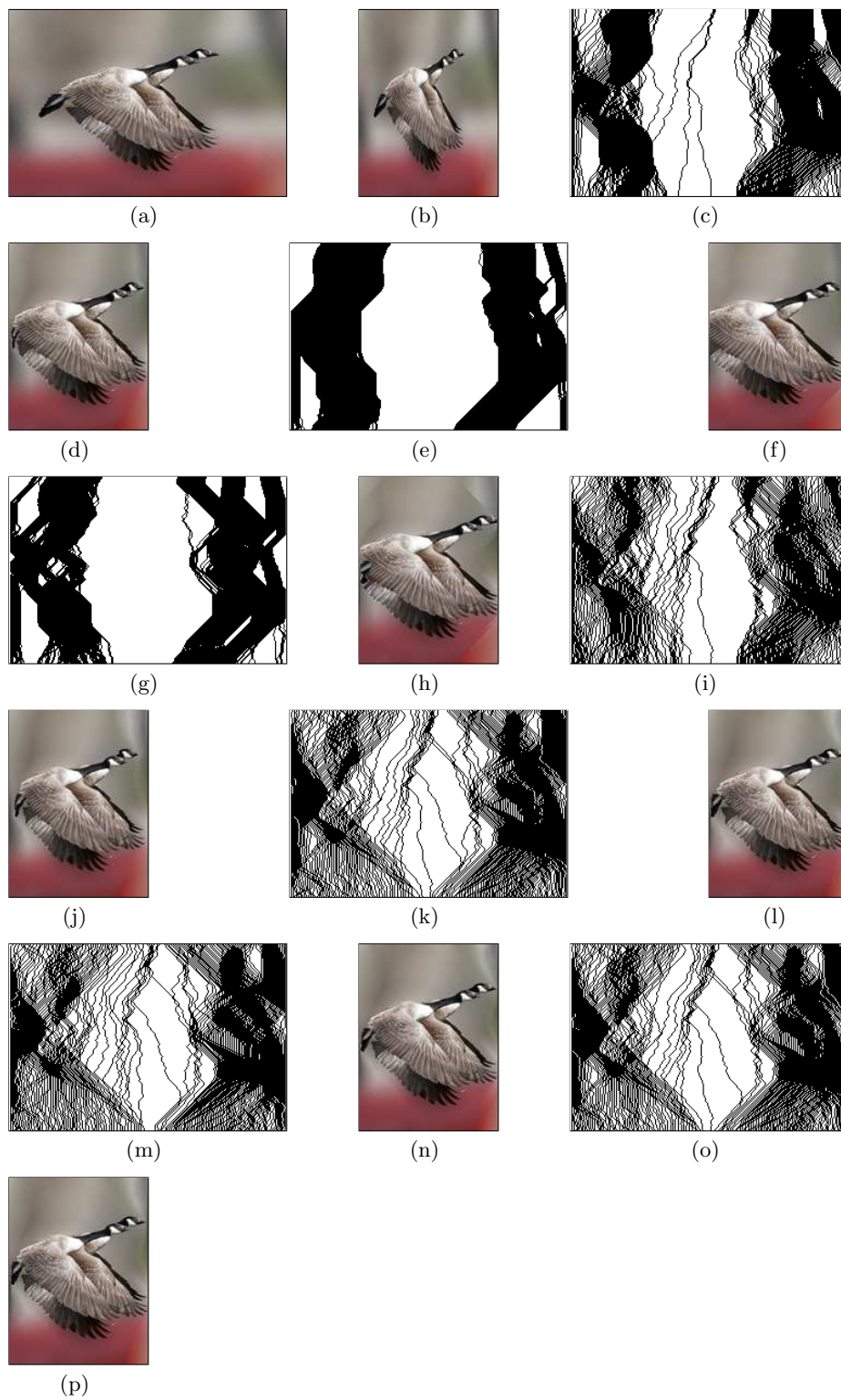


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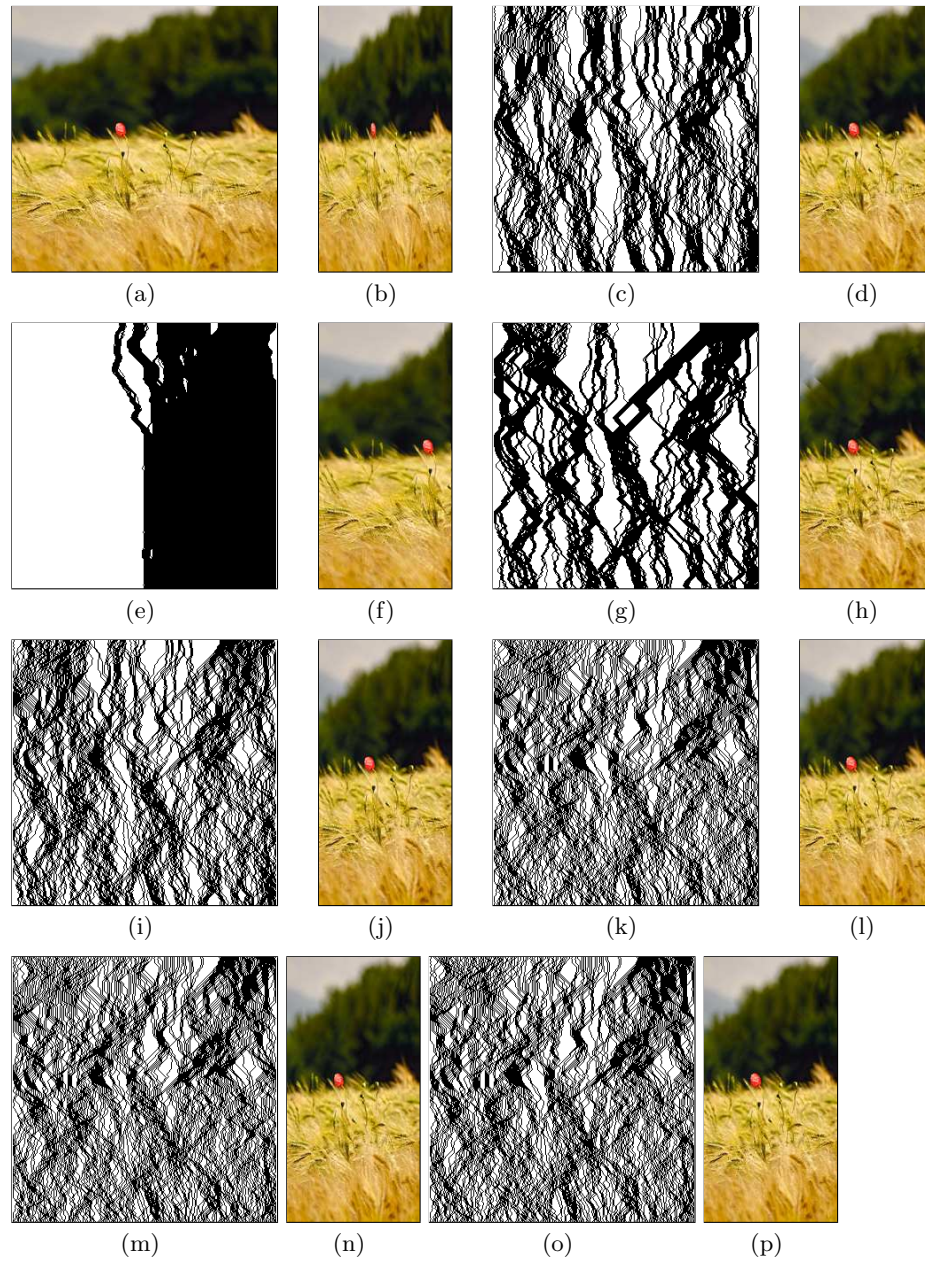


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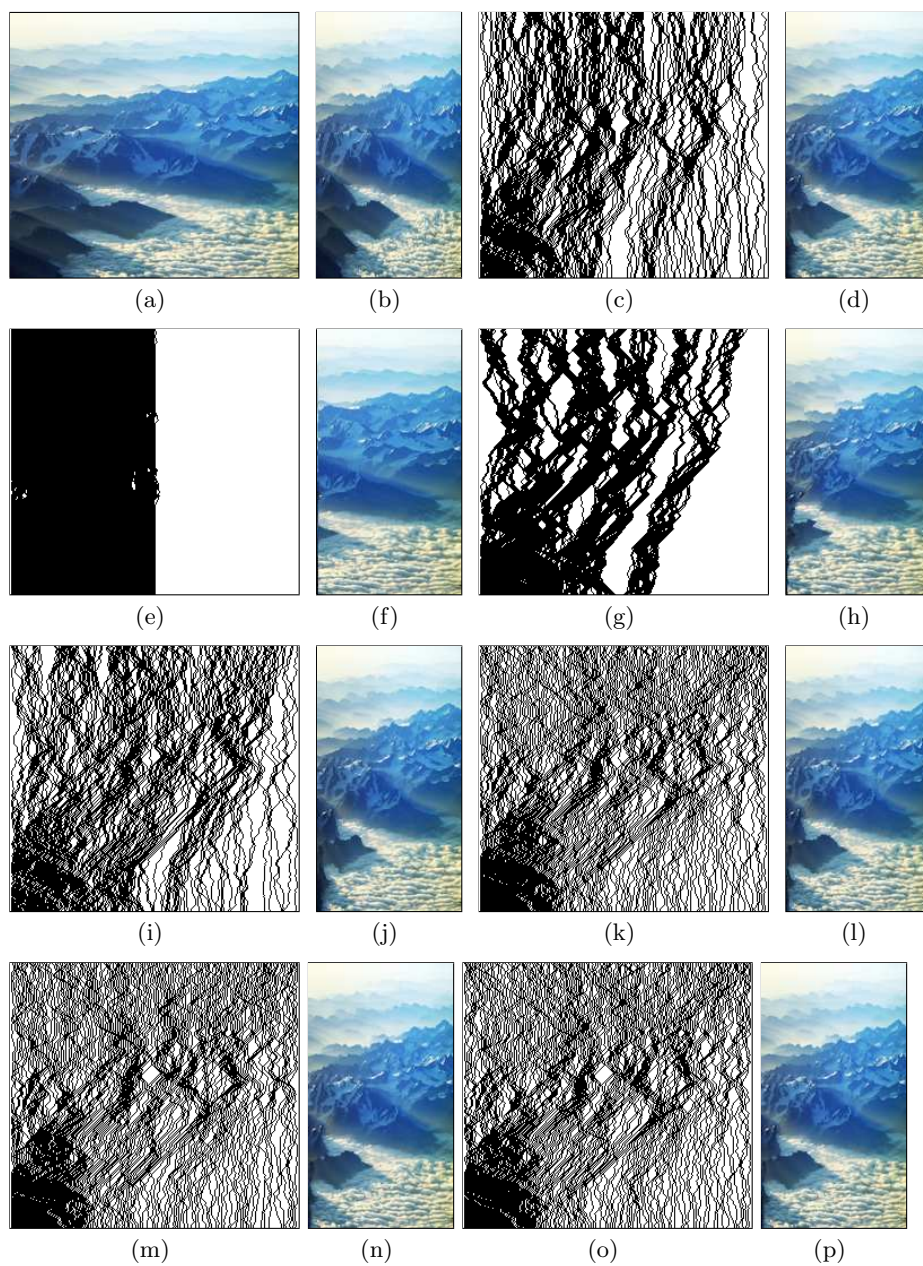


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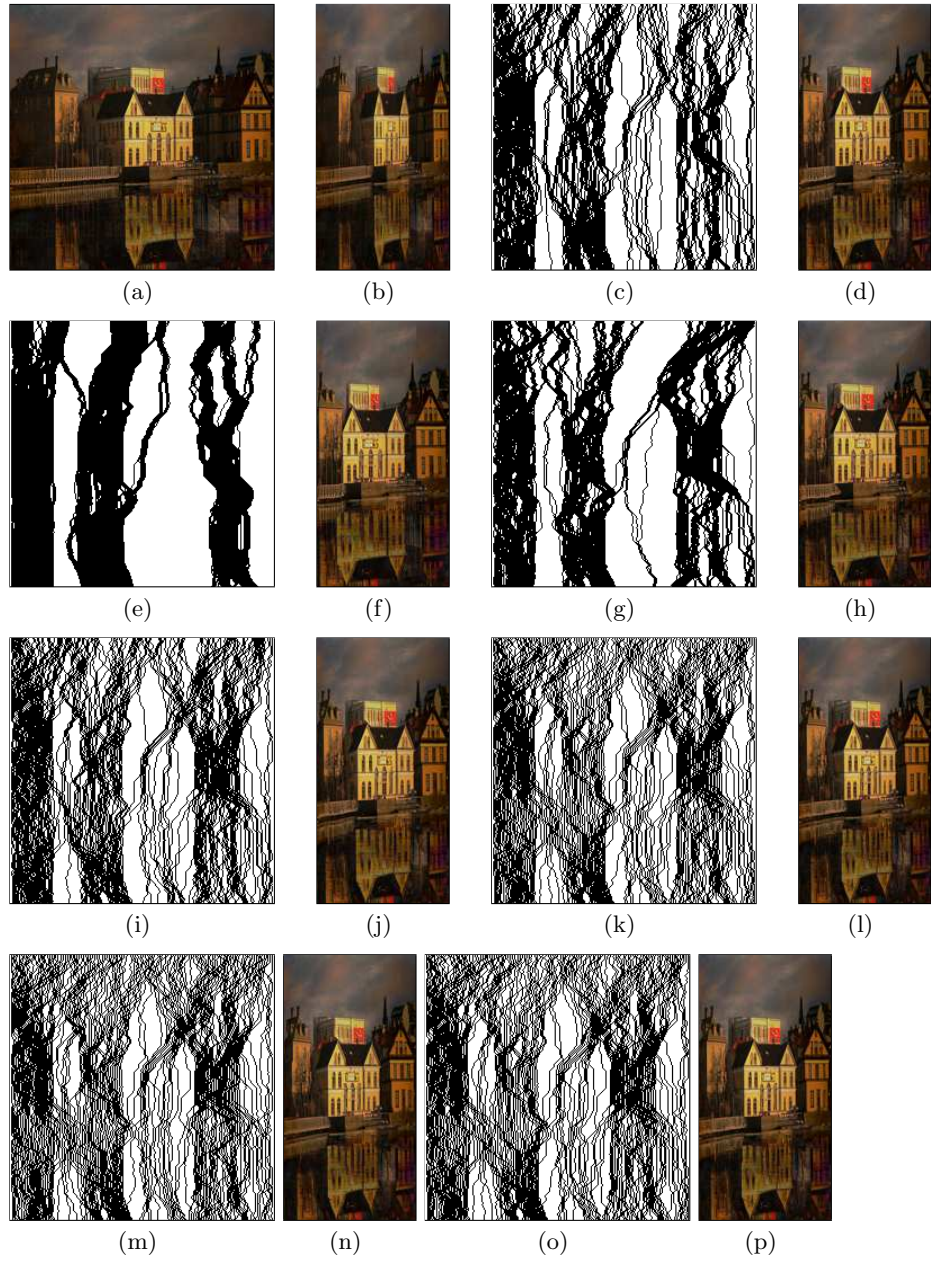


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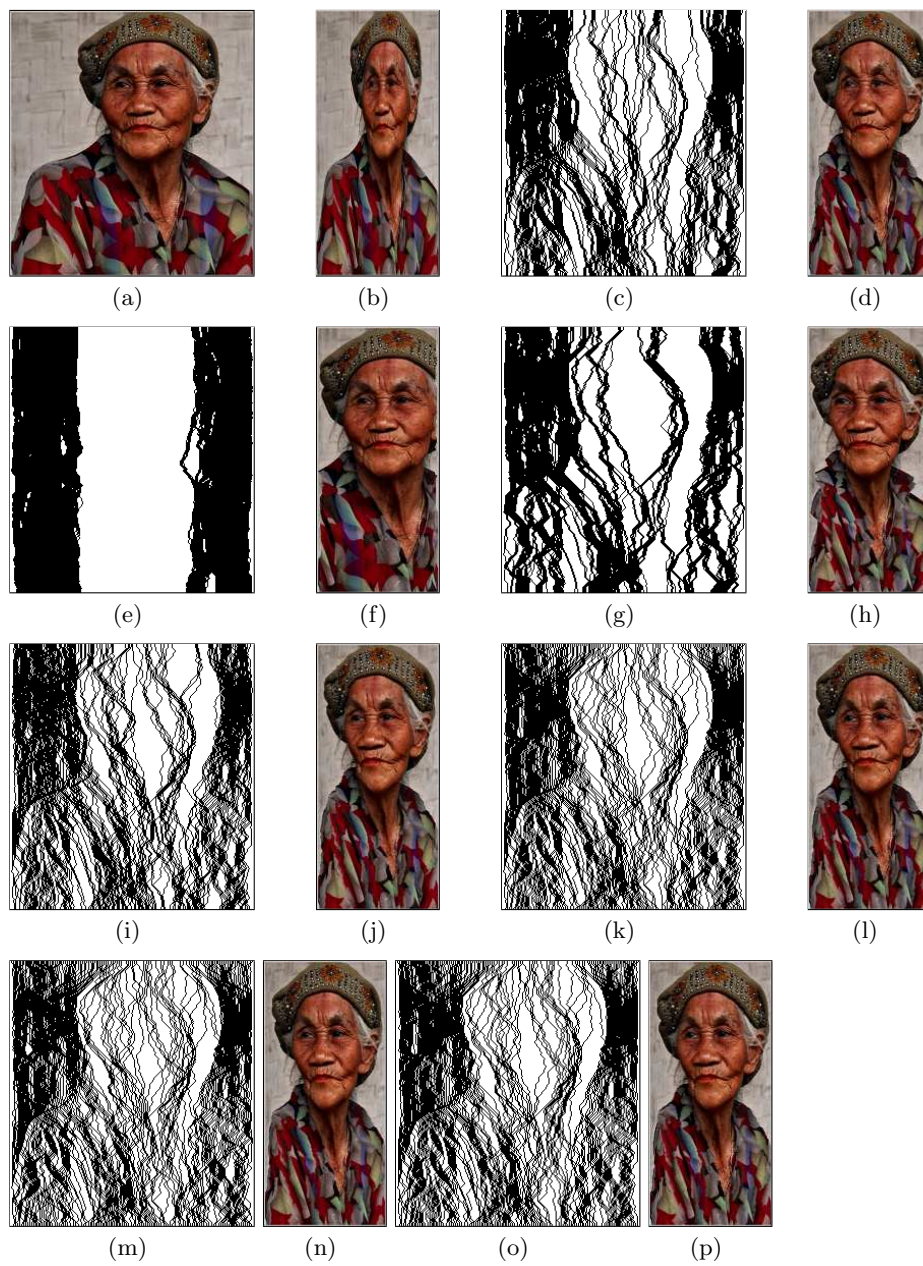


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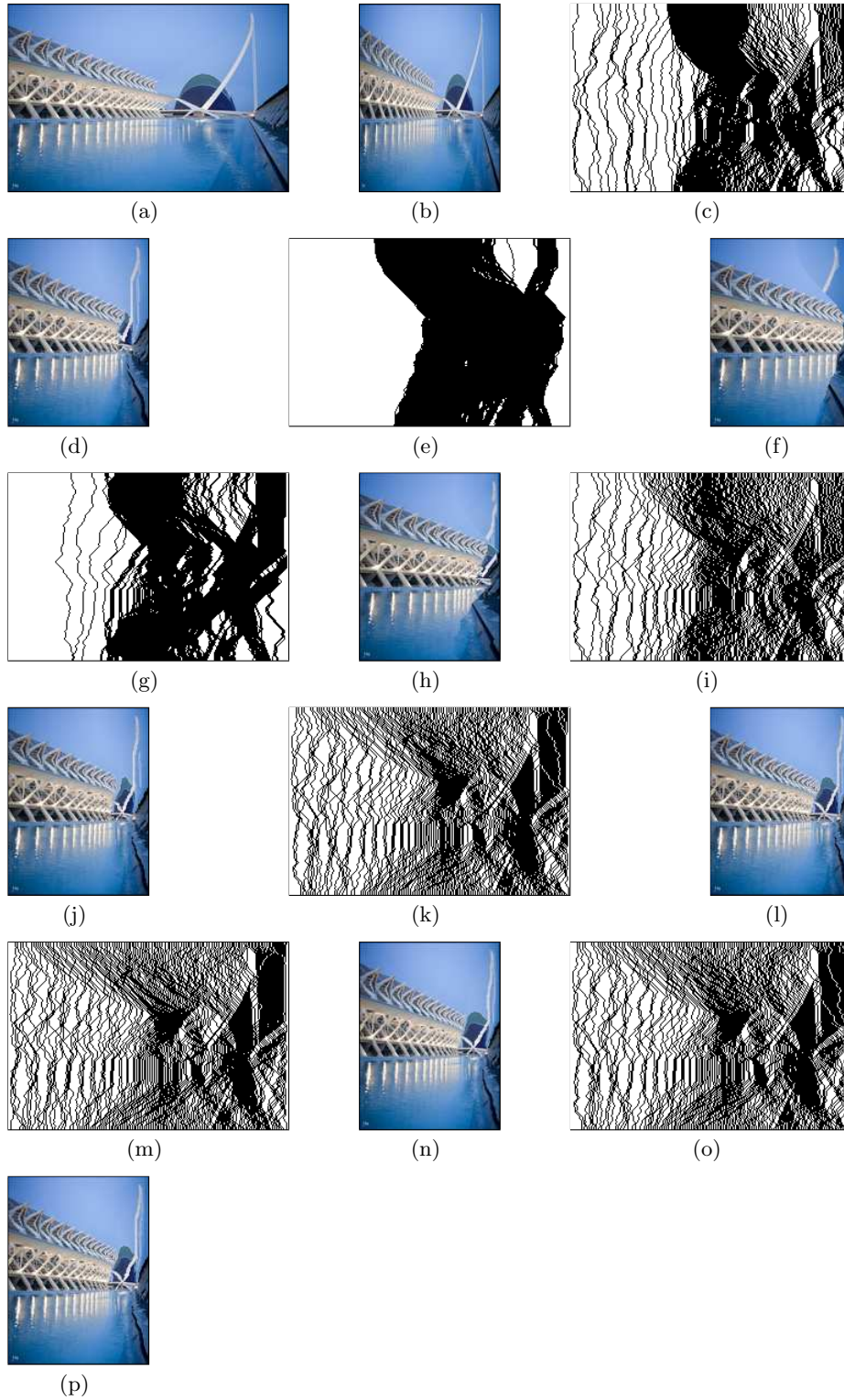


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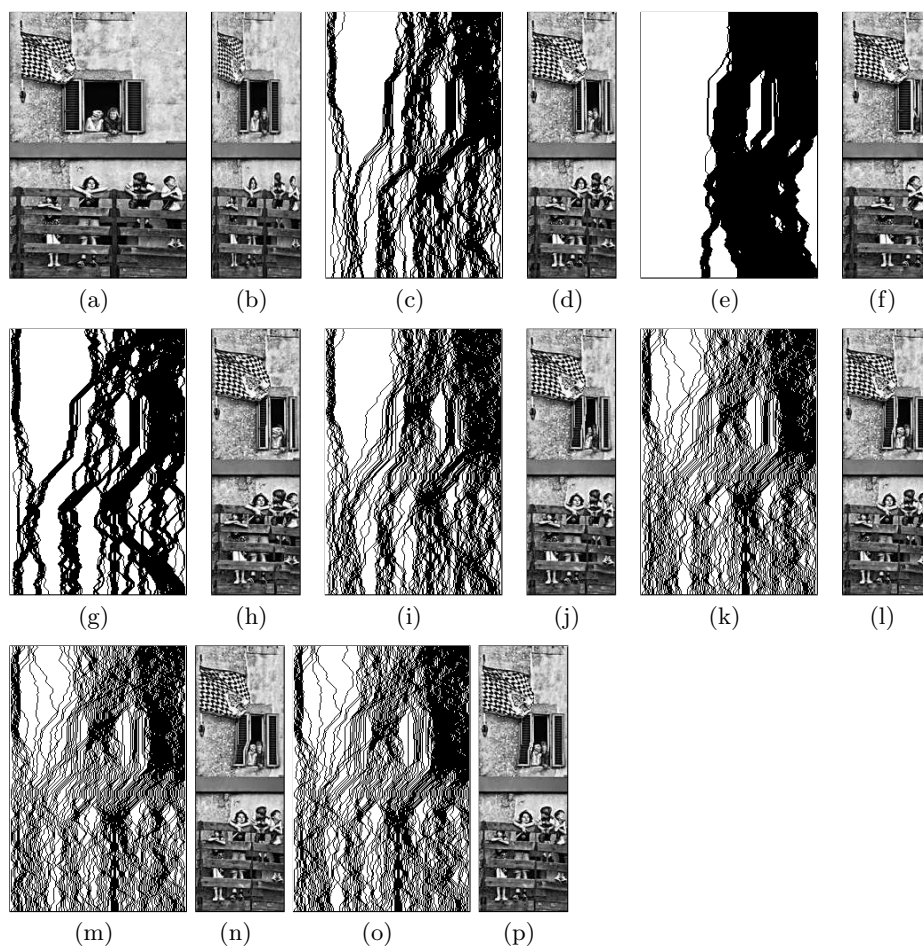


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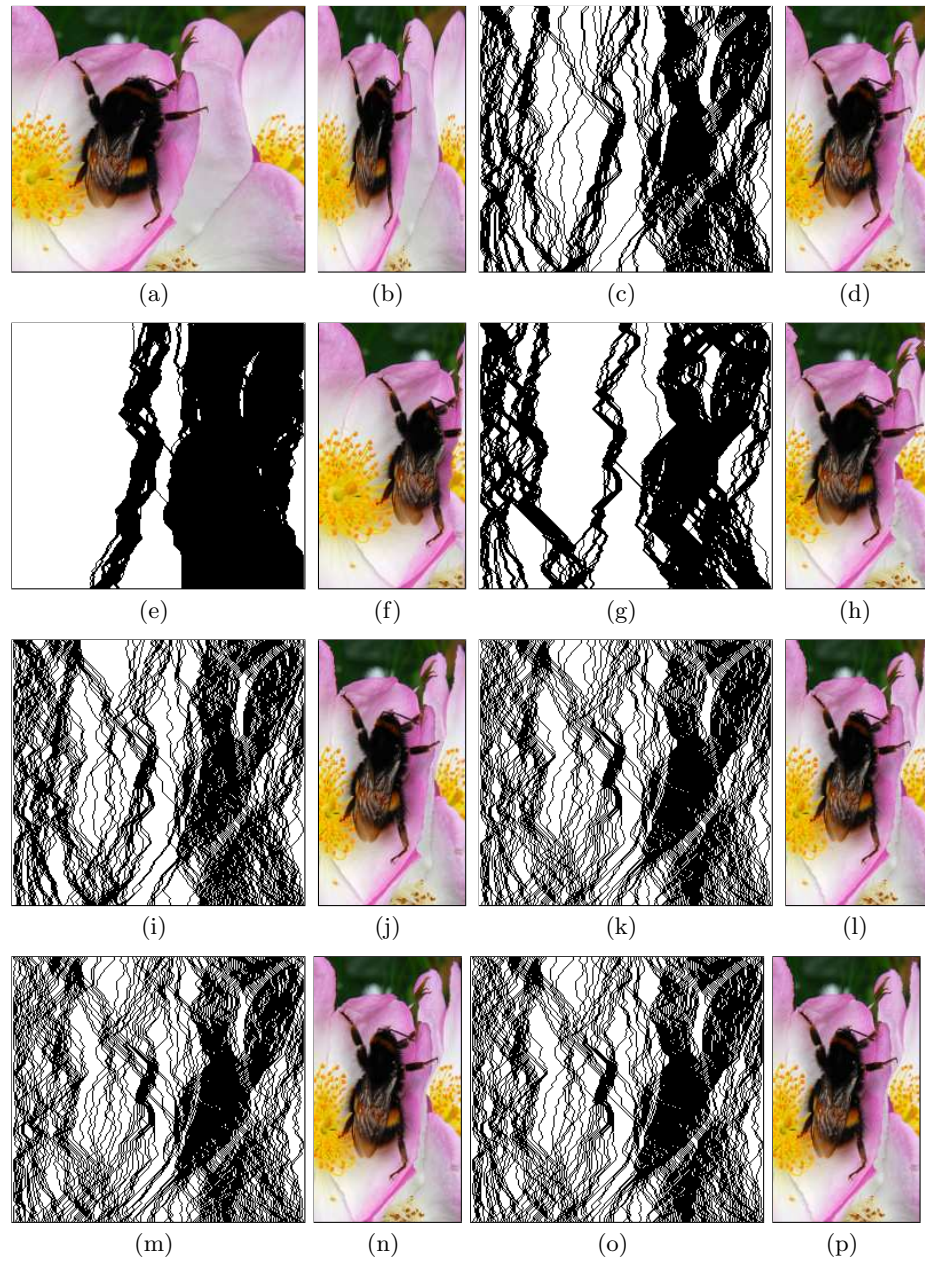


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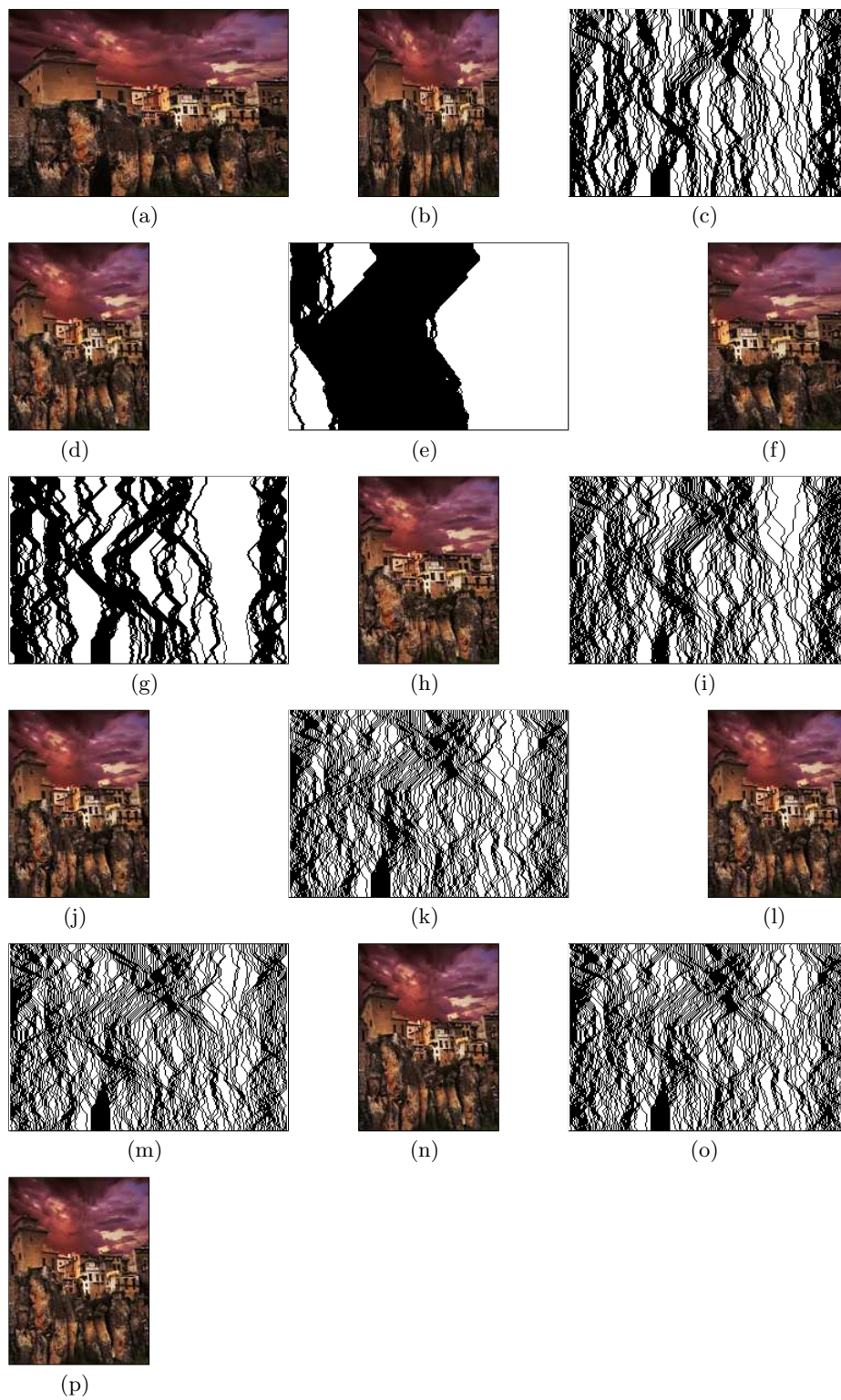


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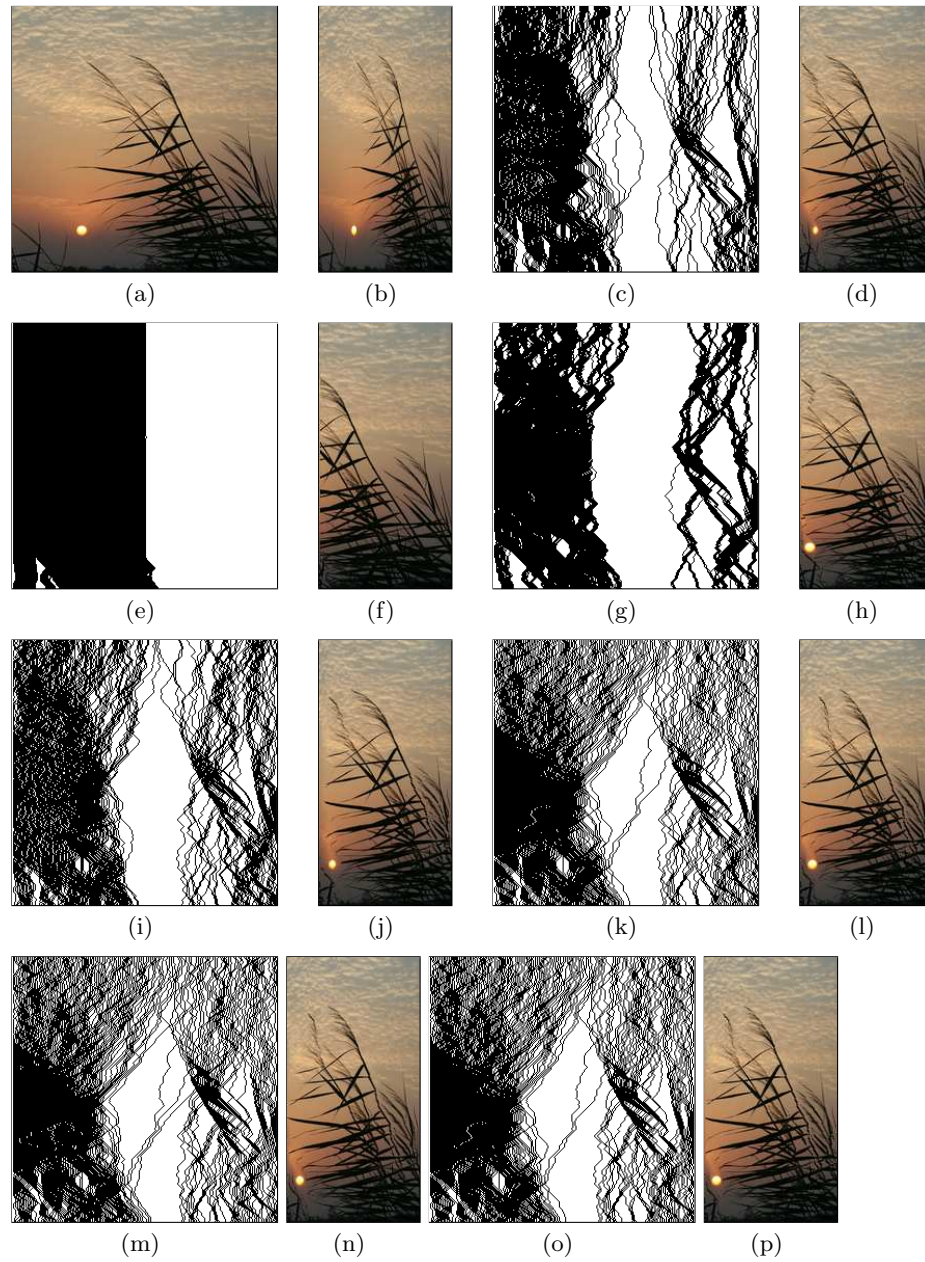


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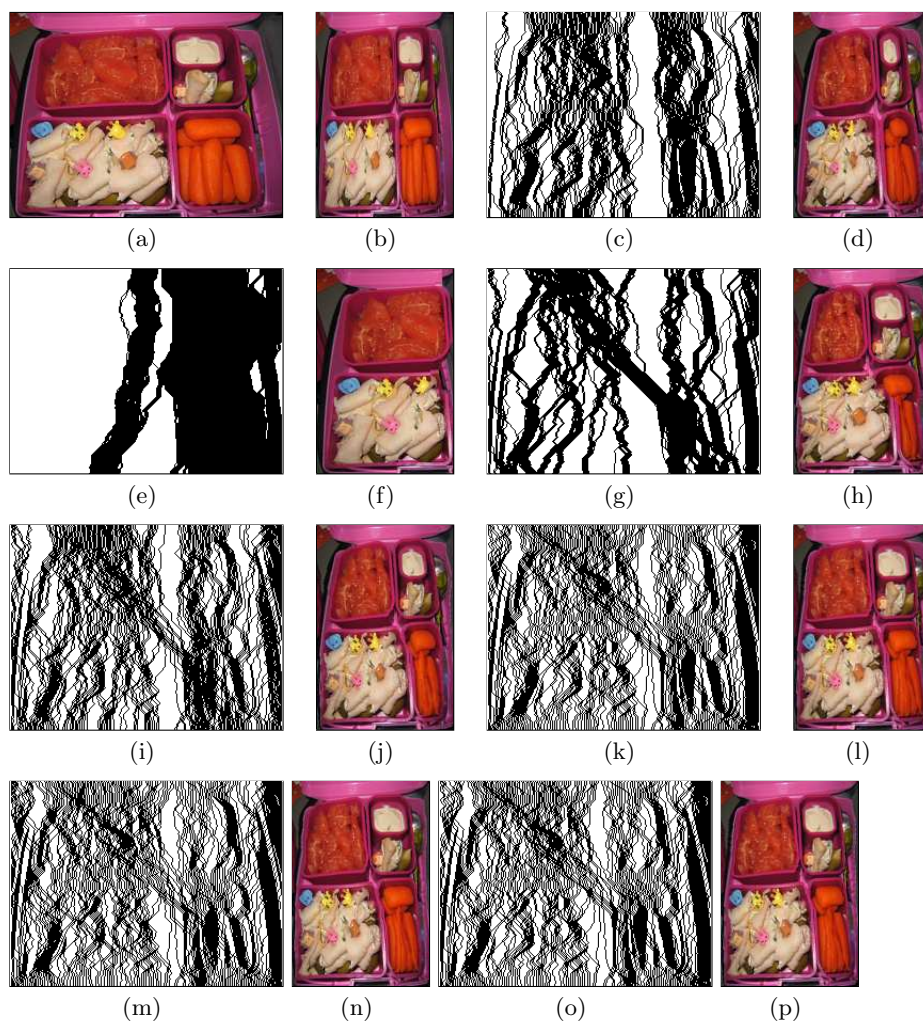


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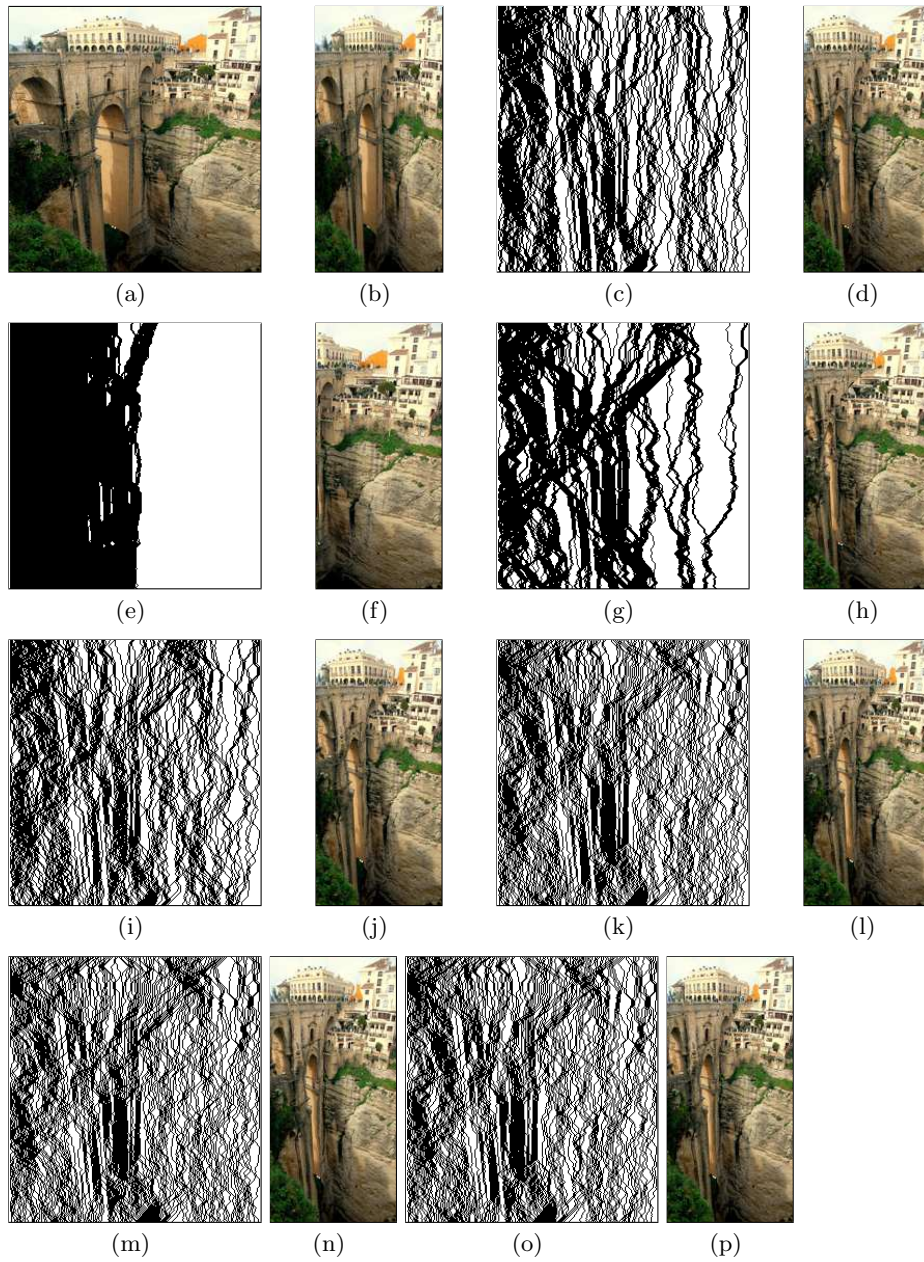


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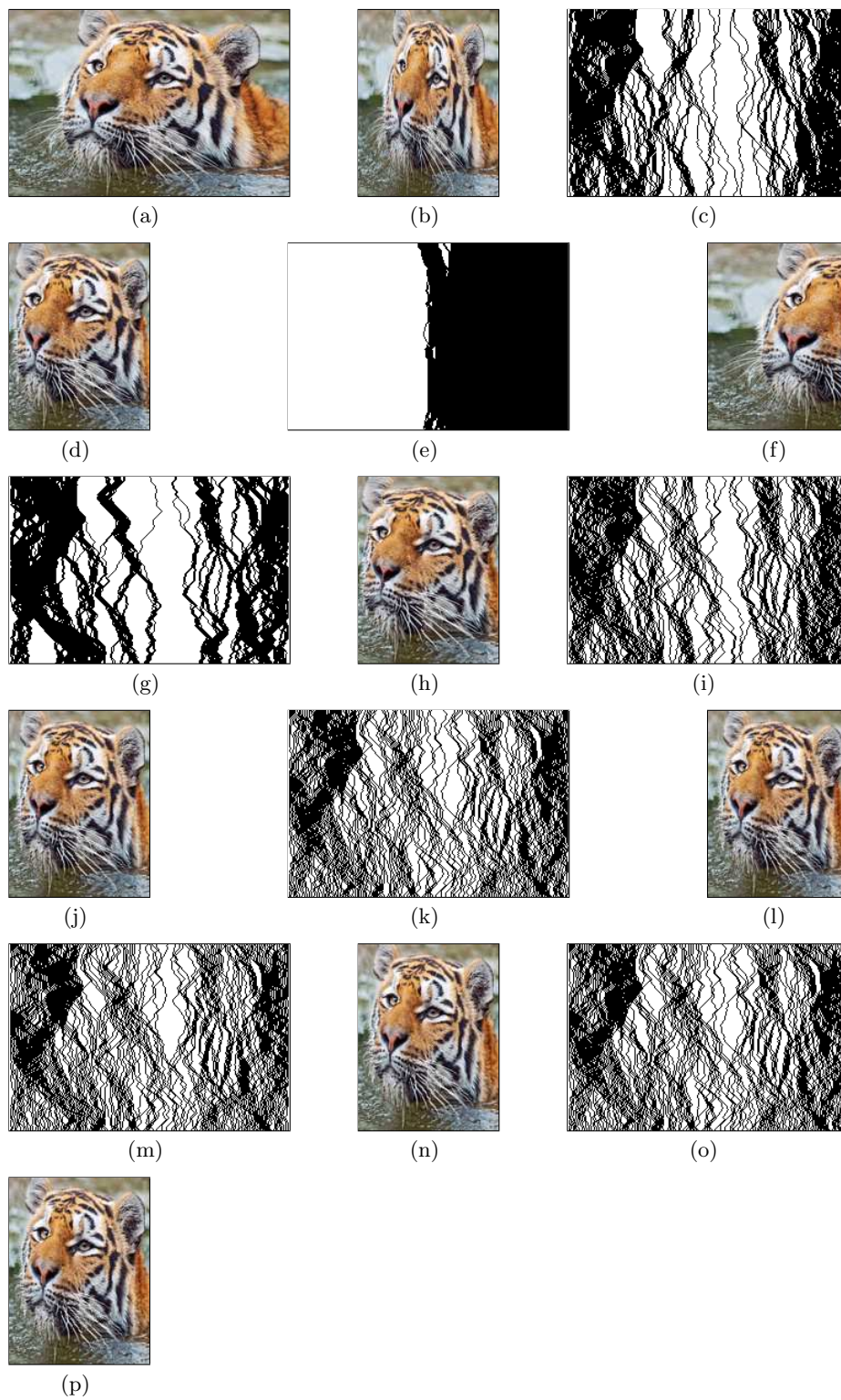


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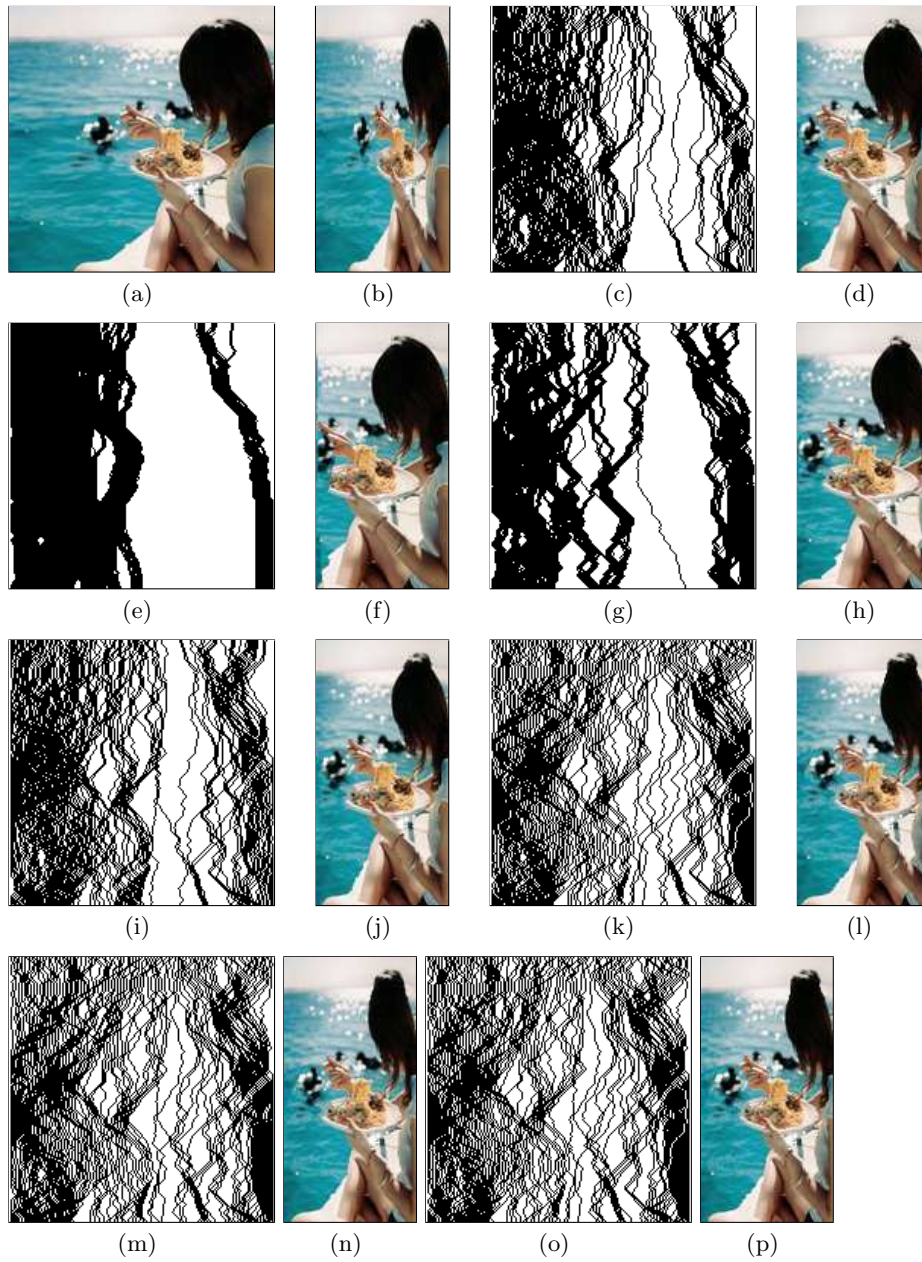


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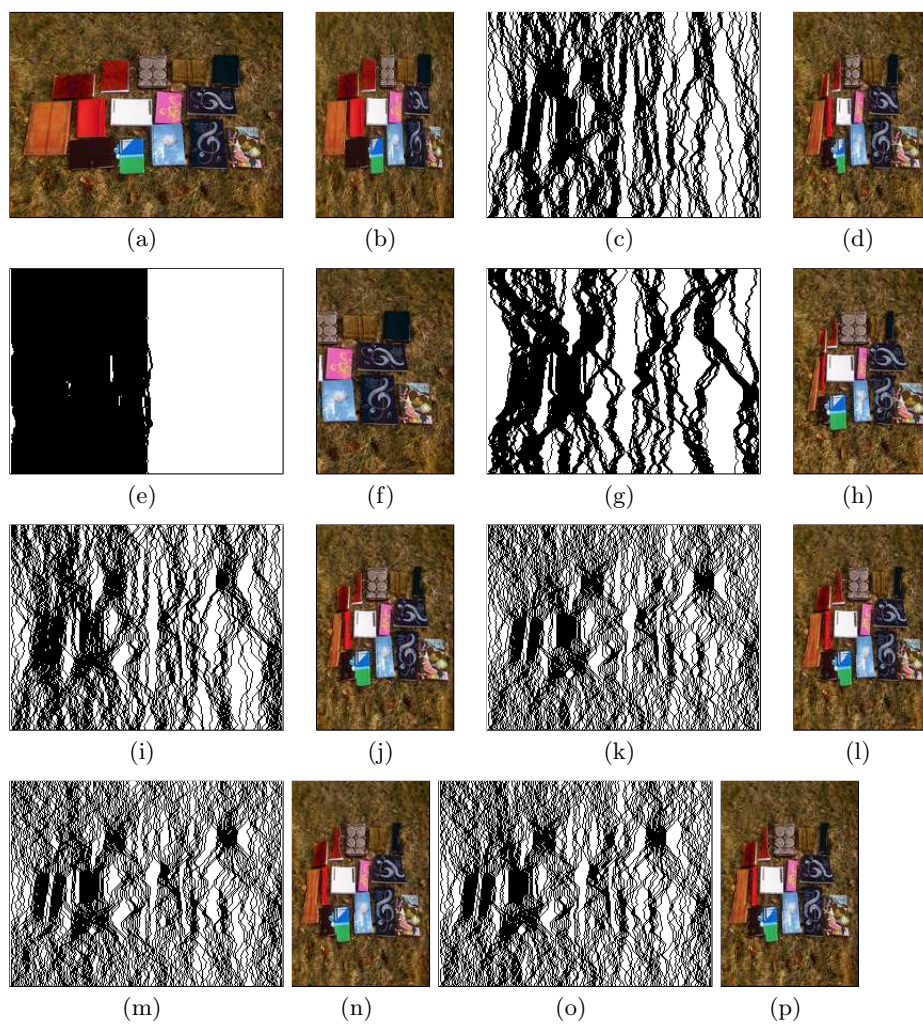


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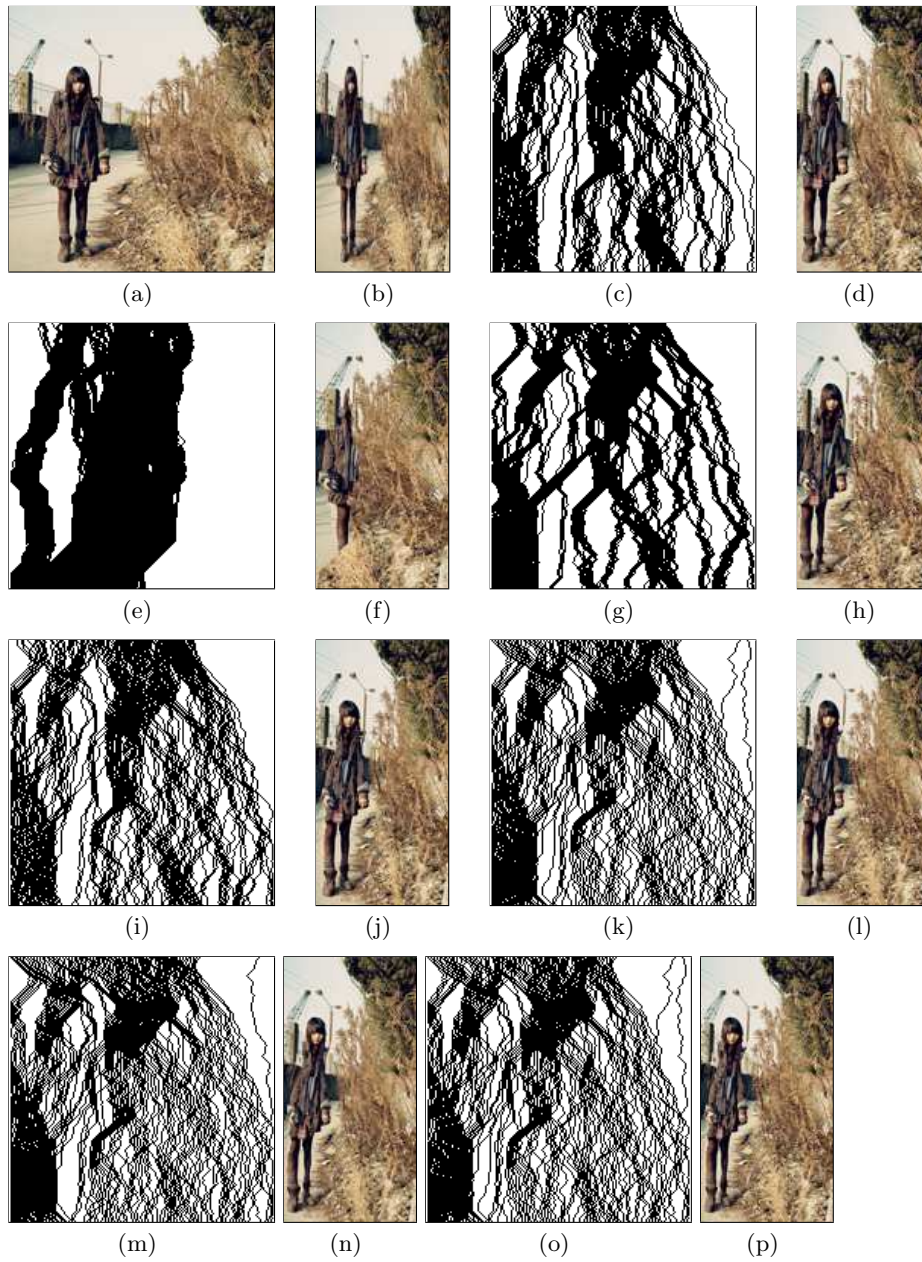


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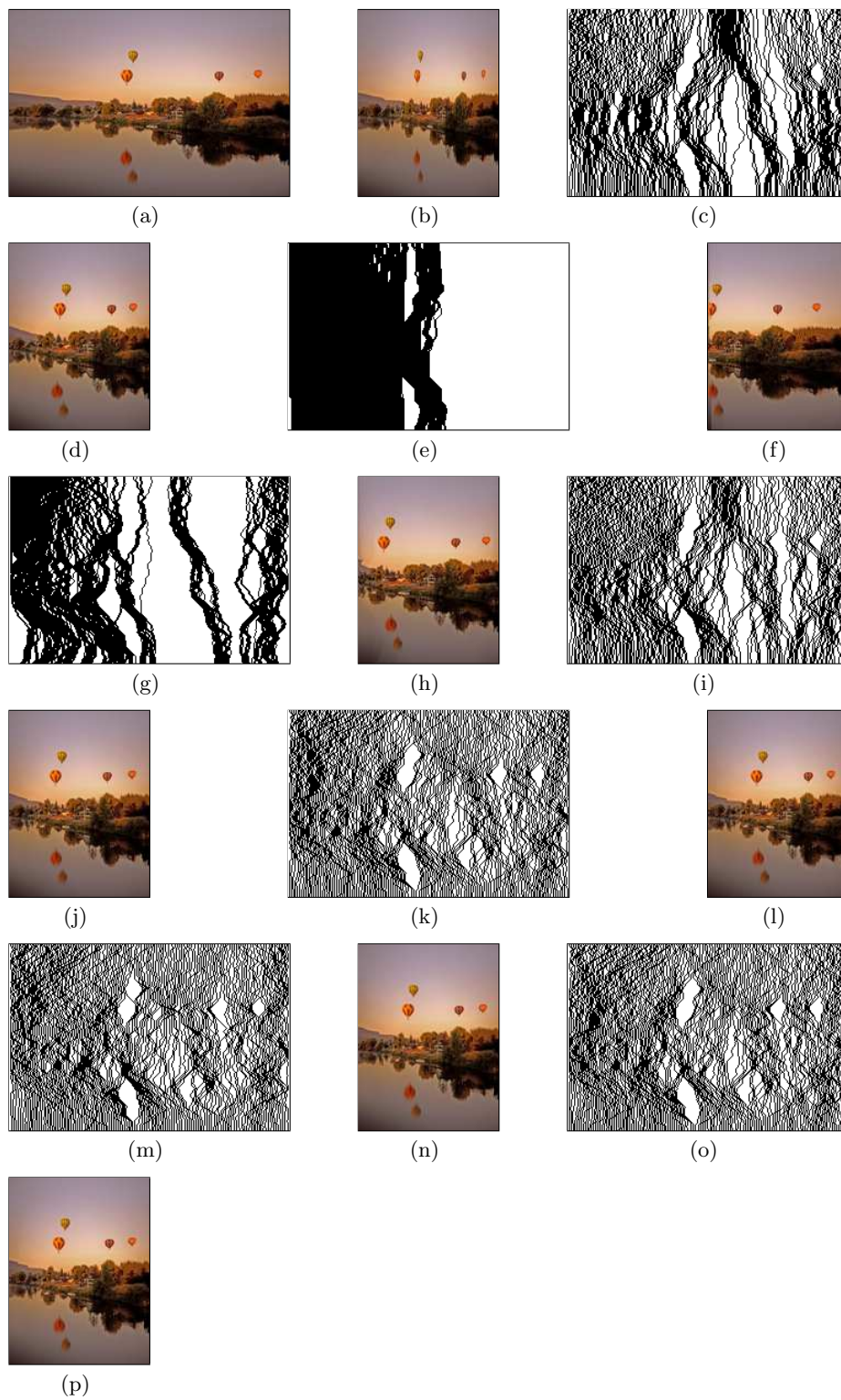


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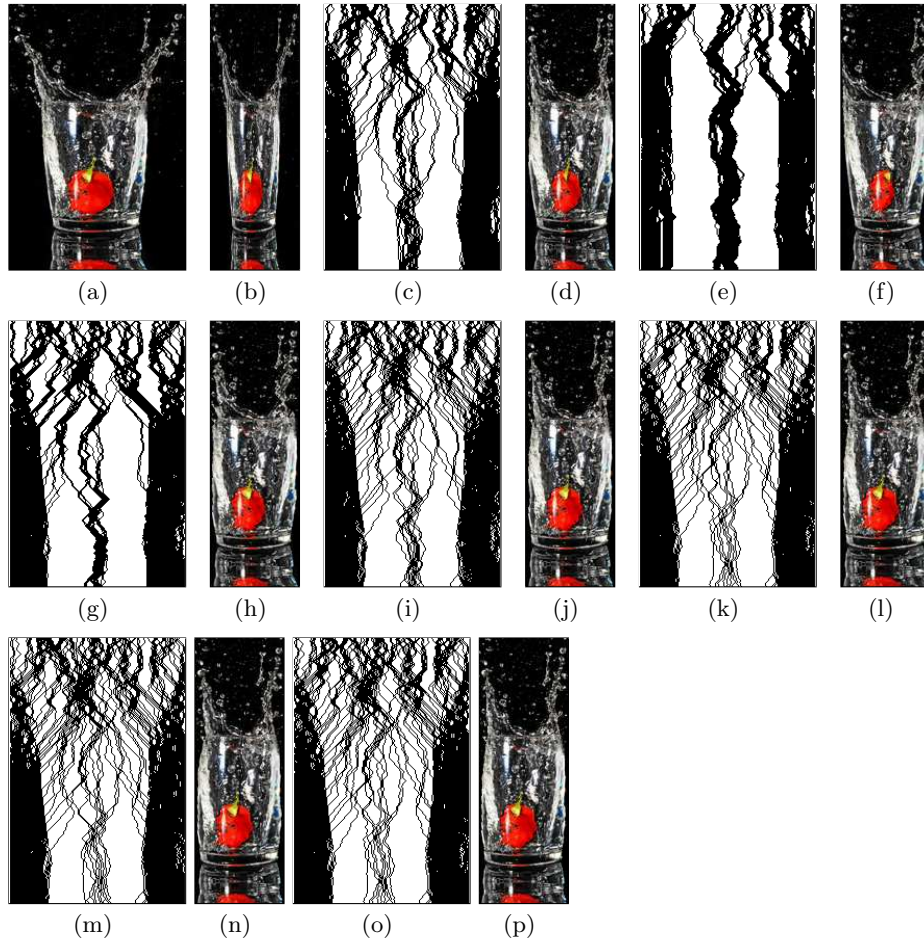


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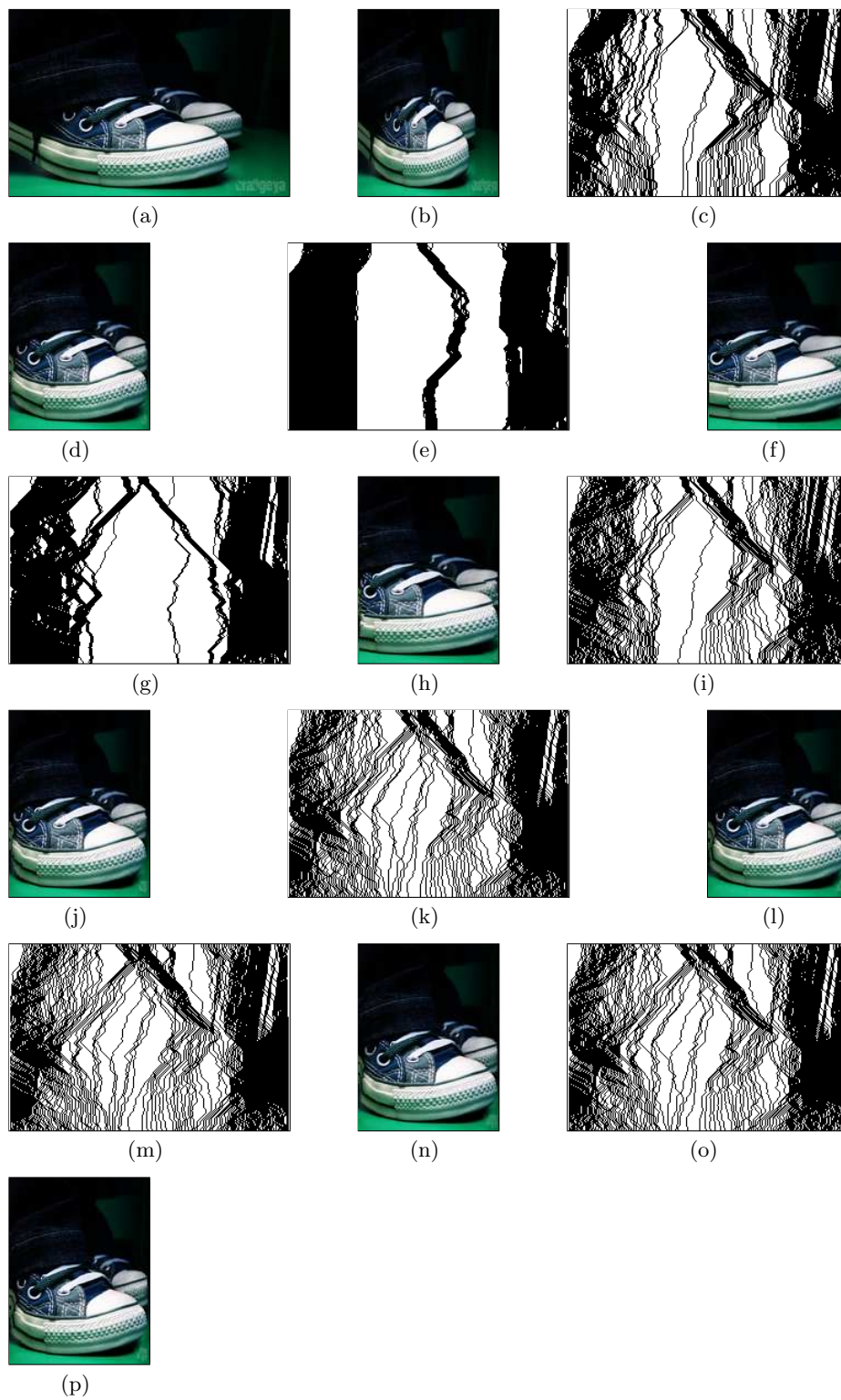


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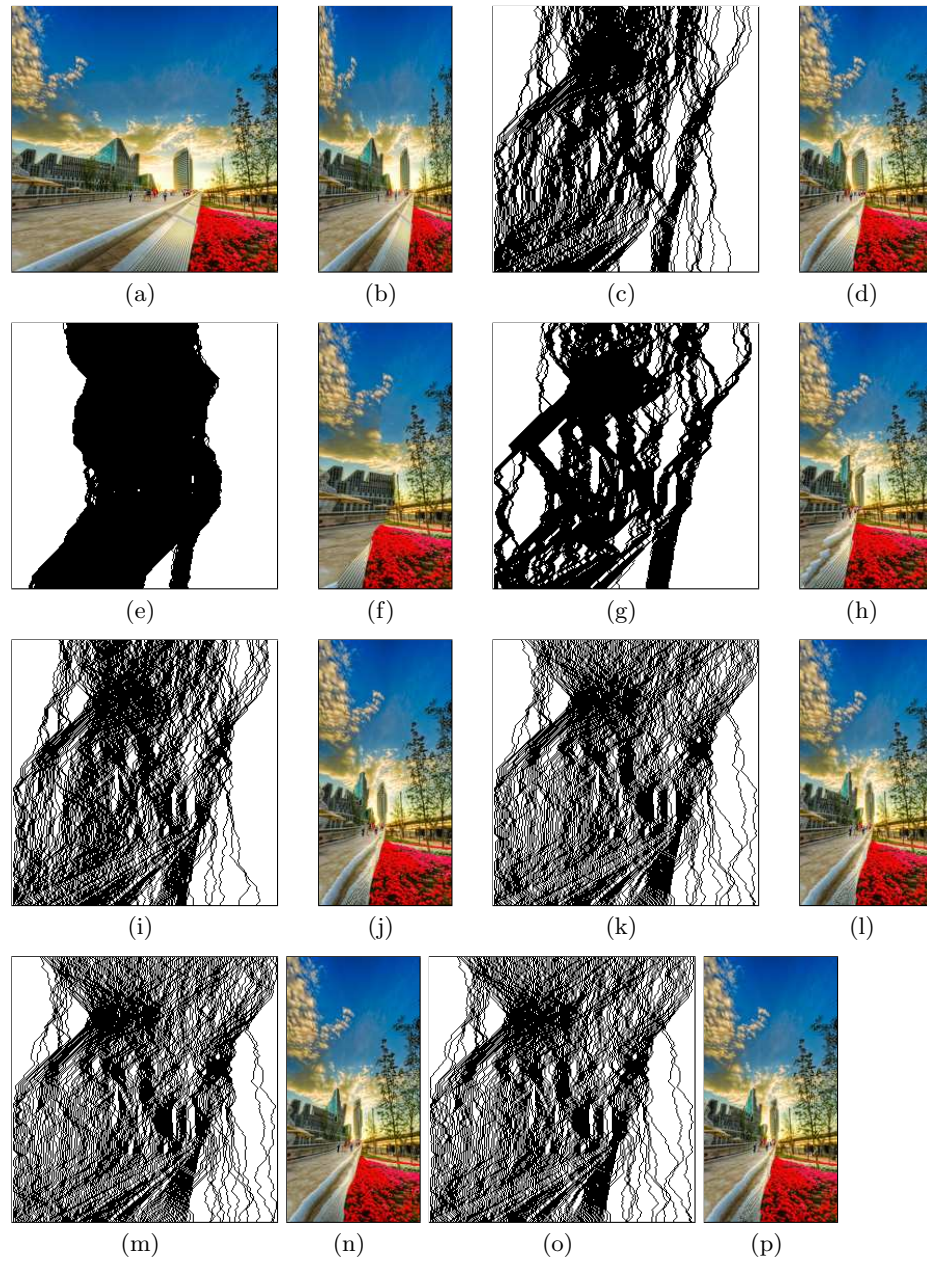


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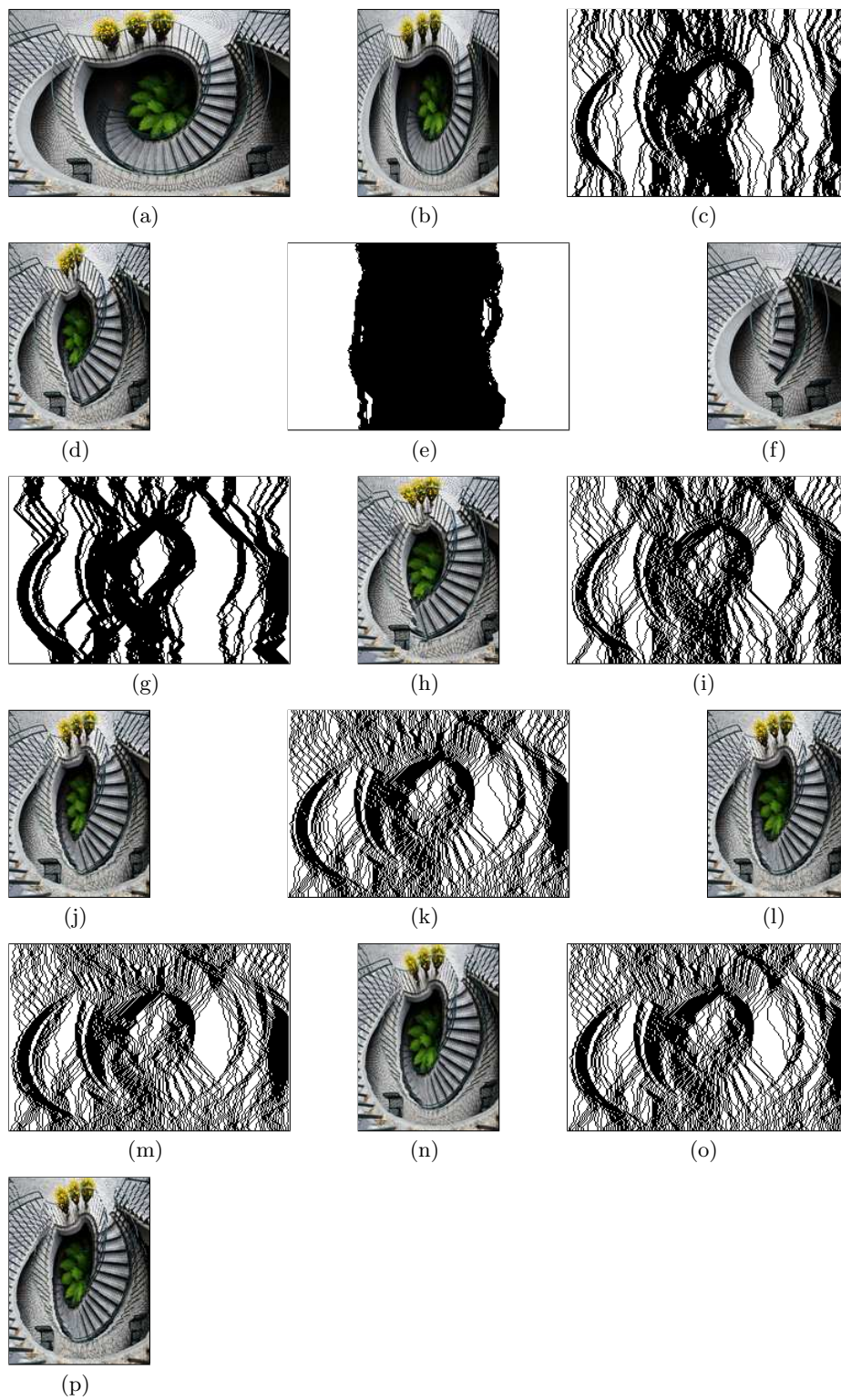


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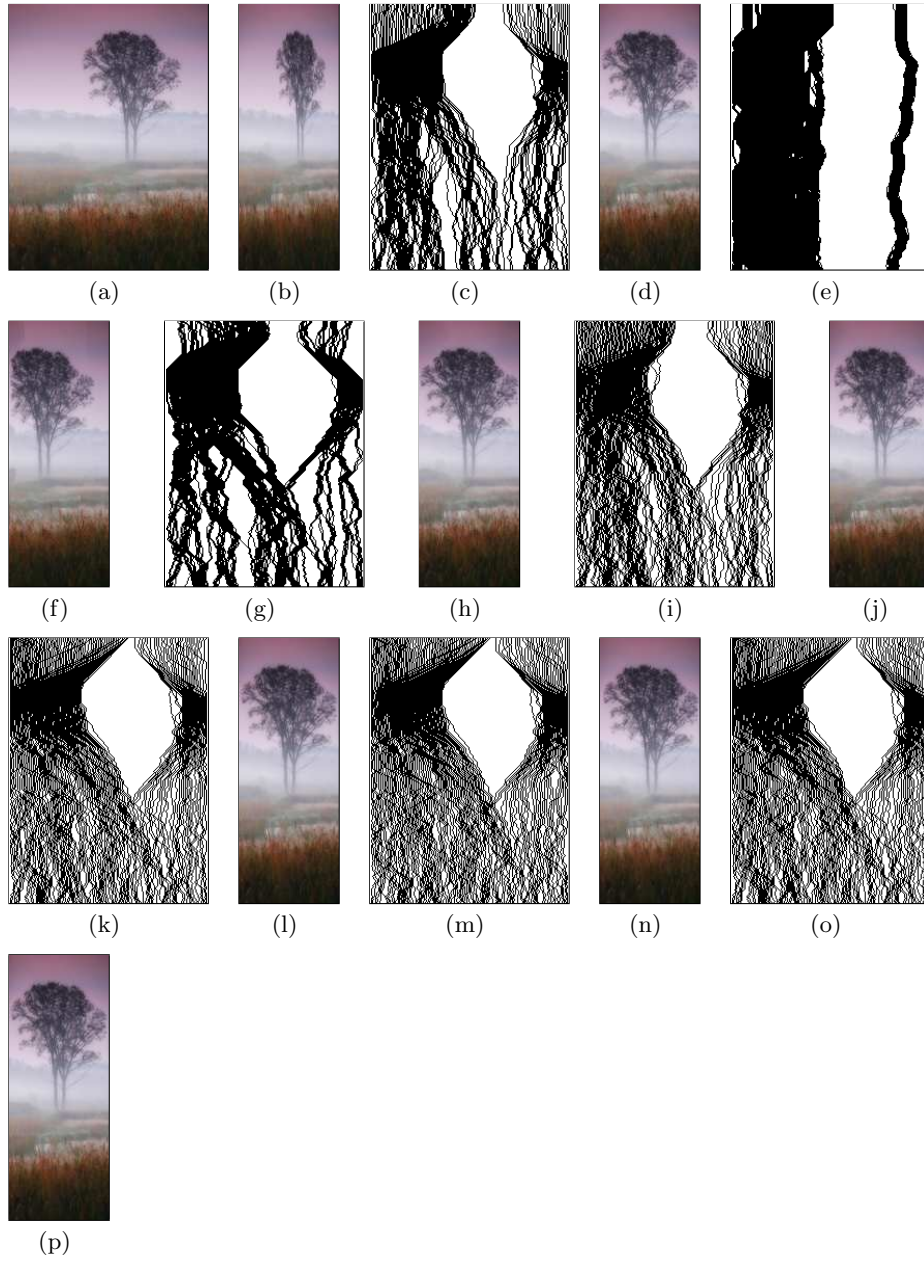


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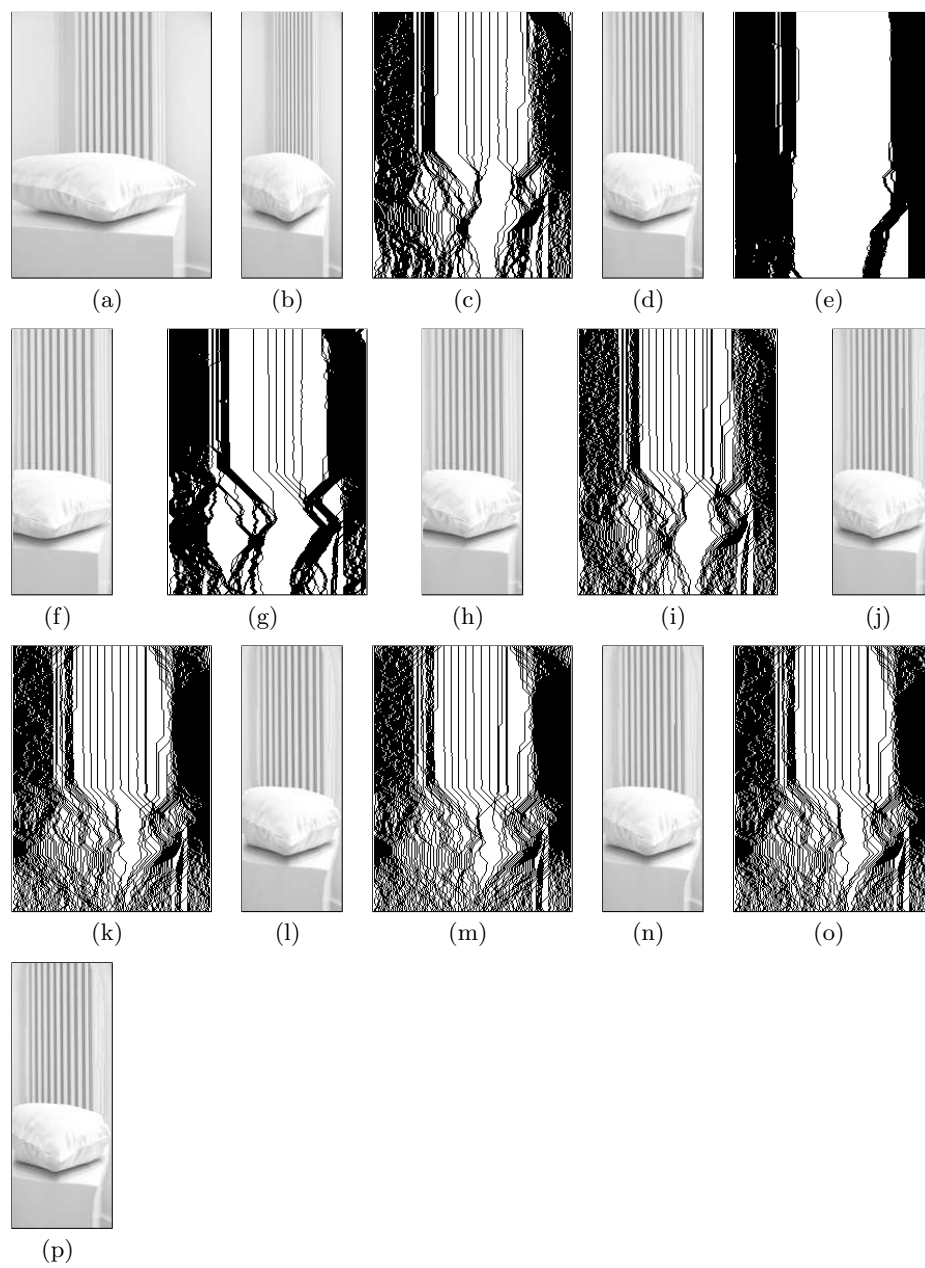


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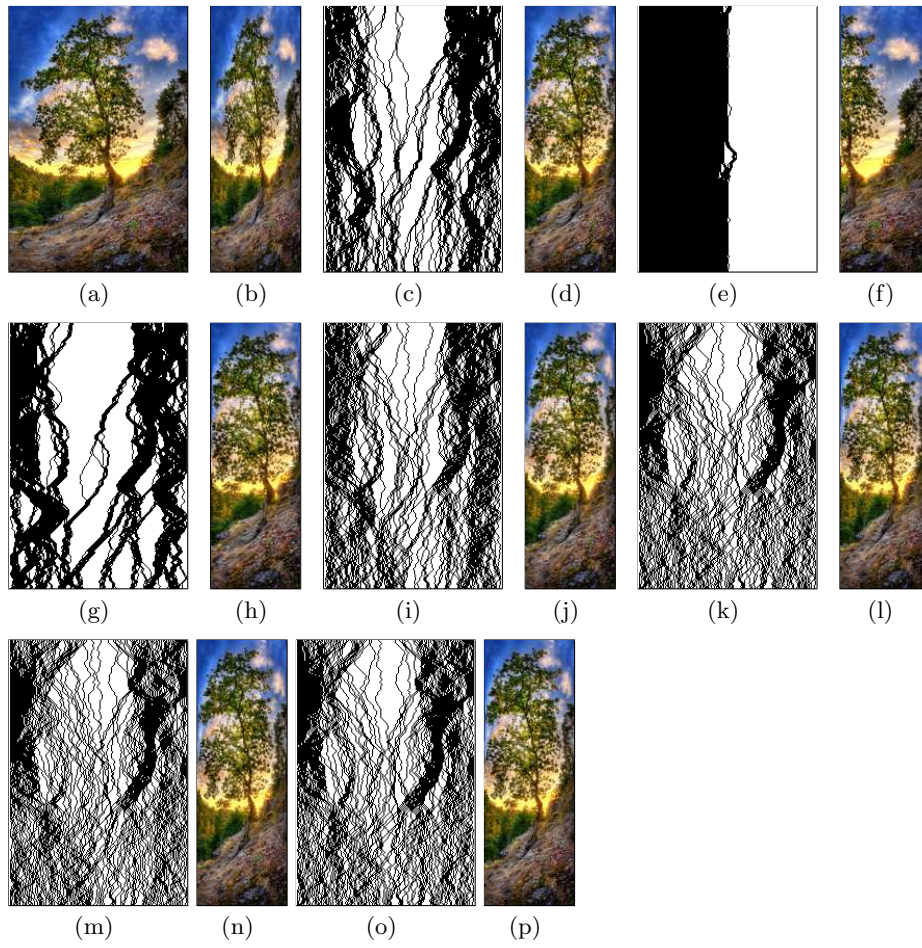


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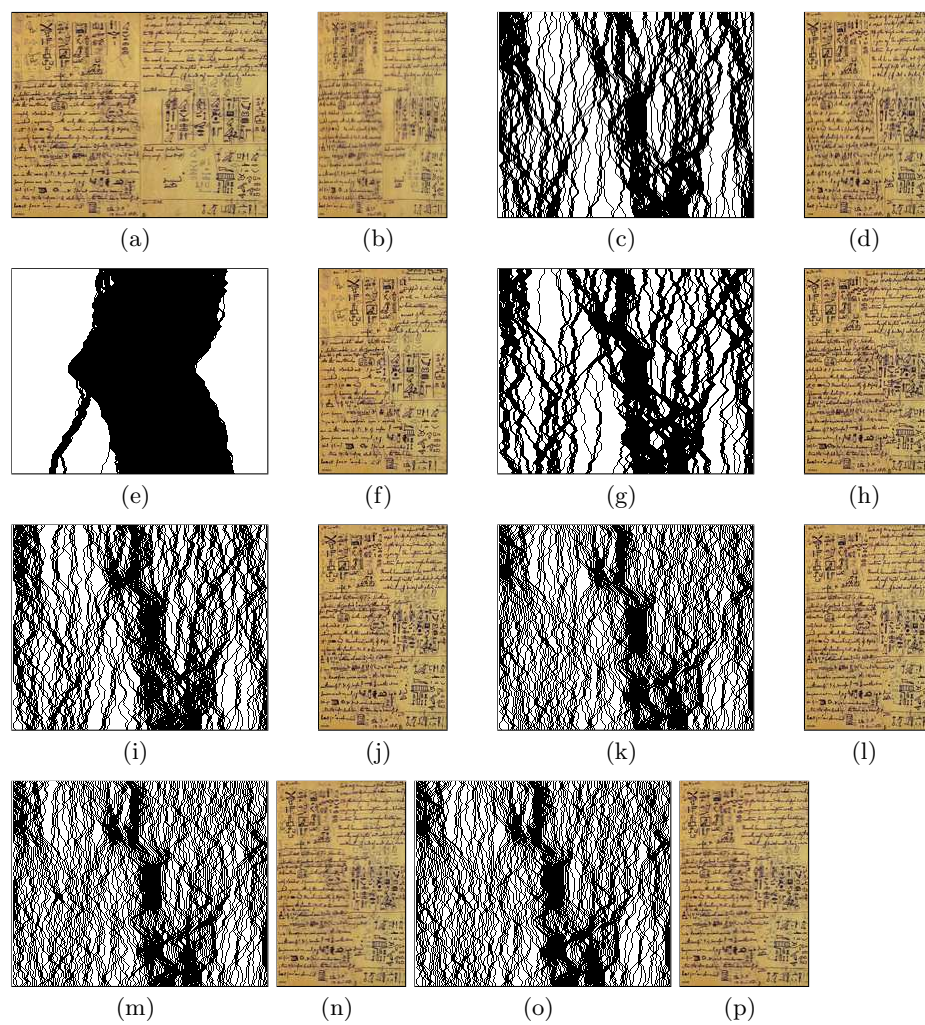


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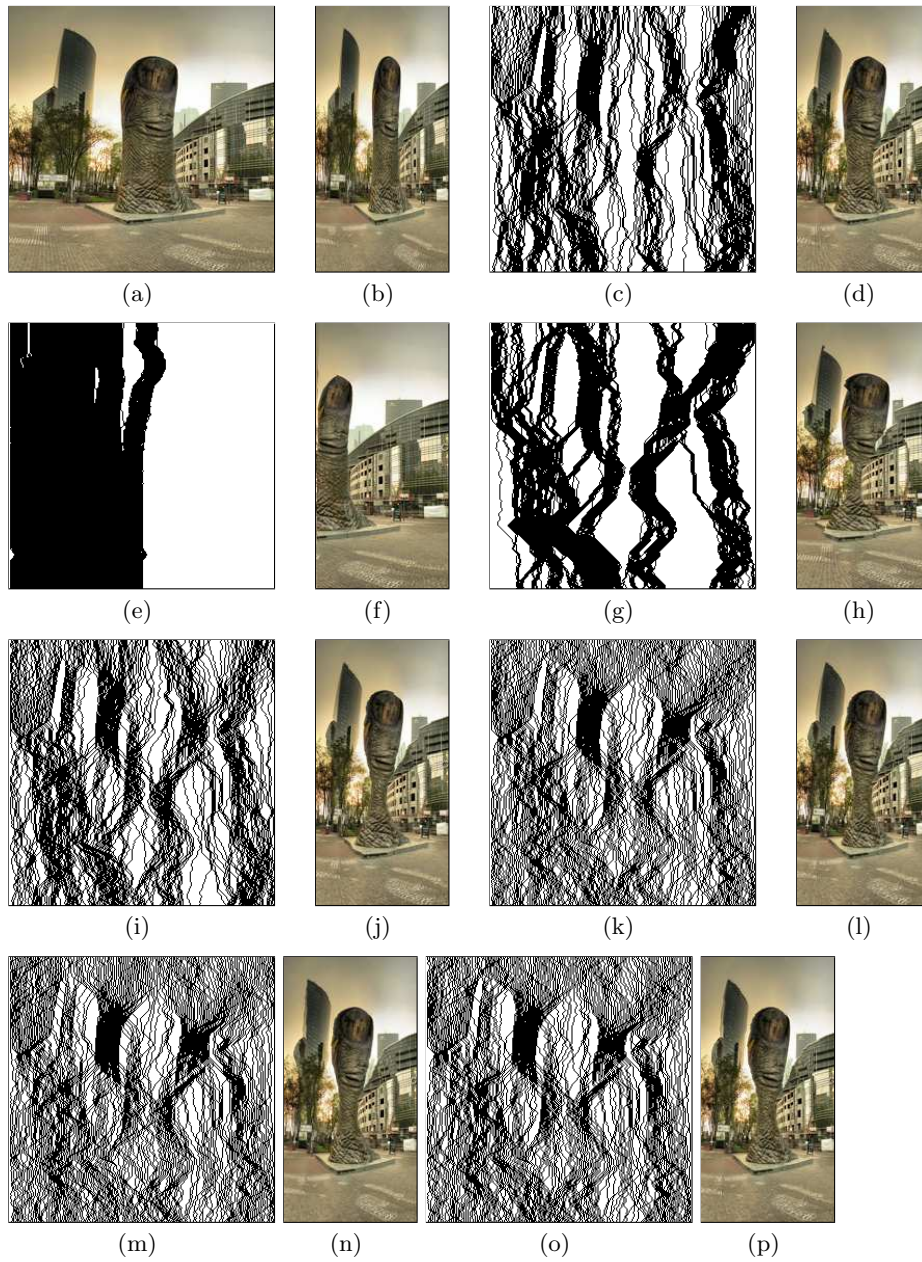


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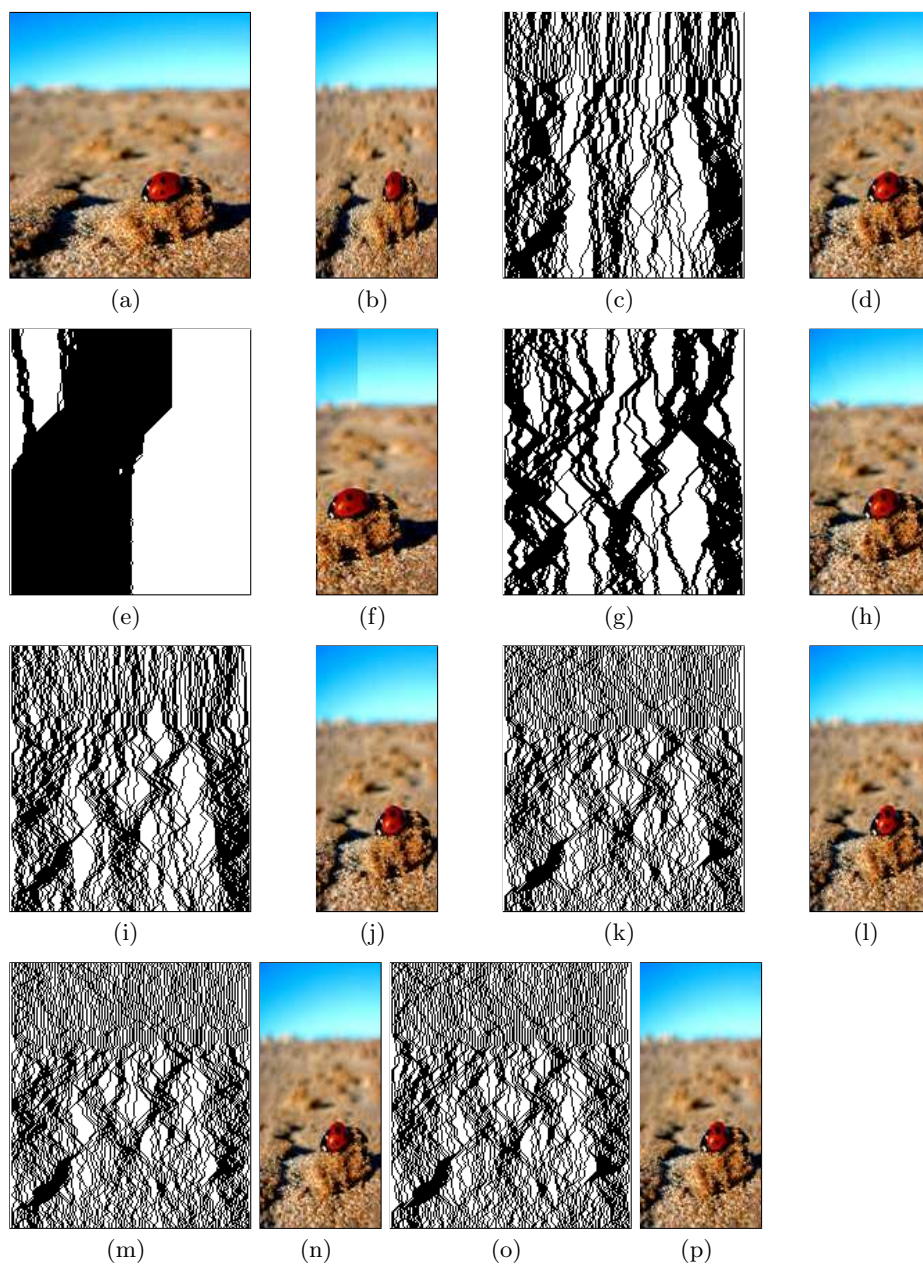


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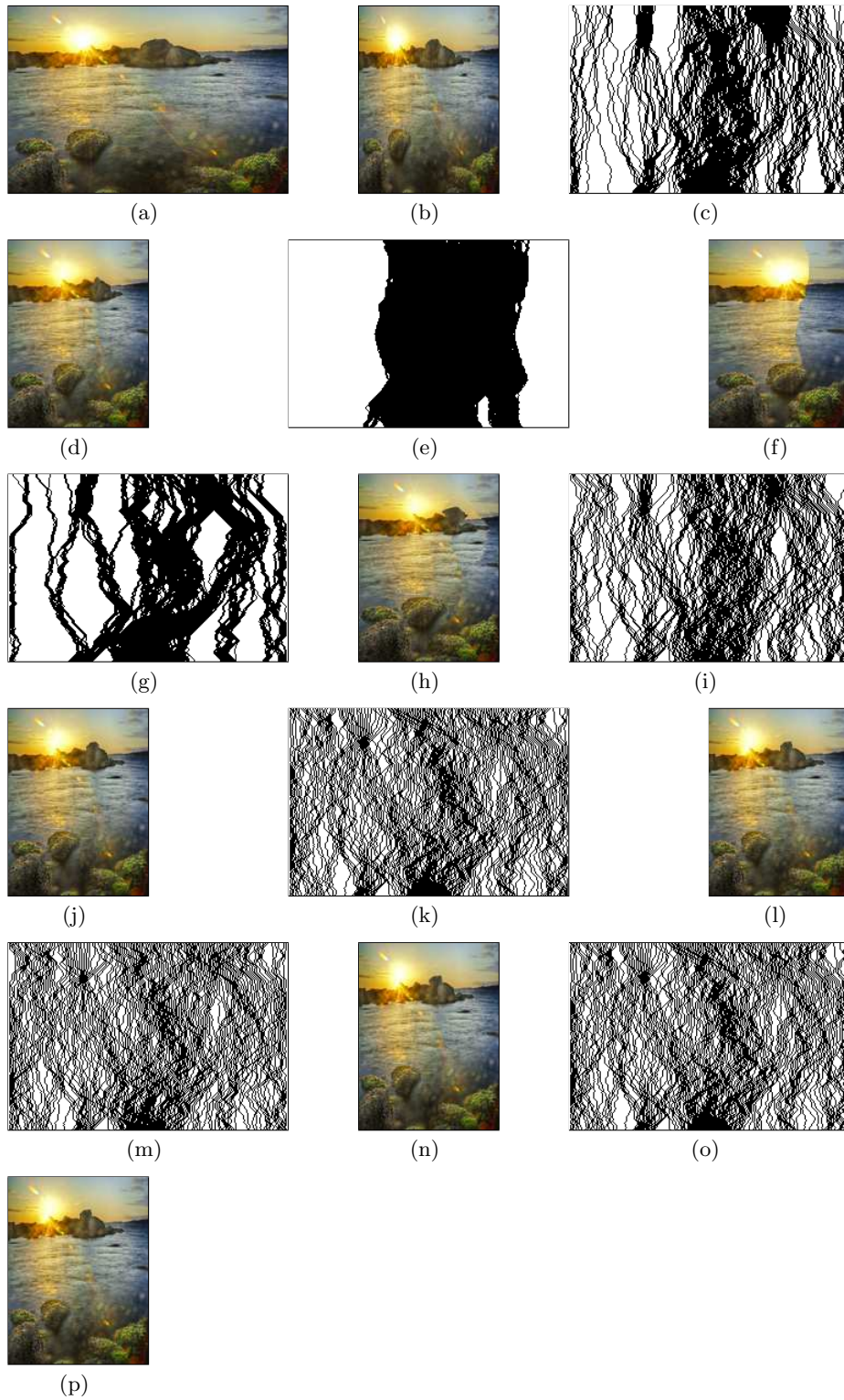


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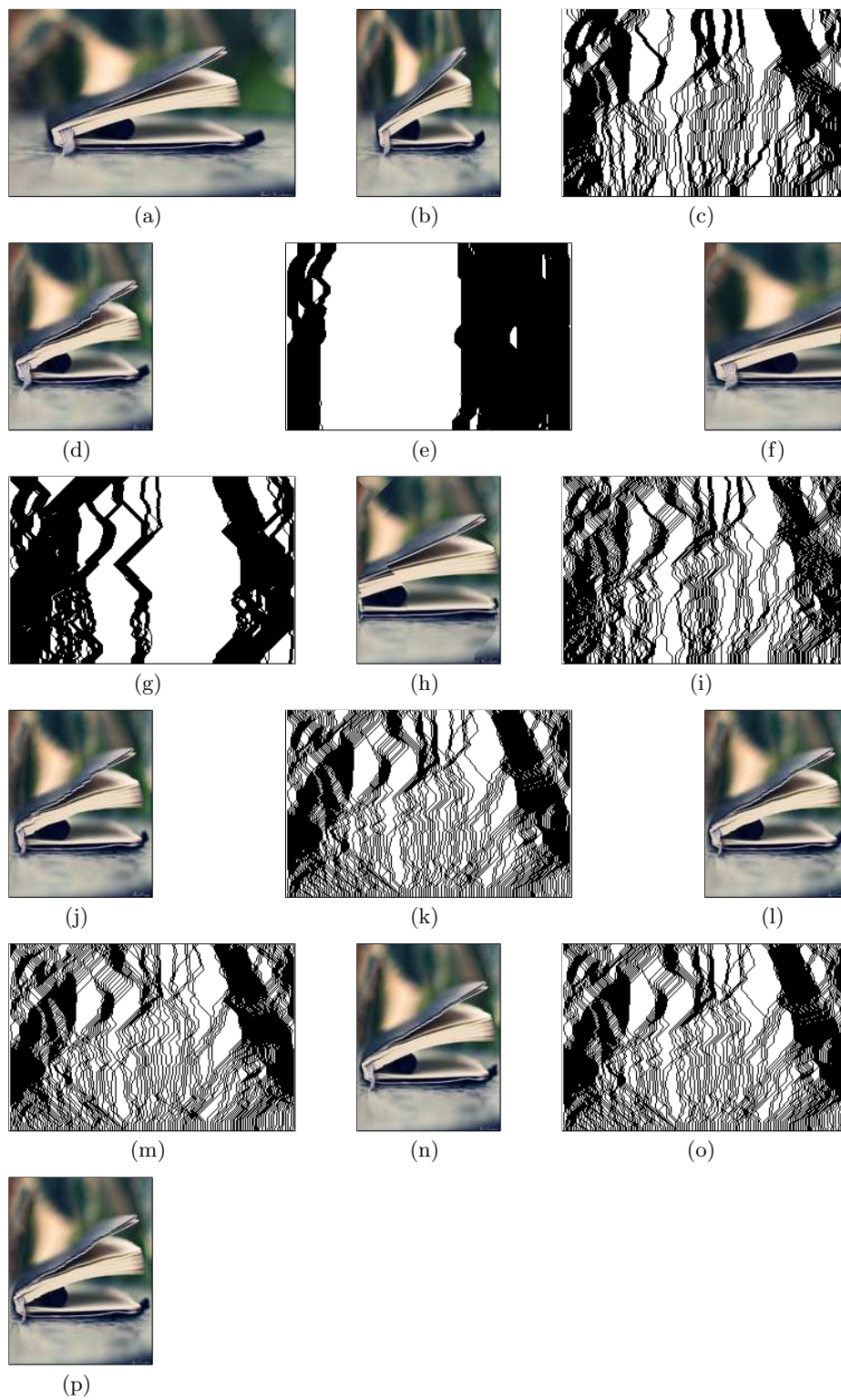


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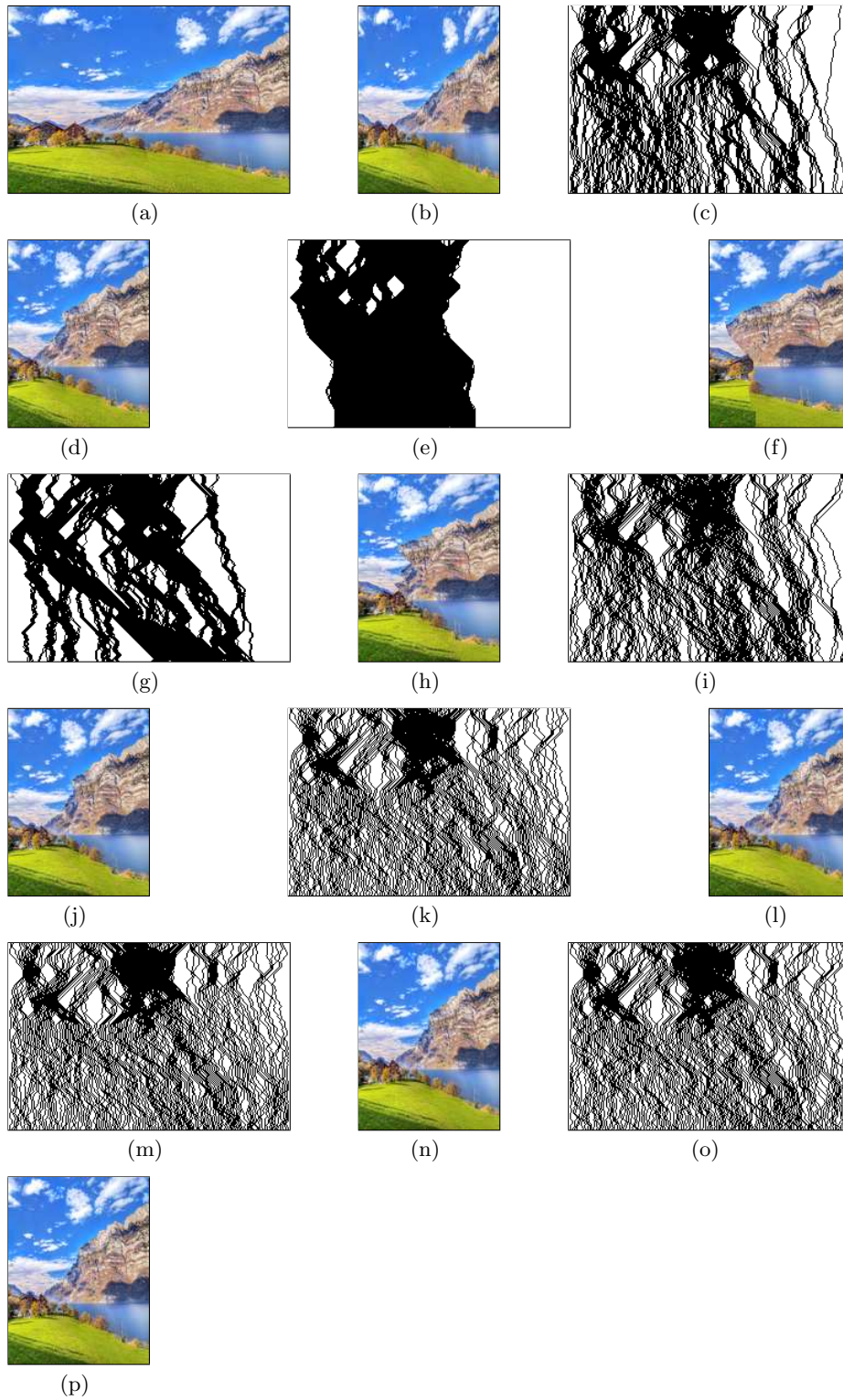


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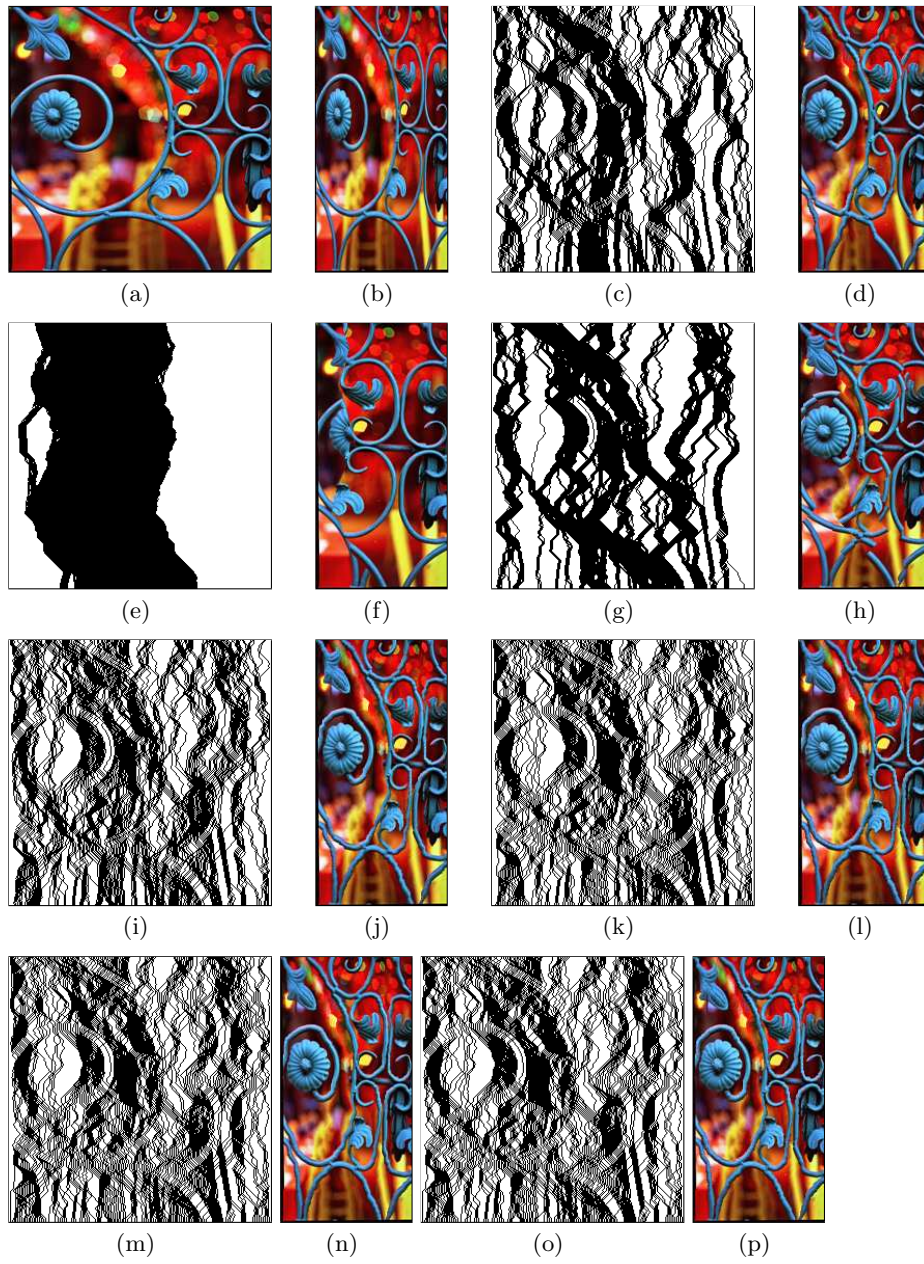


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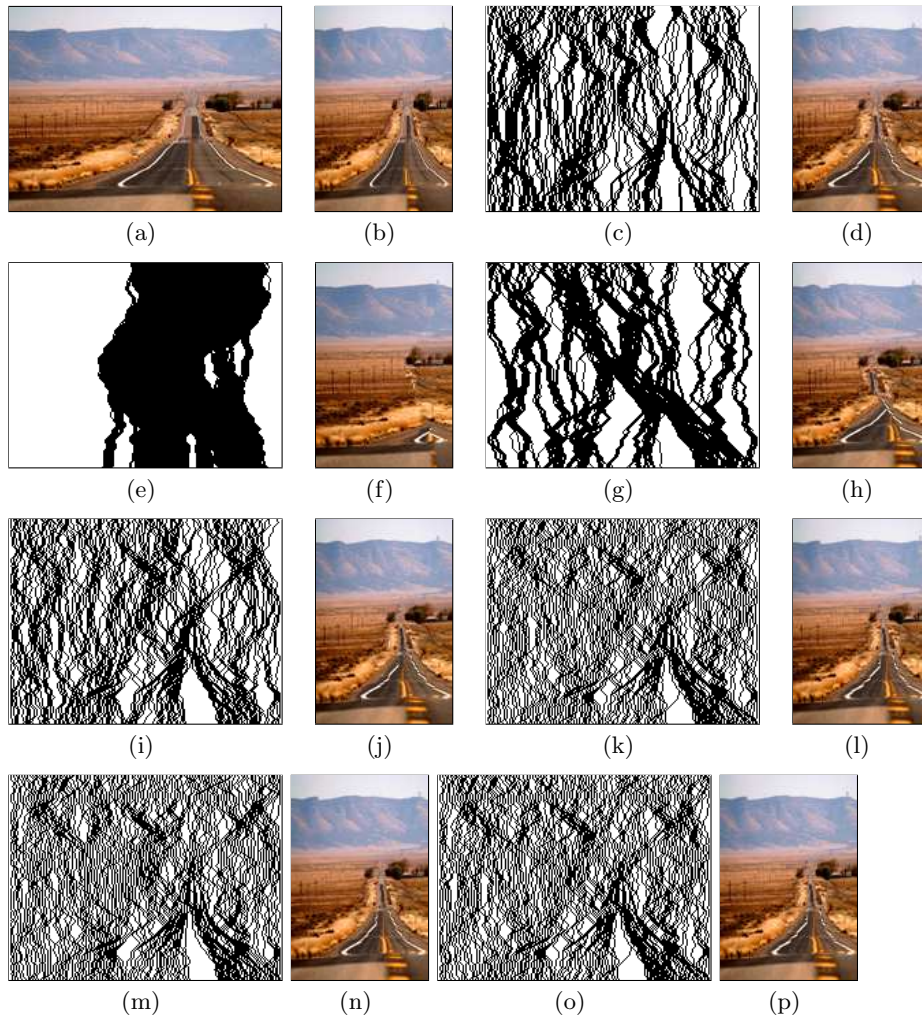


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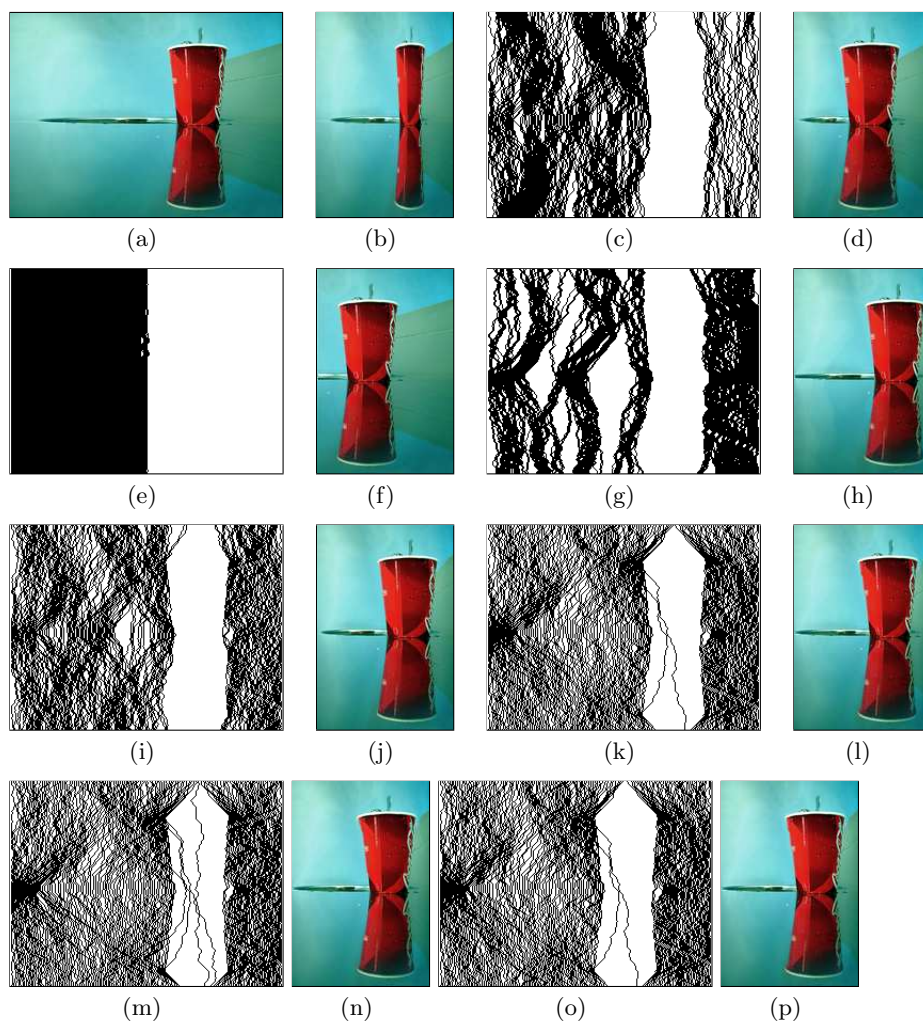


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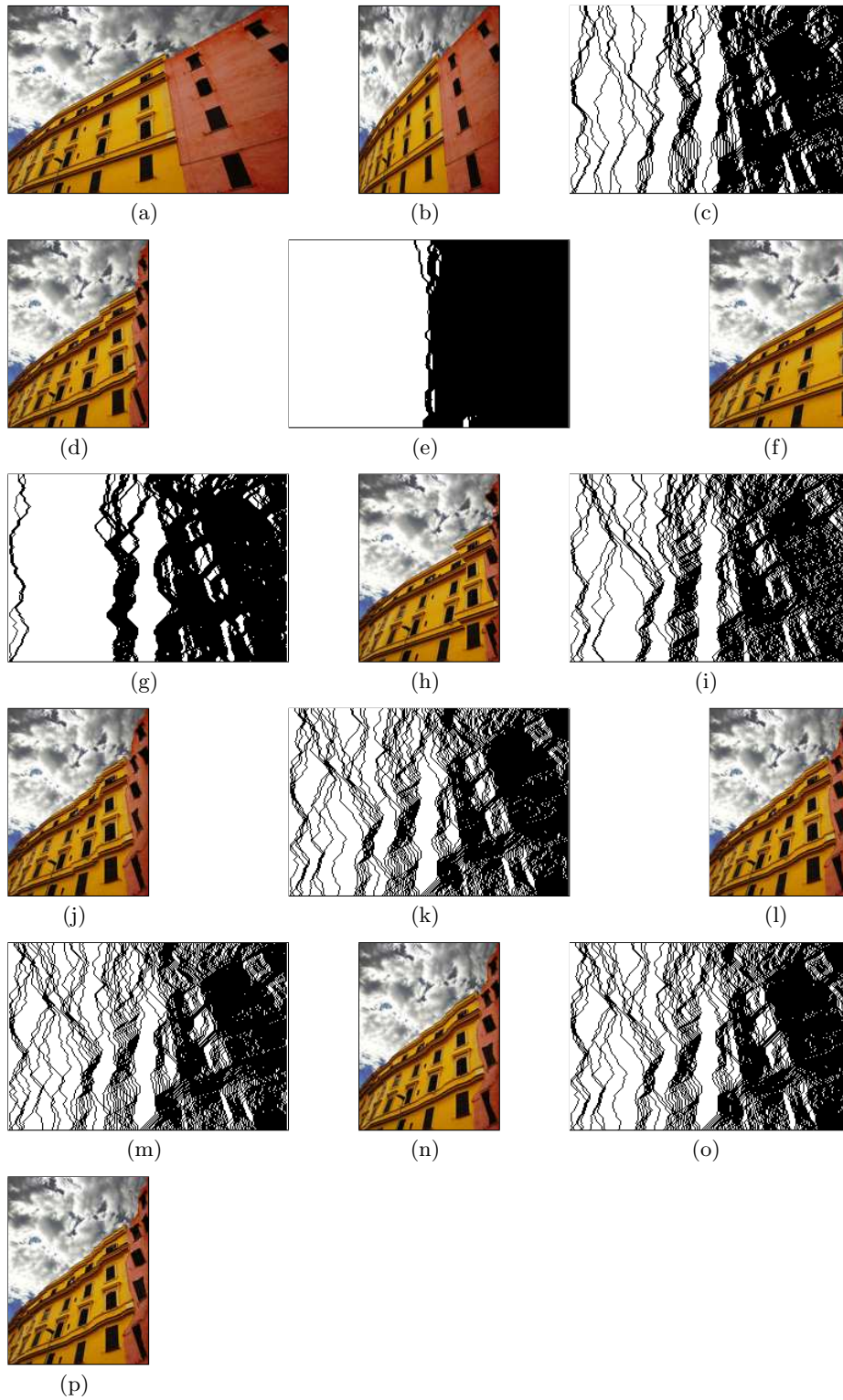


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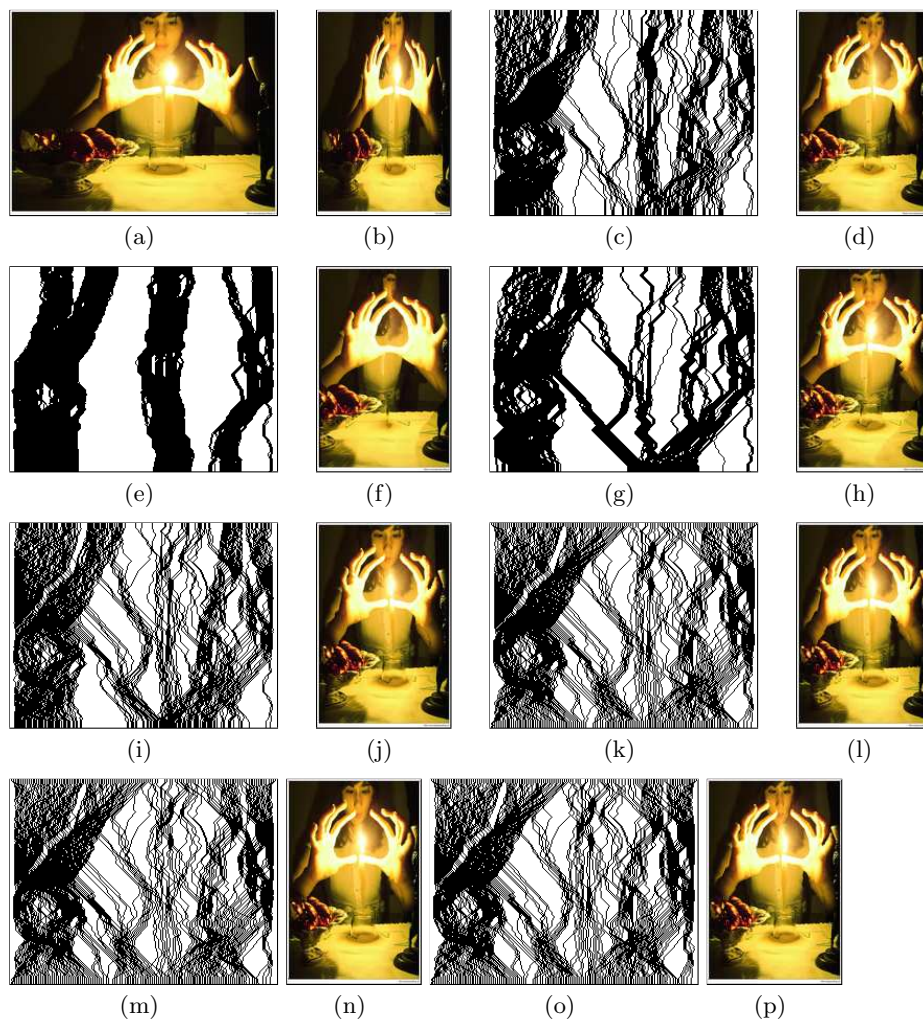


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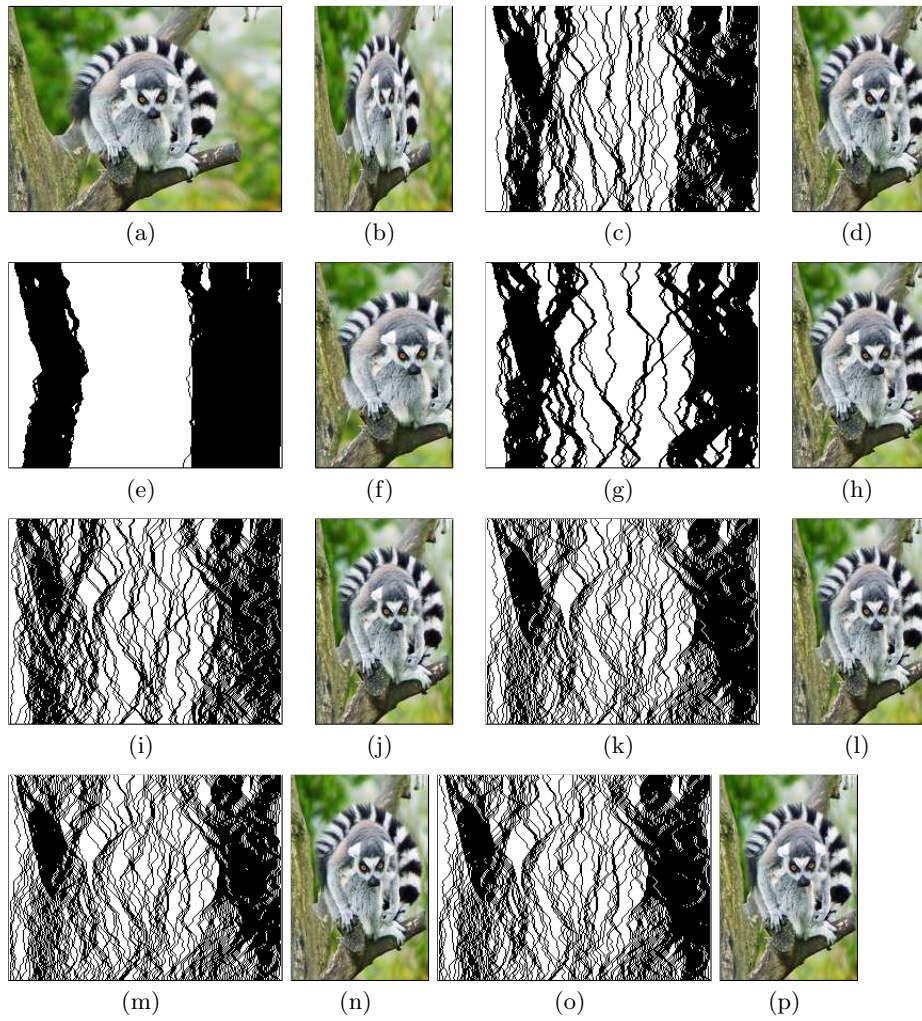


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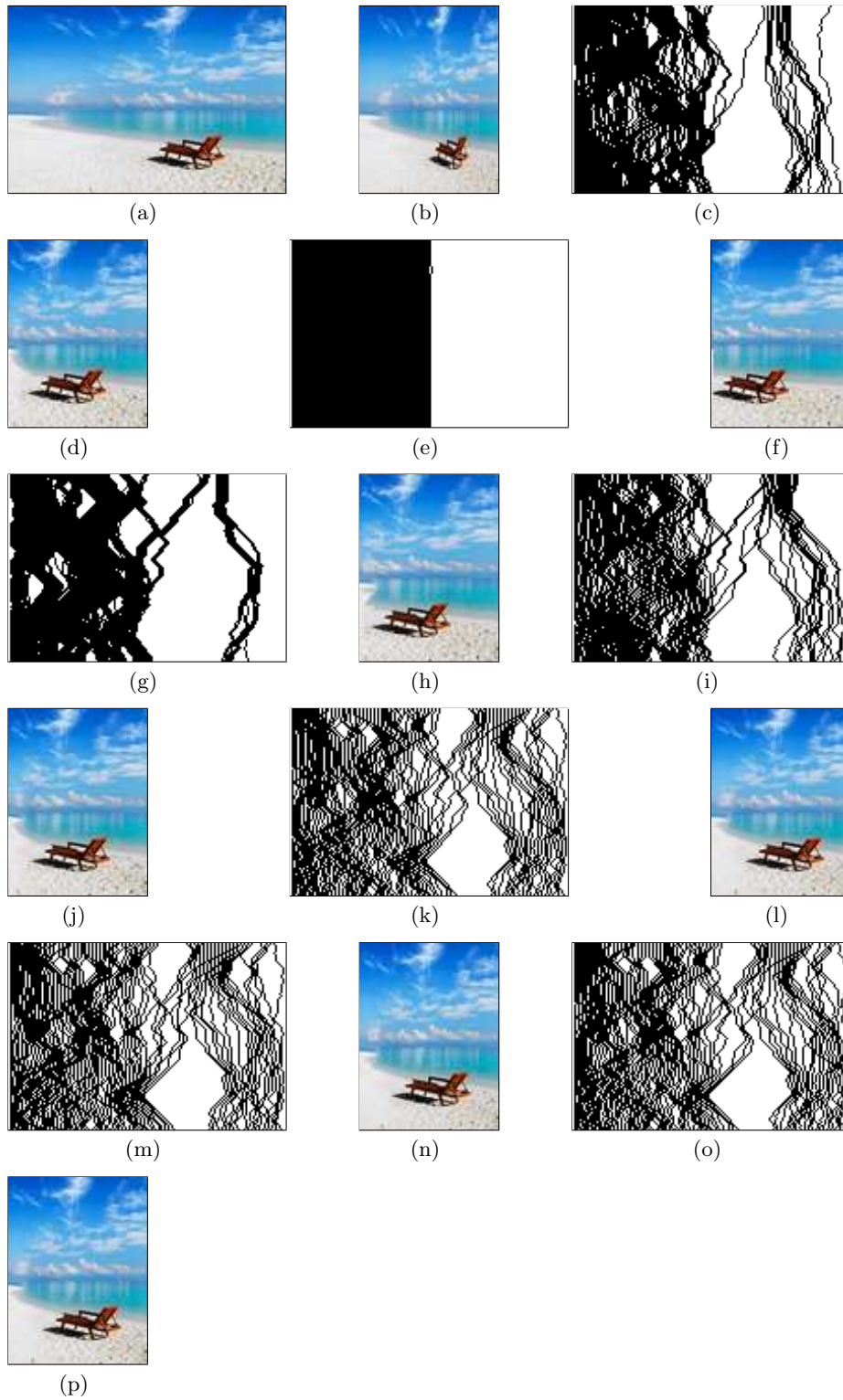


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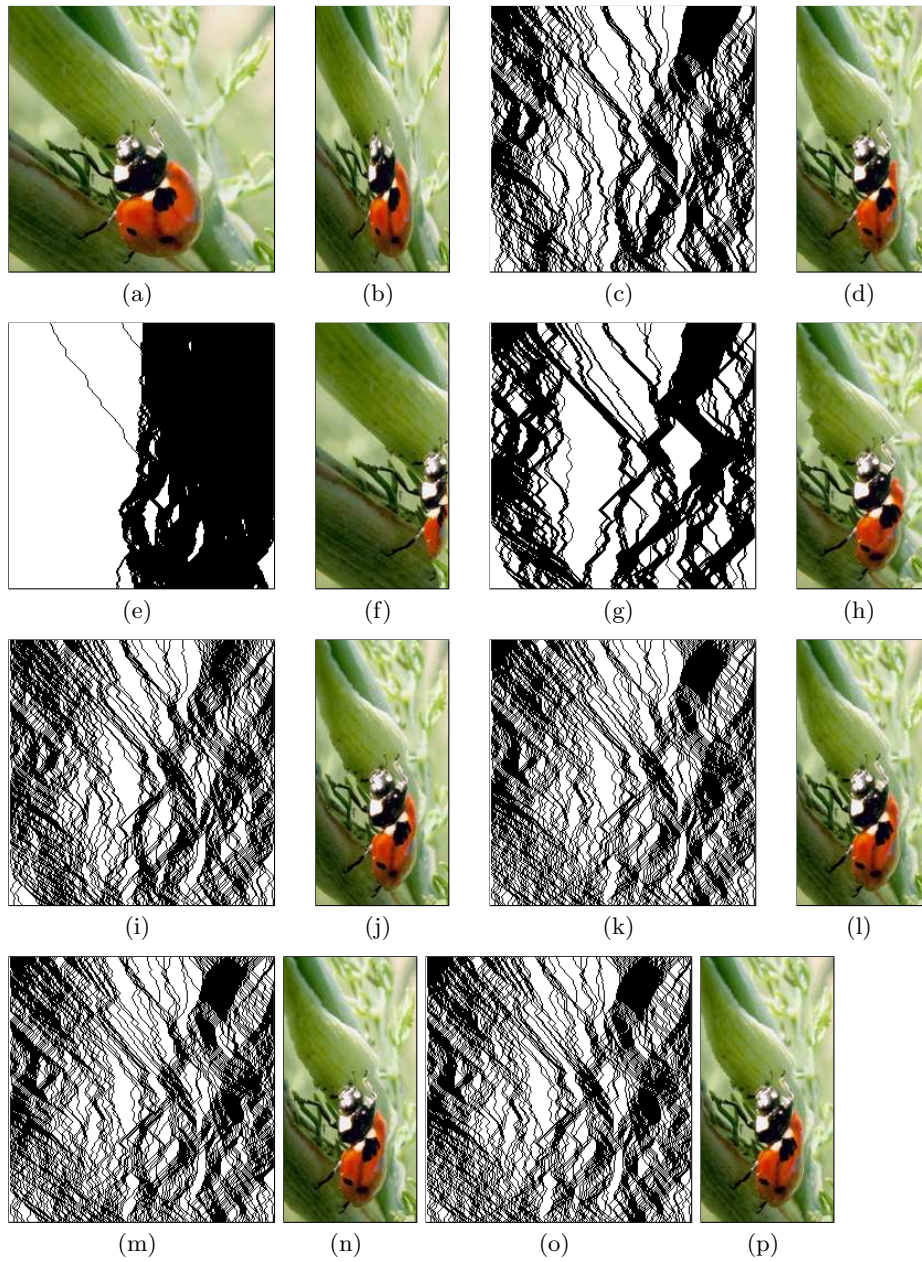


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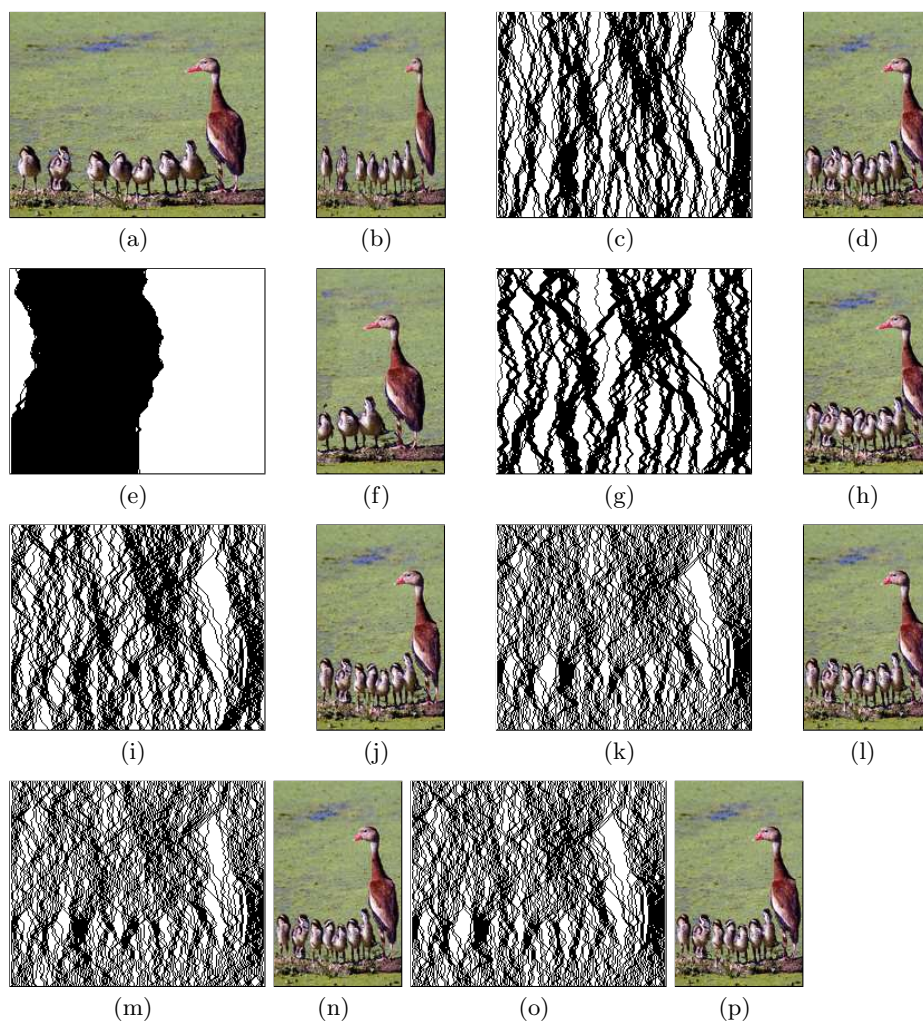


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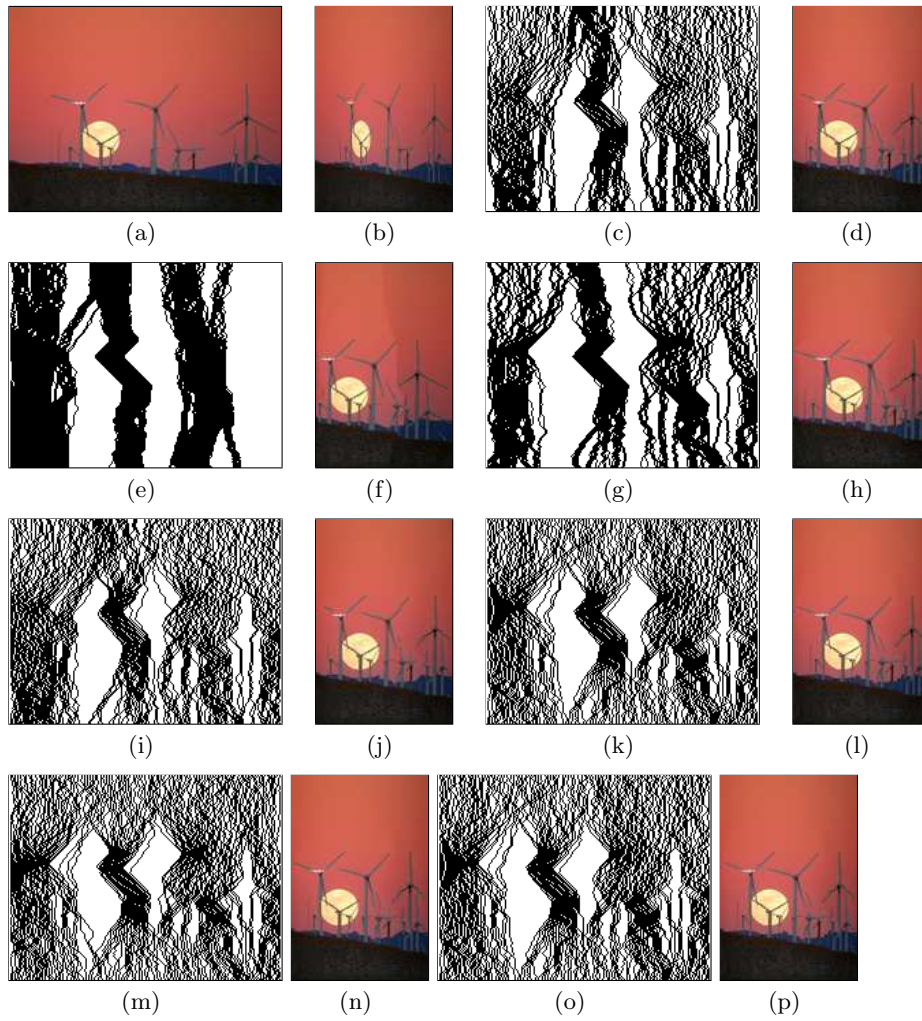


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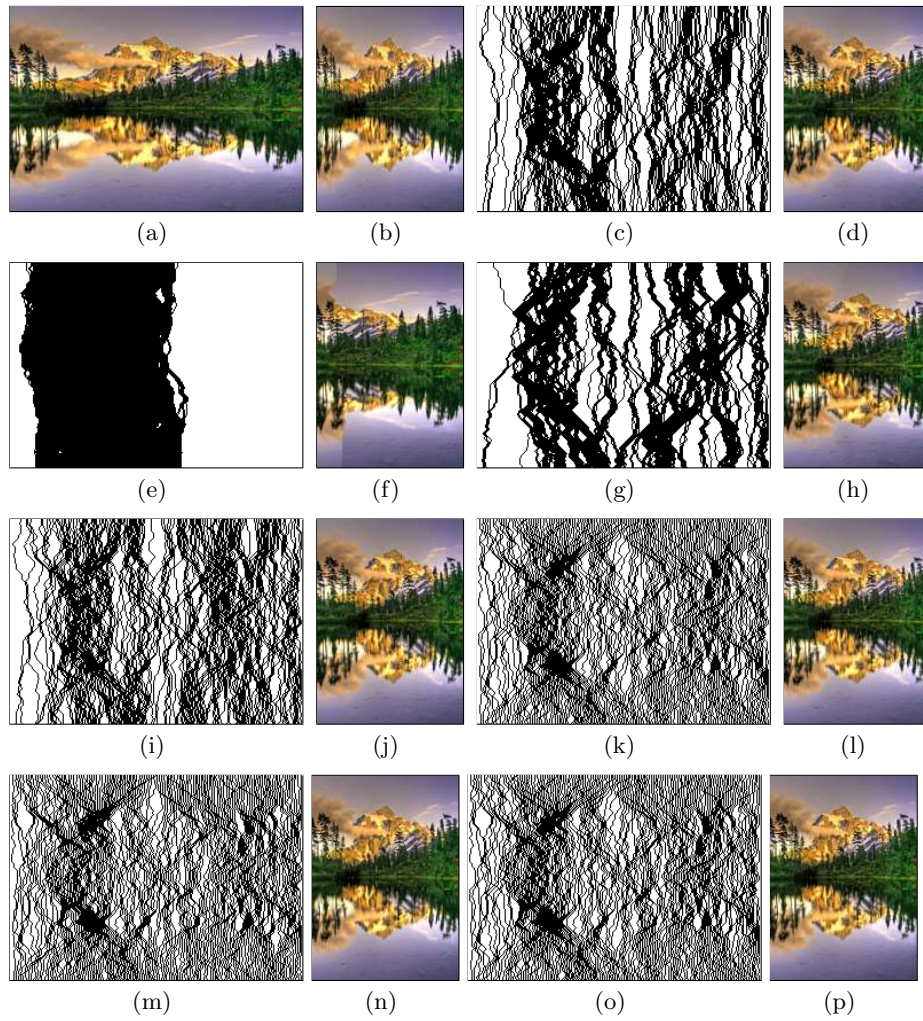


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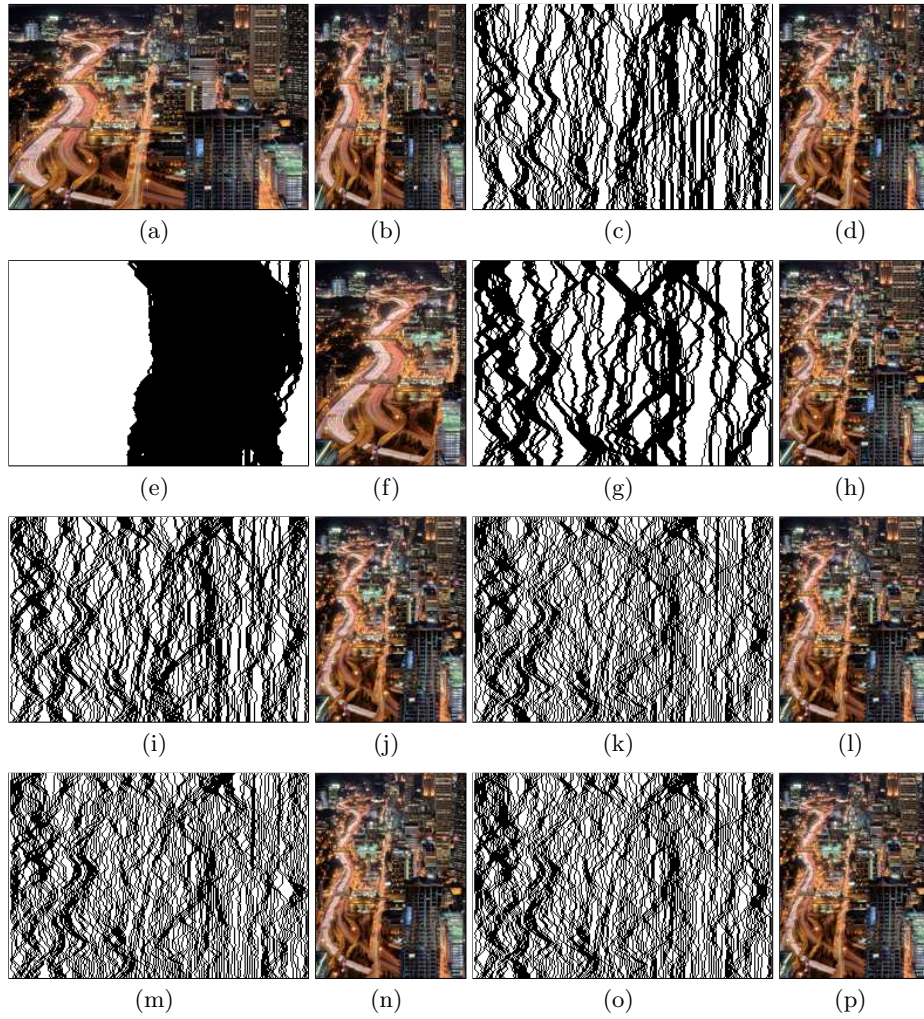


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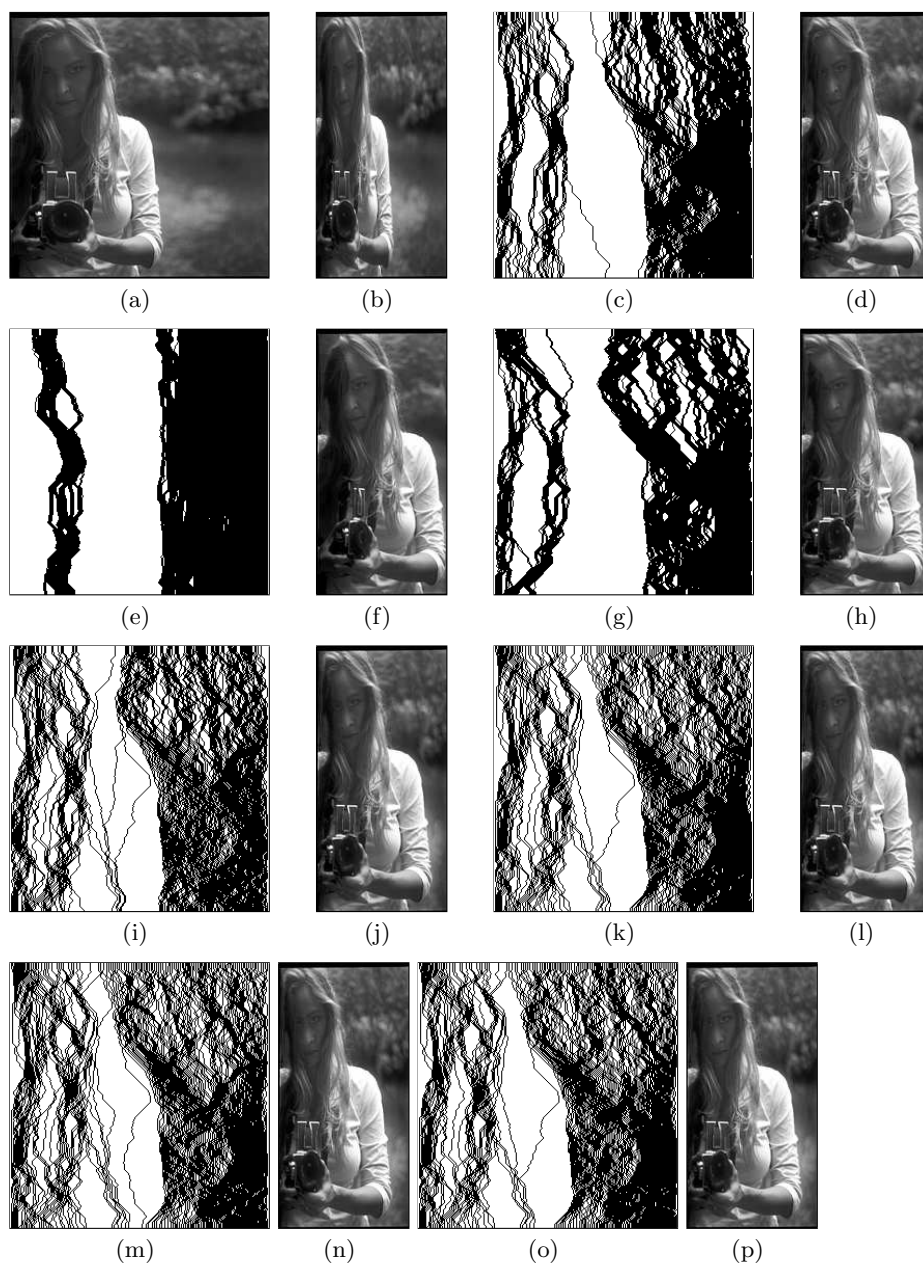


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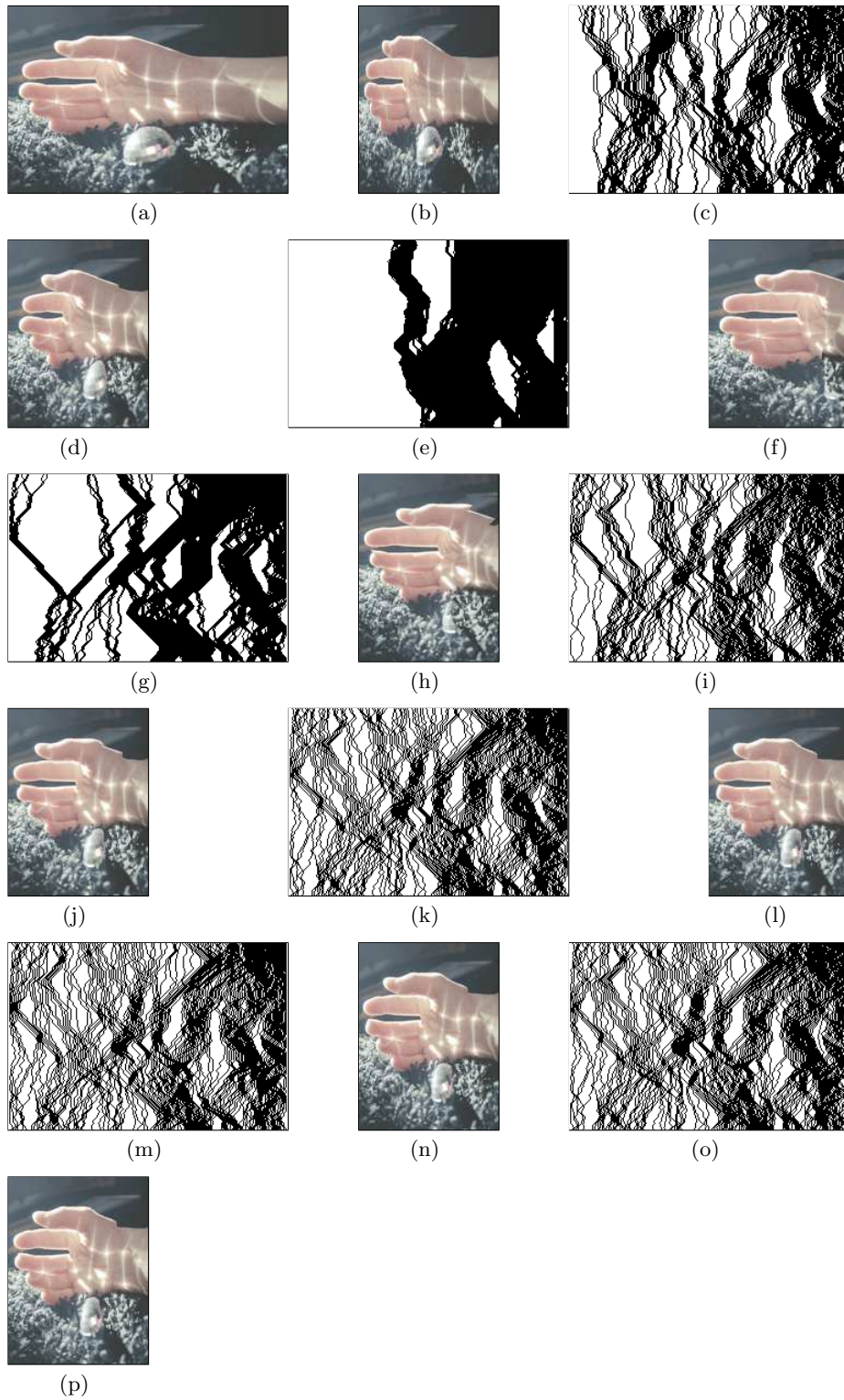


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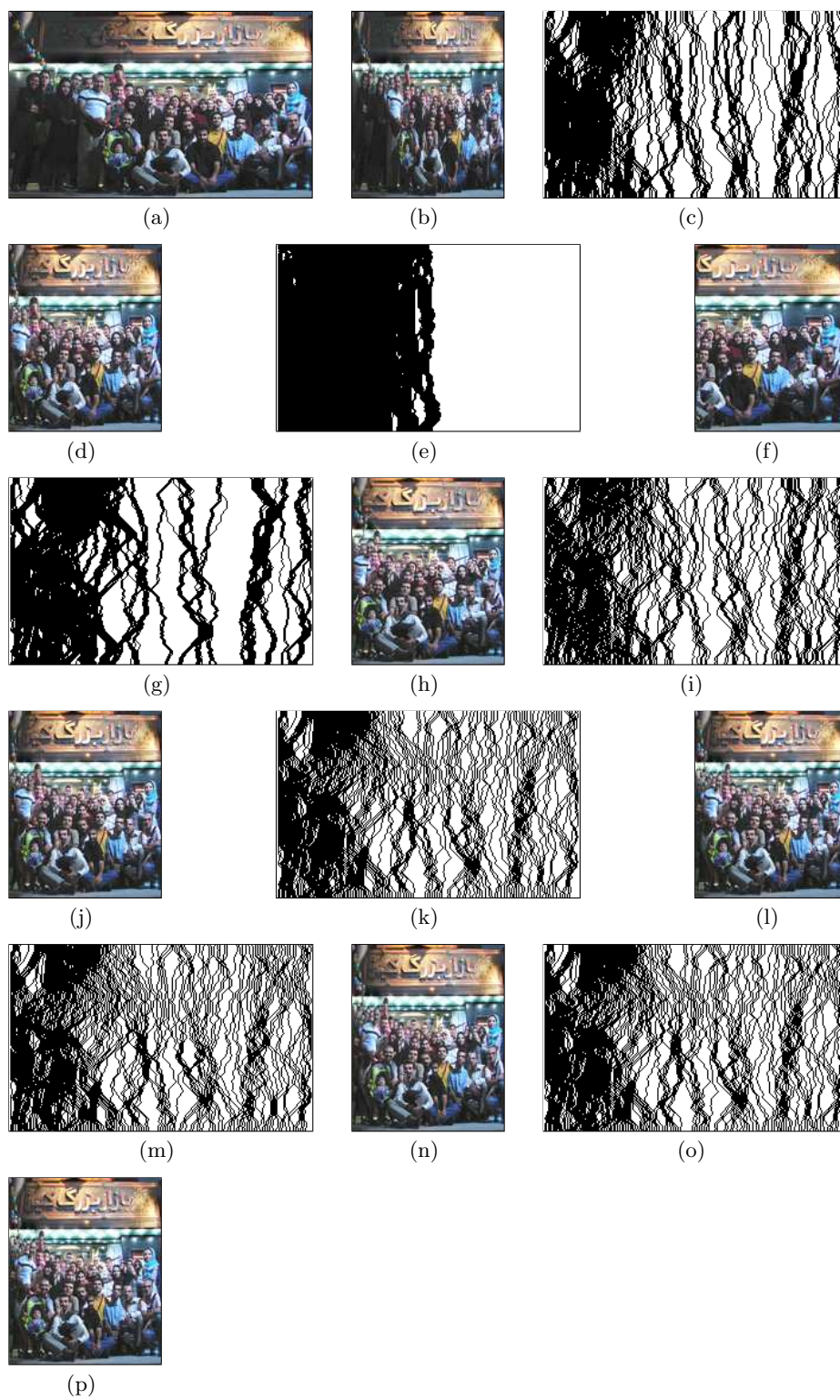


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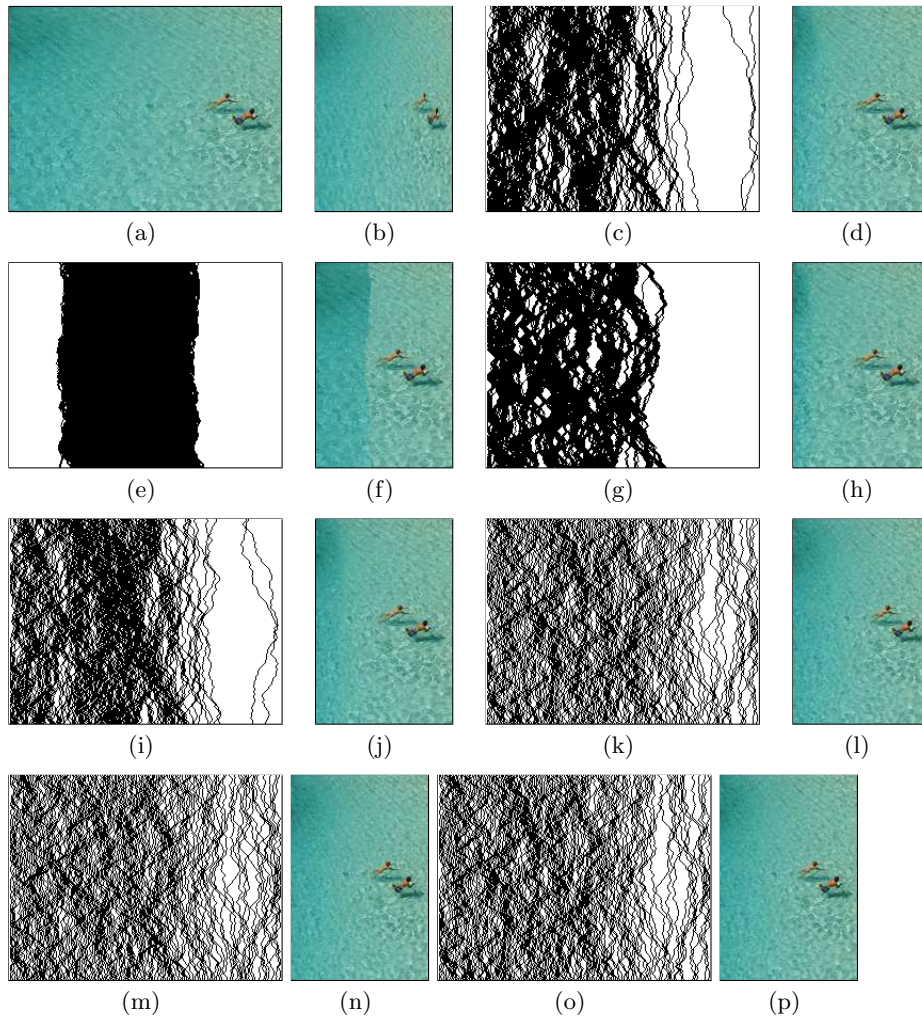


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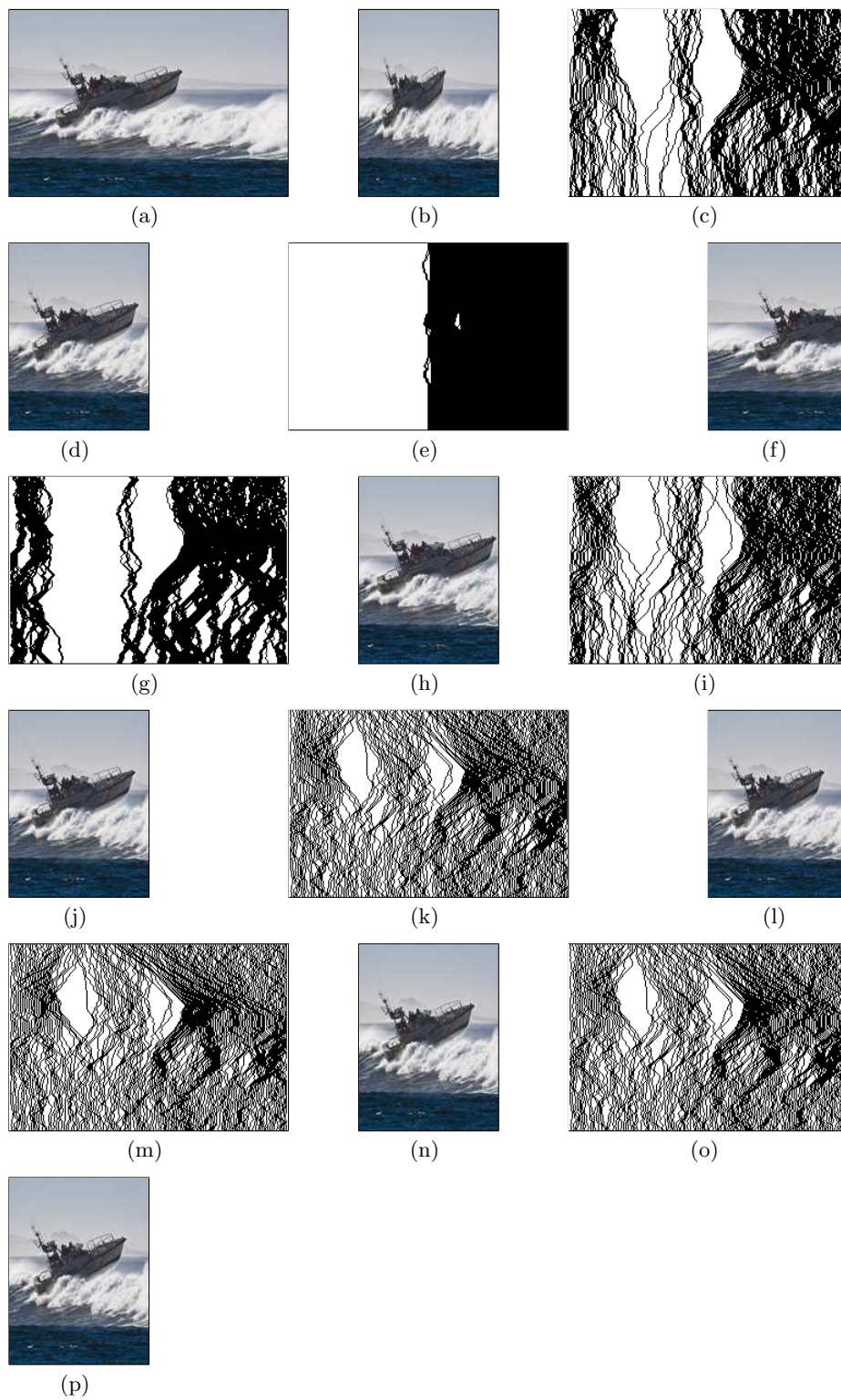


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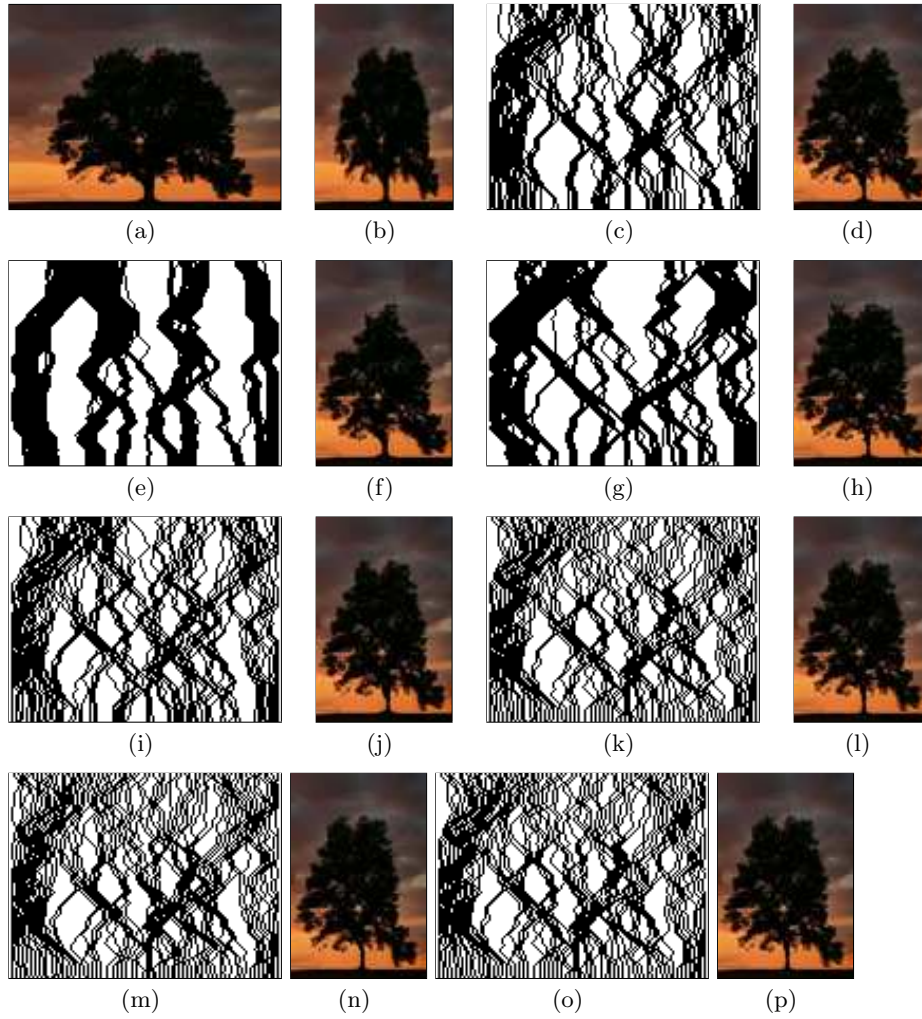


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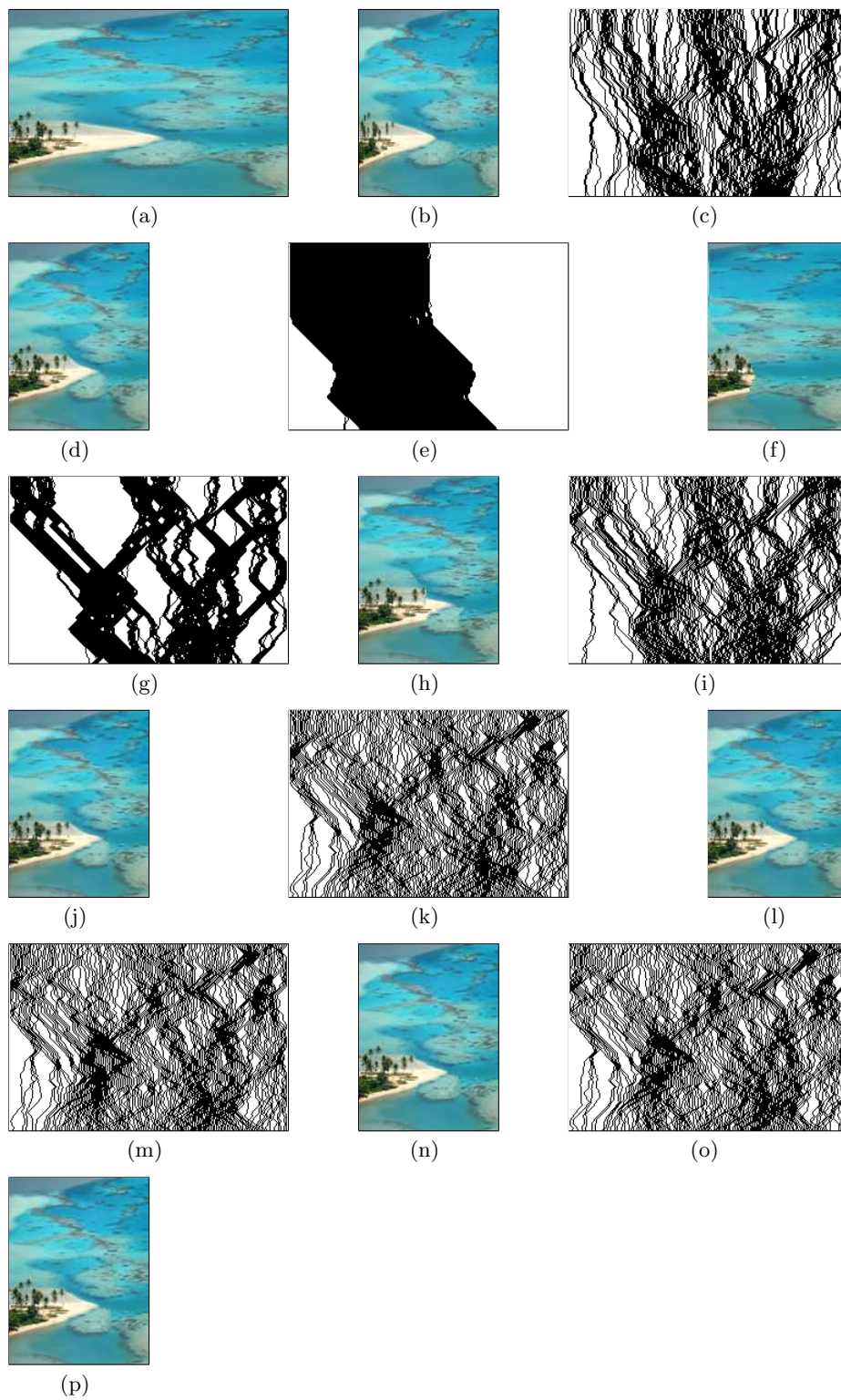


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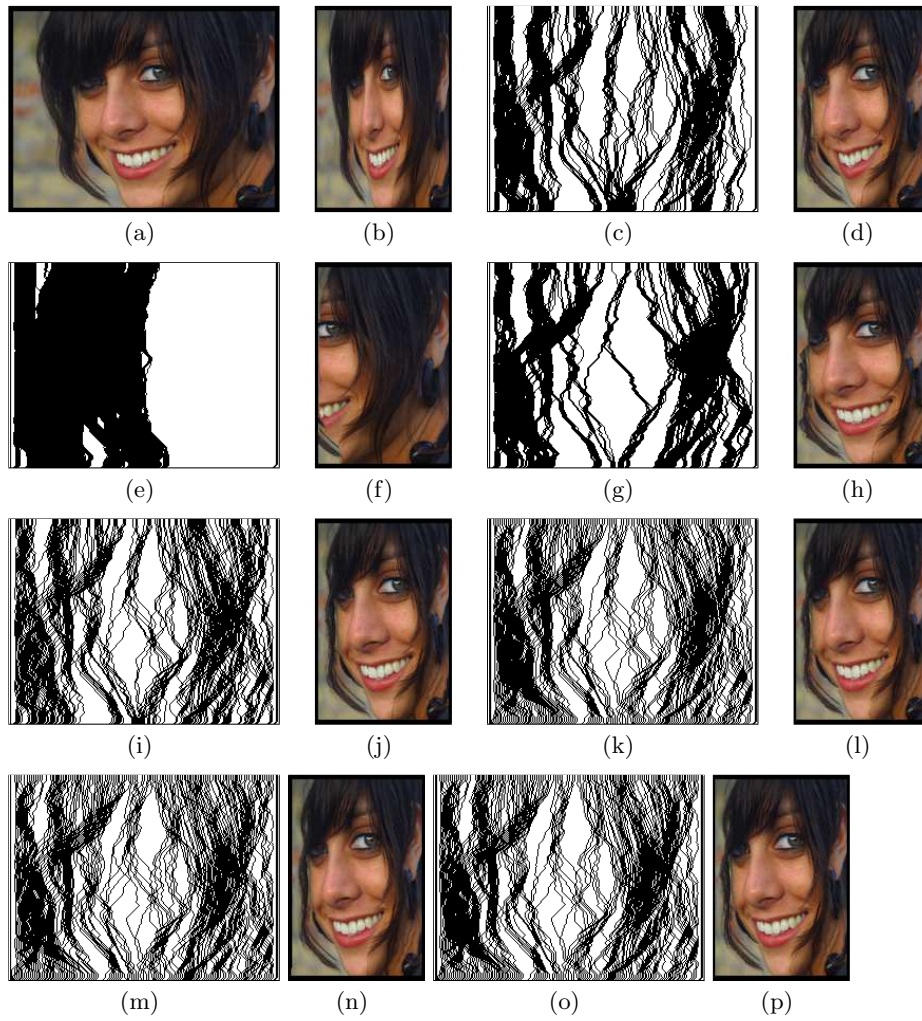


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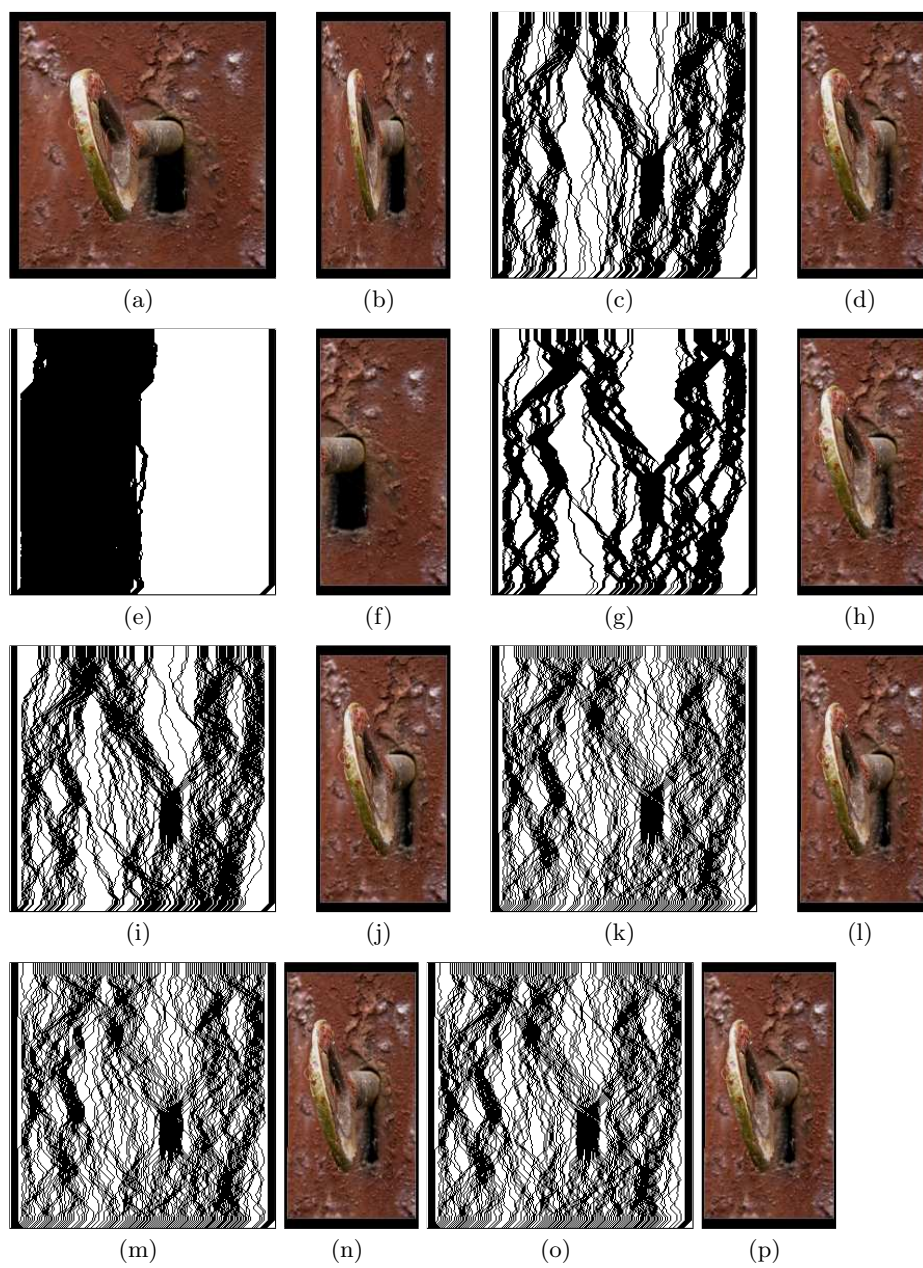


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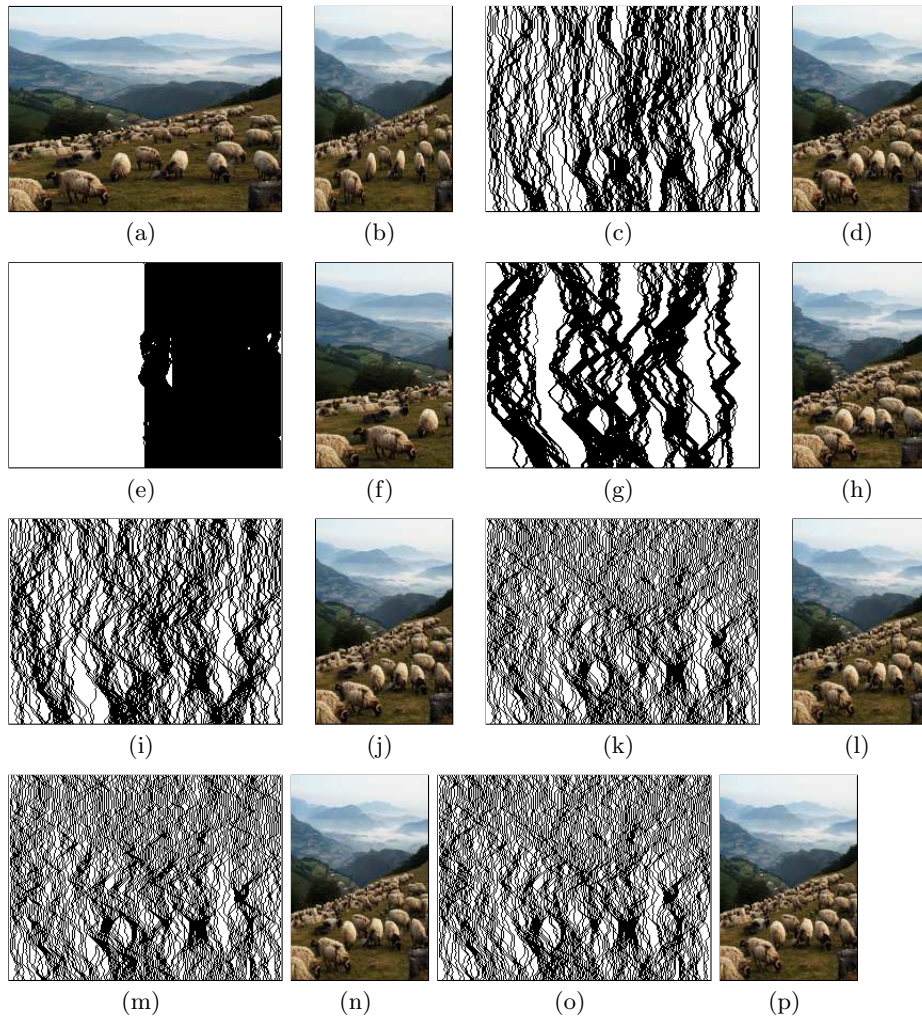


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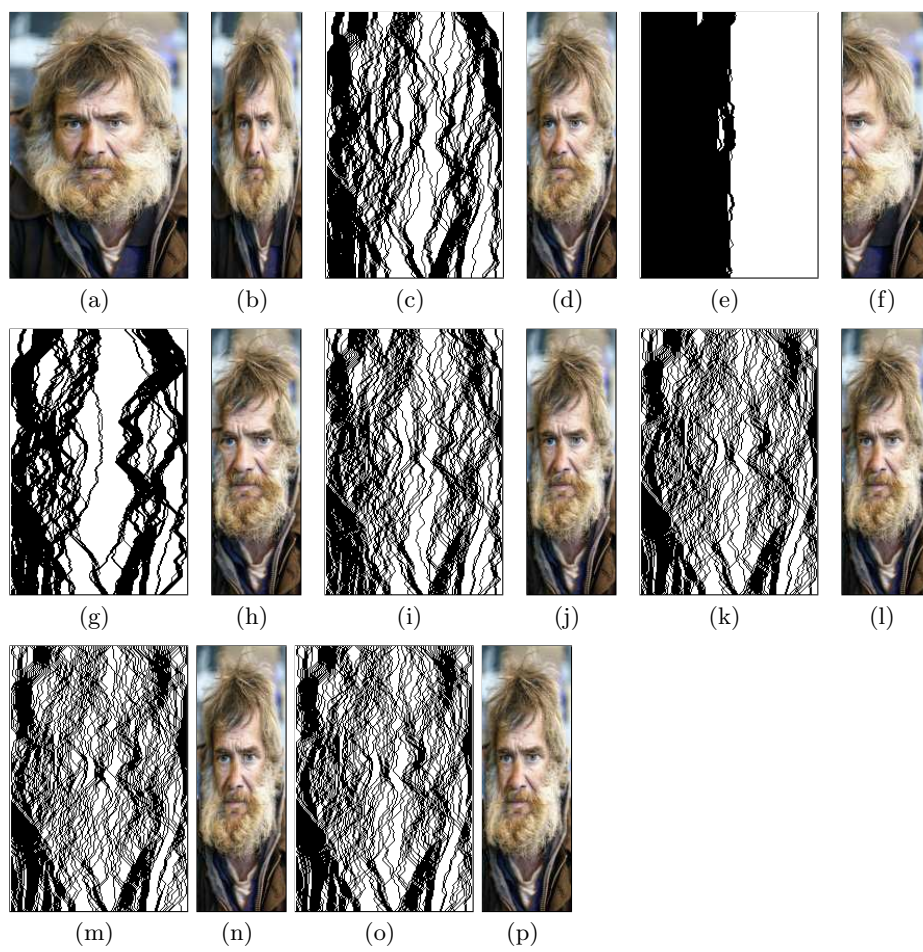


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Fig. 56: Image 56

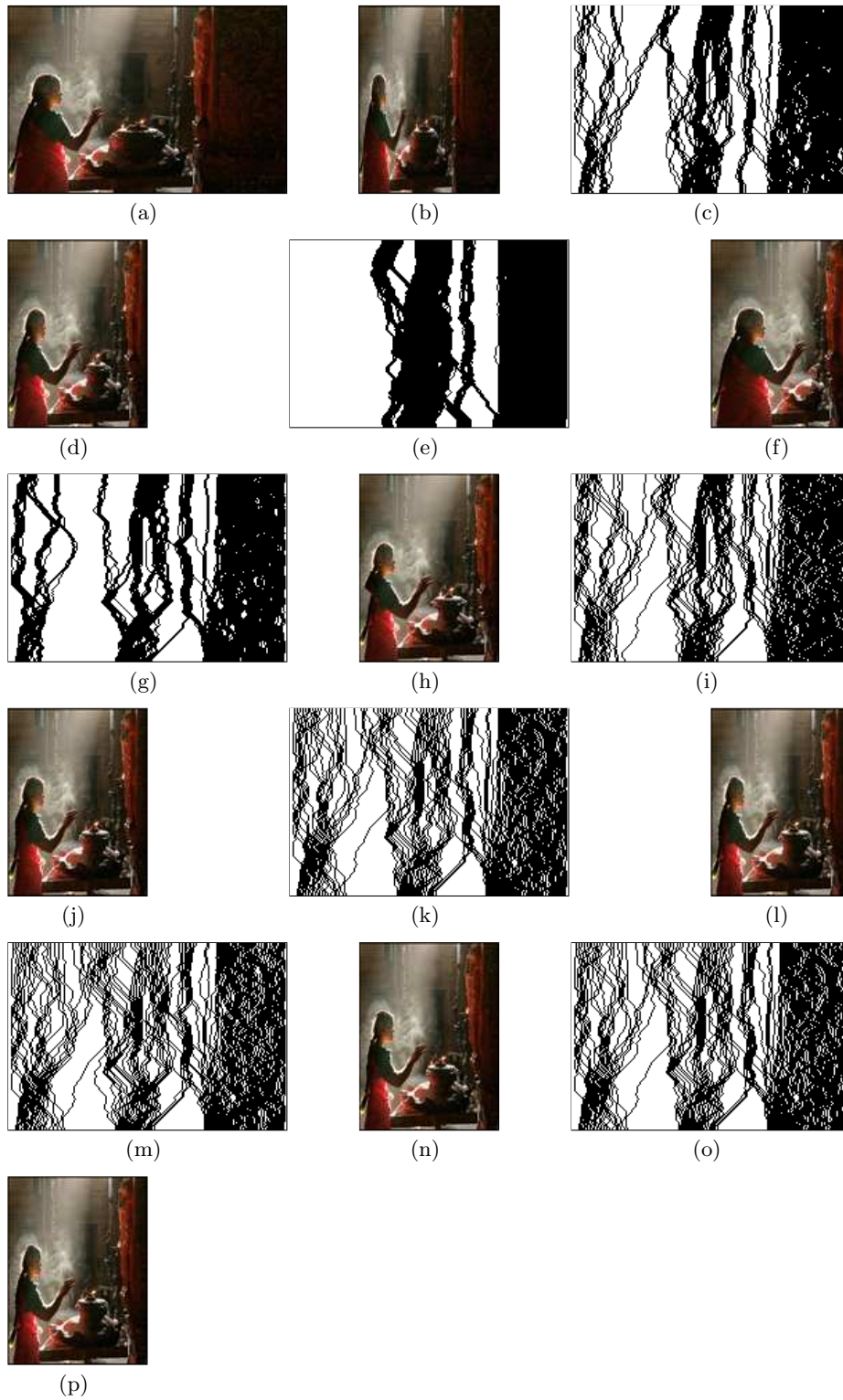


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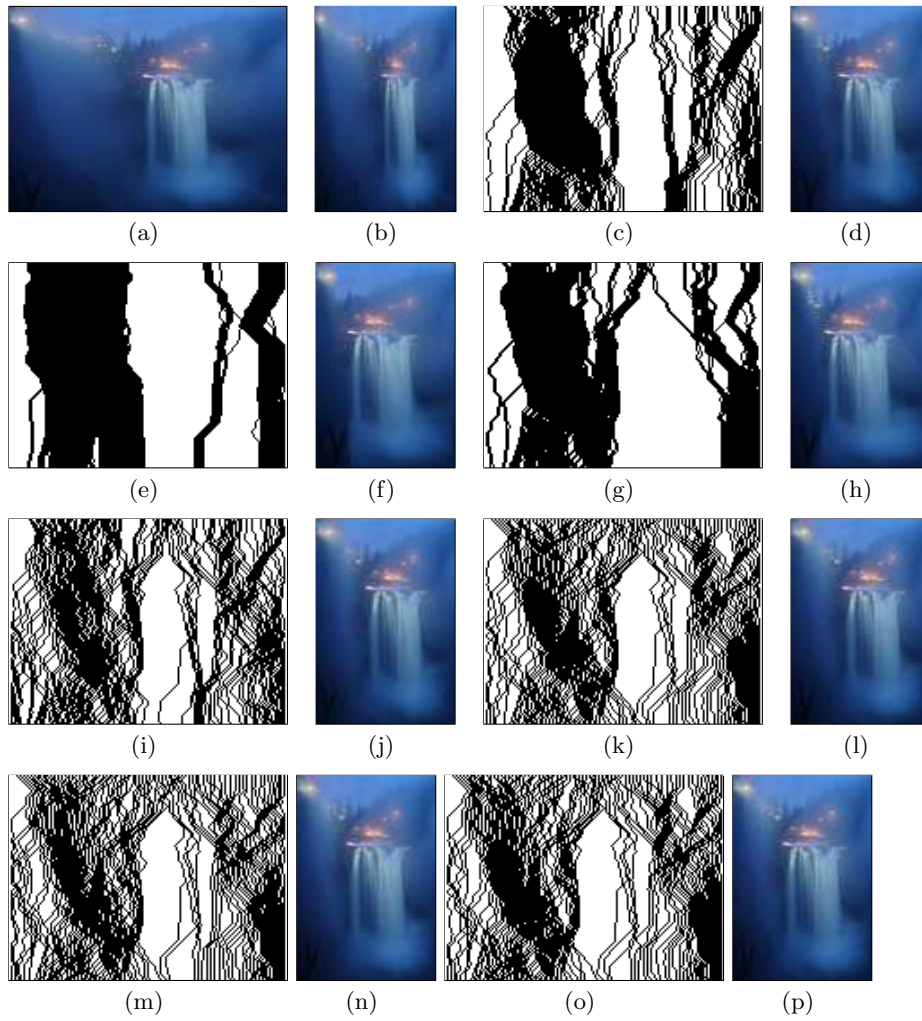


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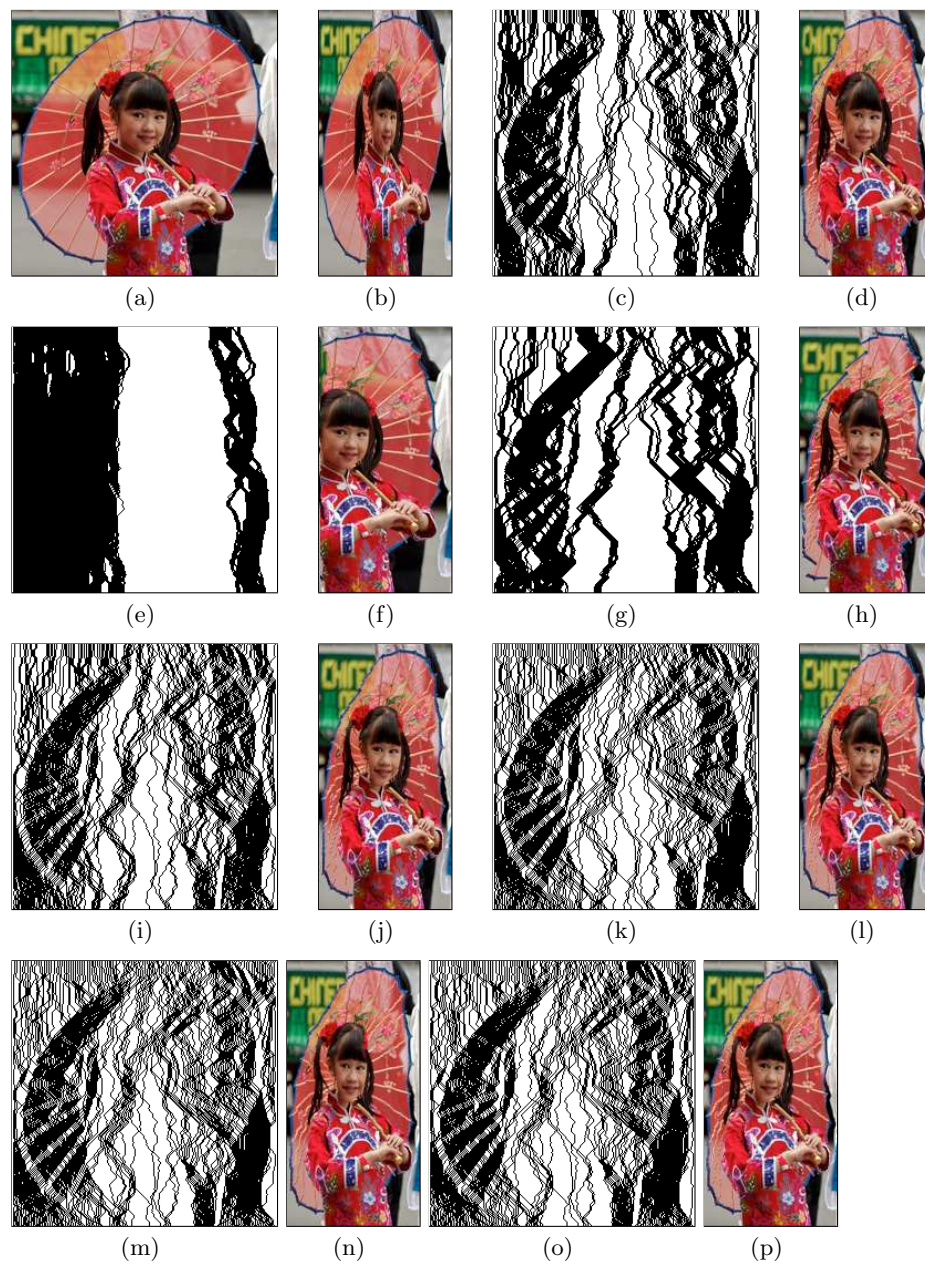


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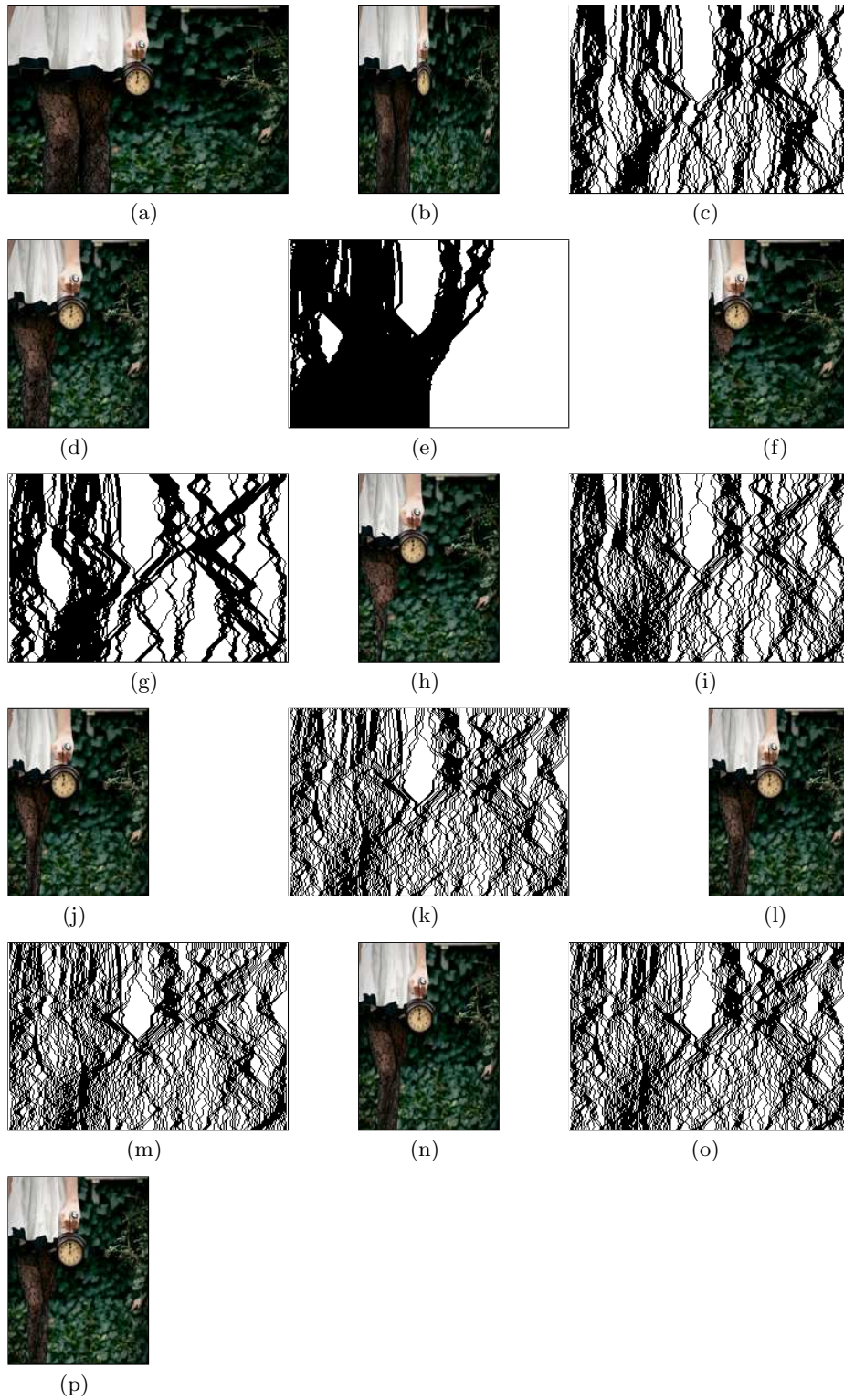


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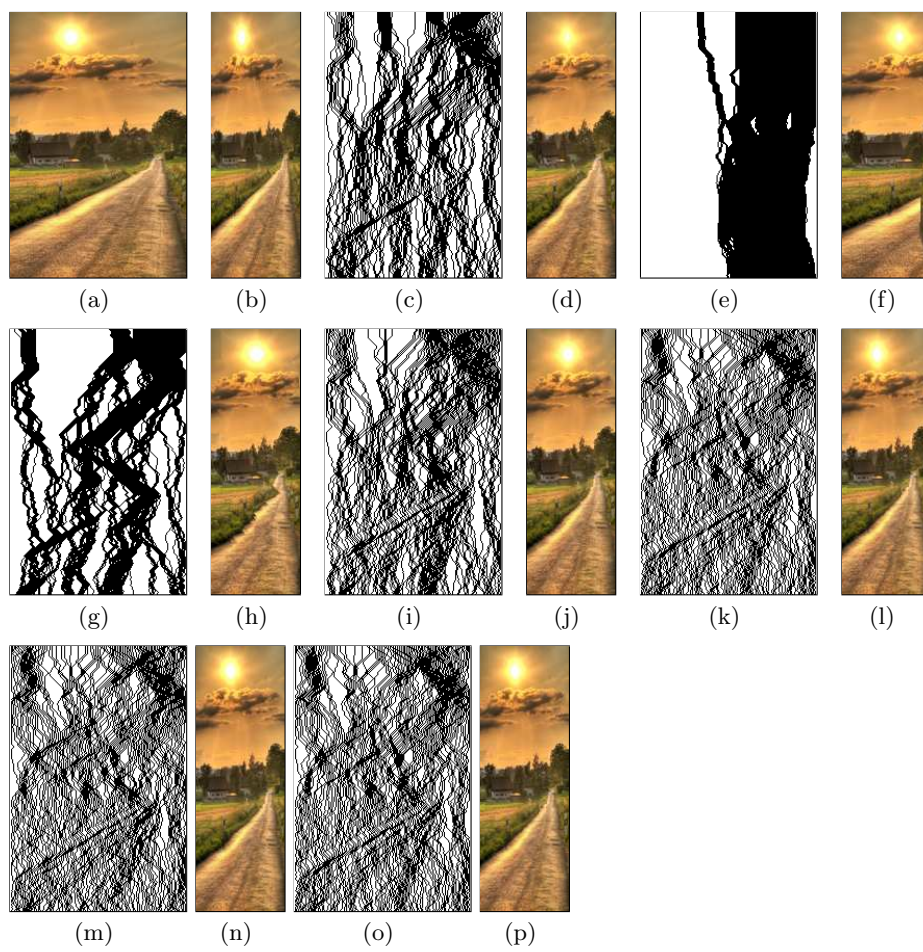


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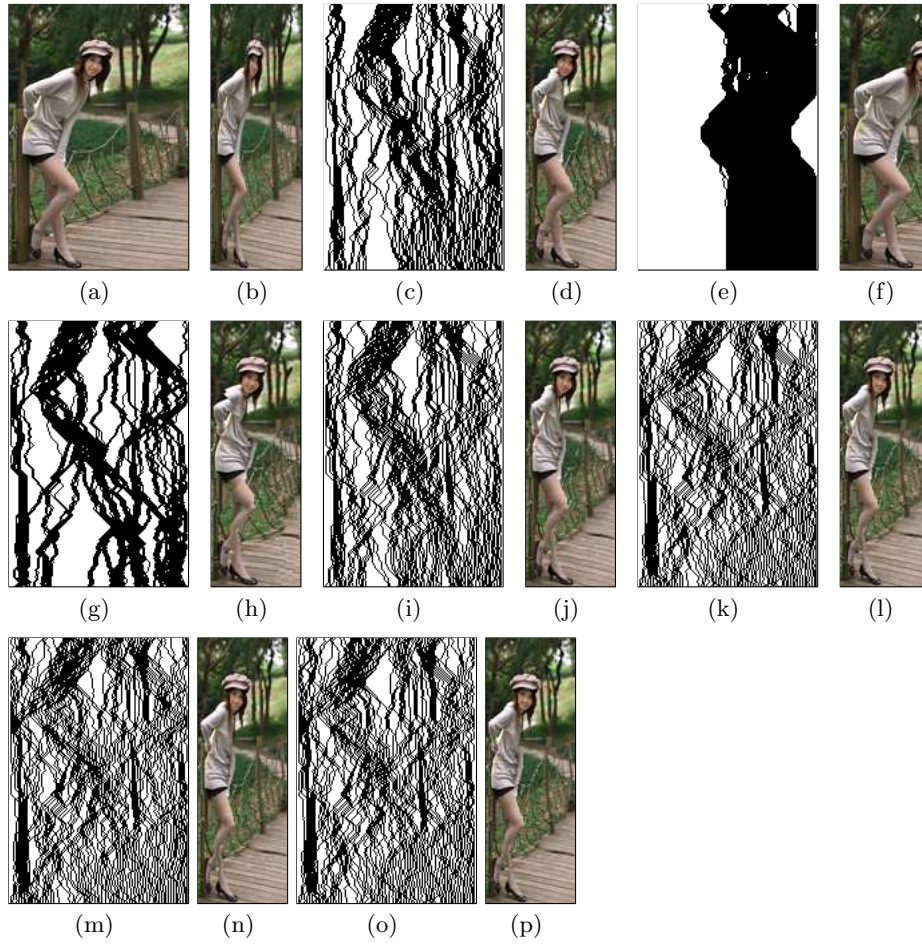


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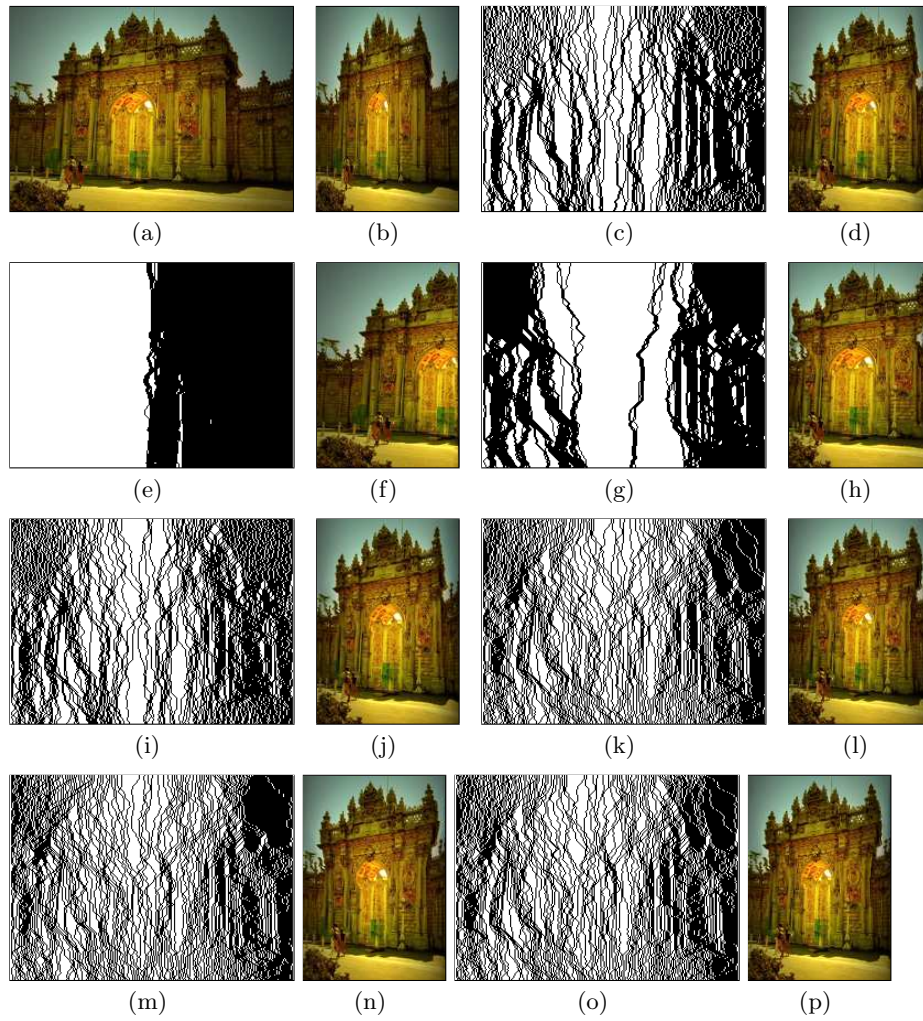


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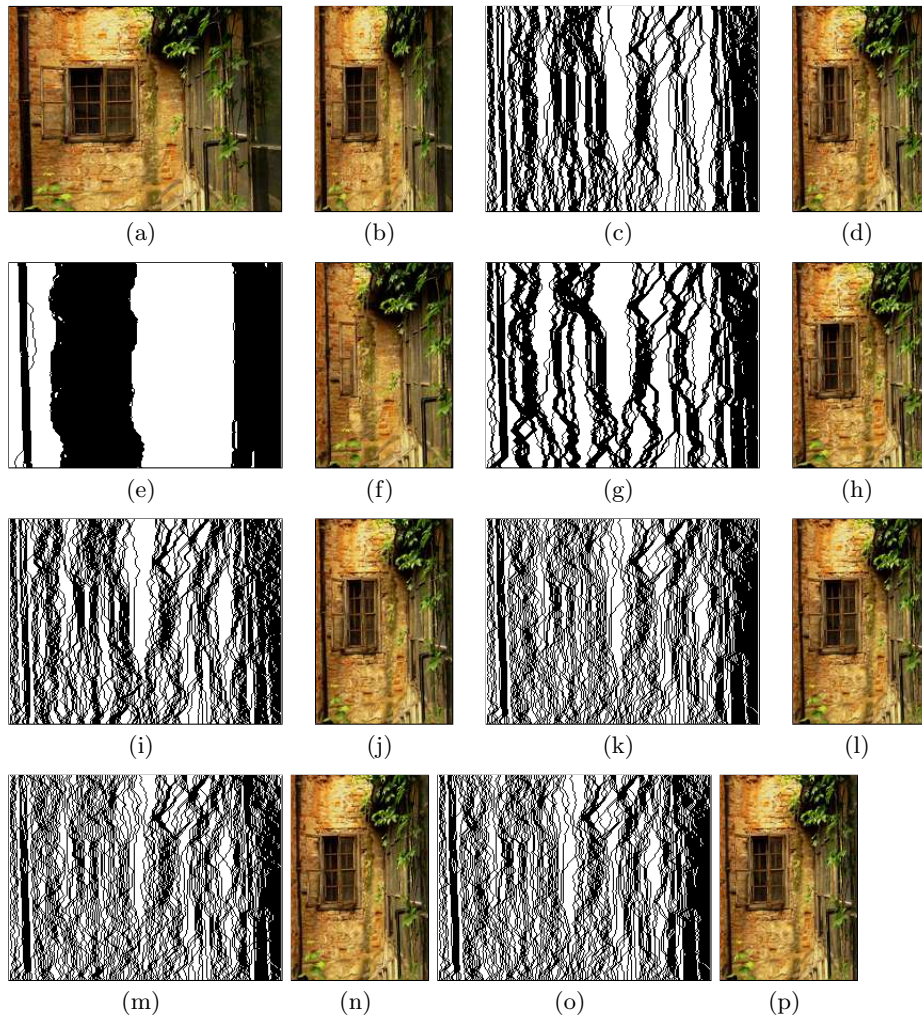


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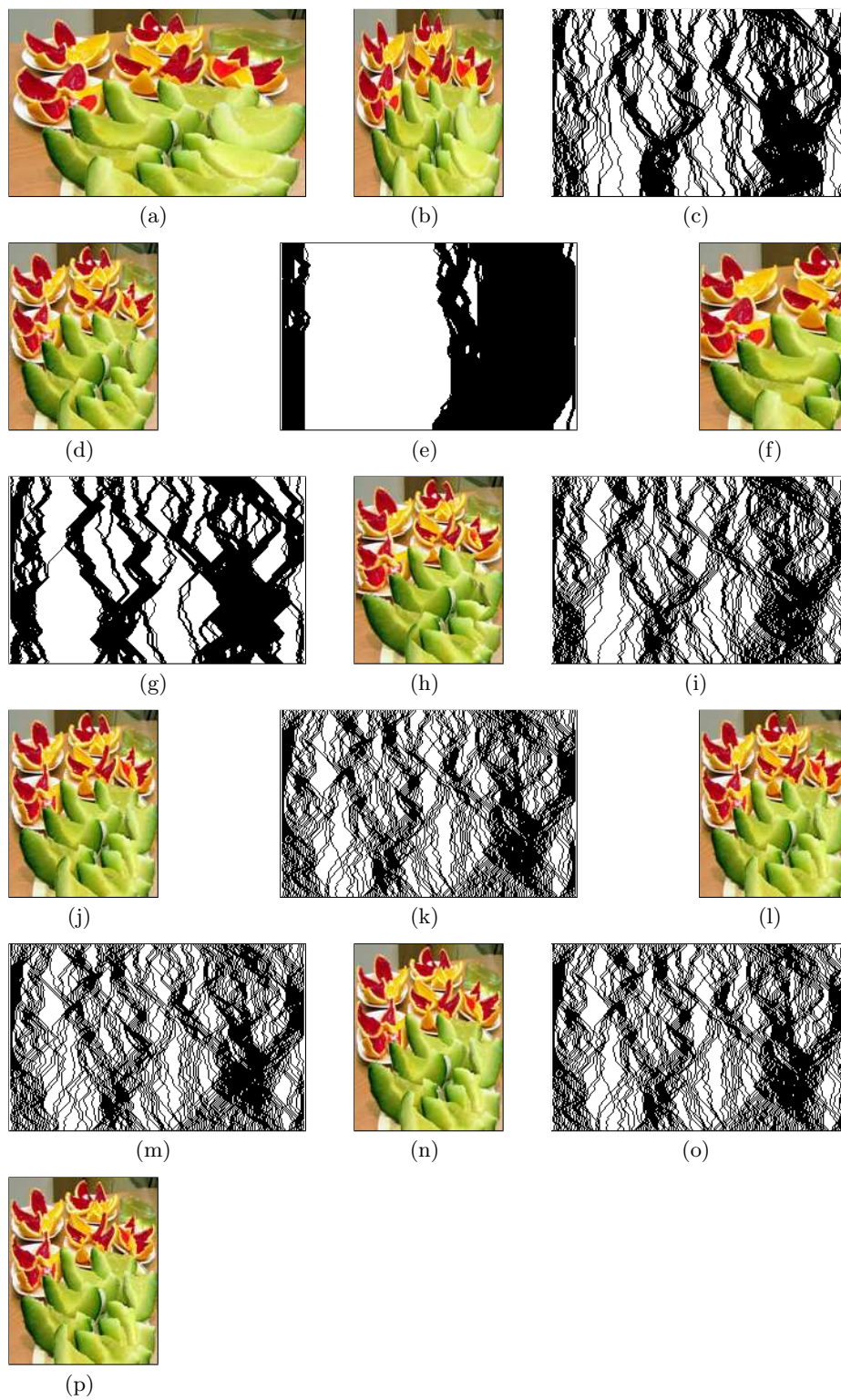


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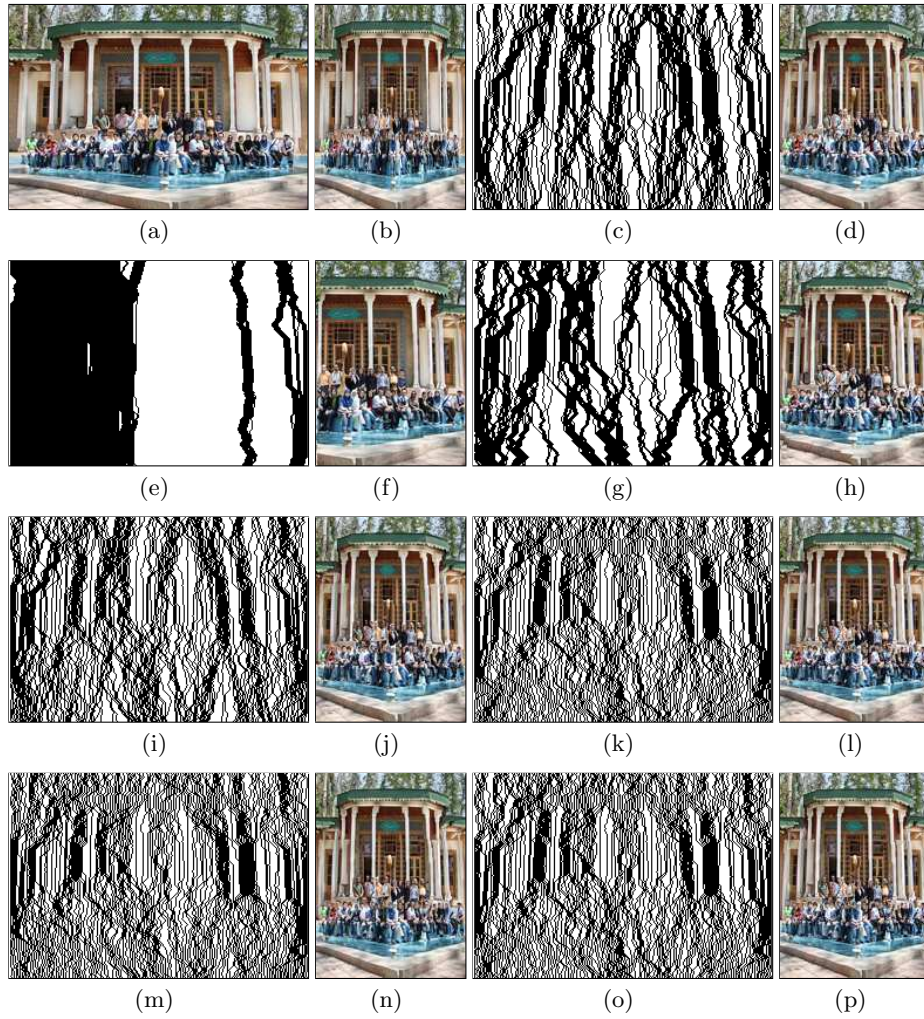


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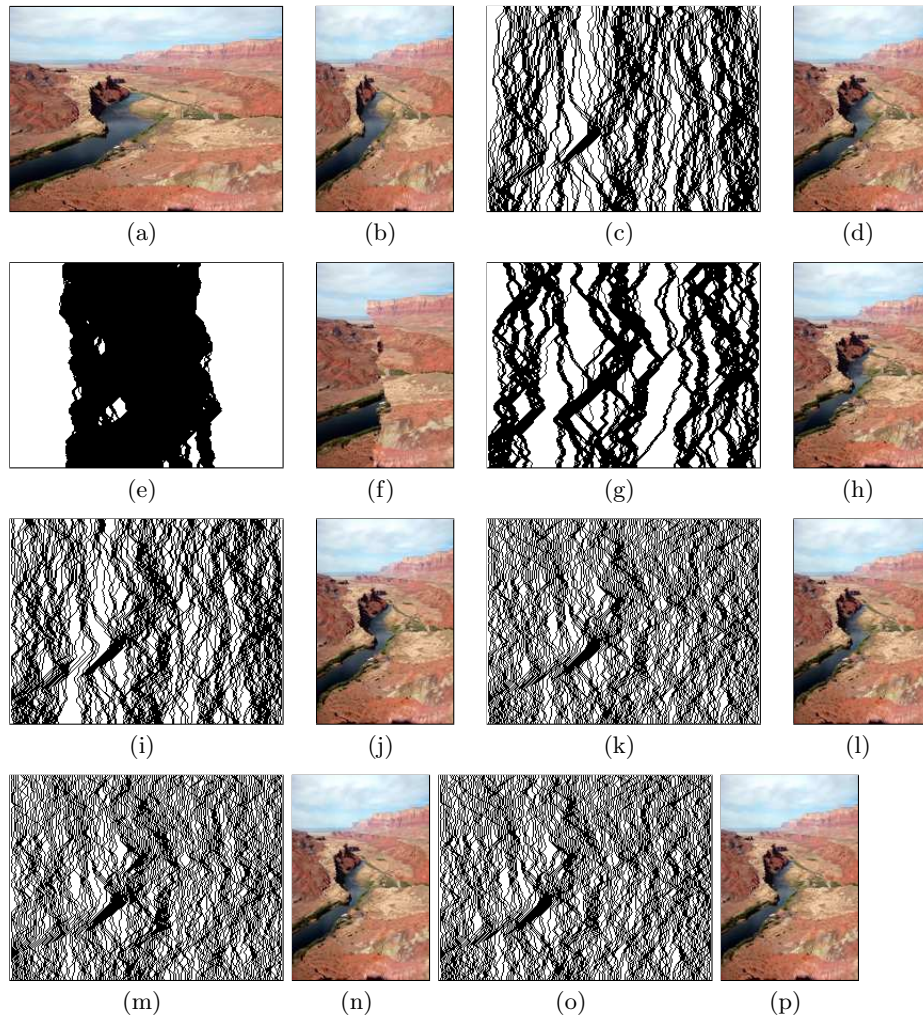


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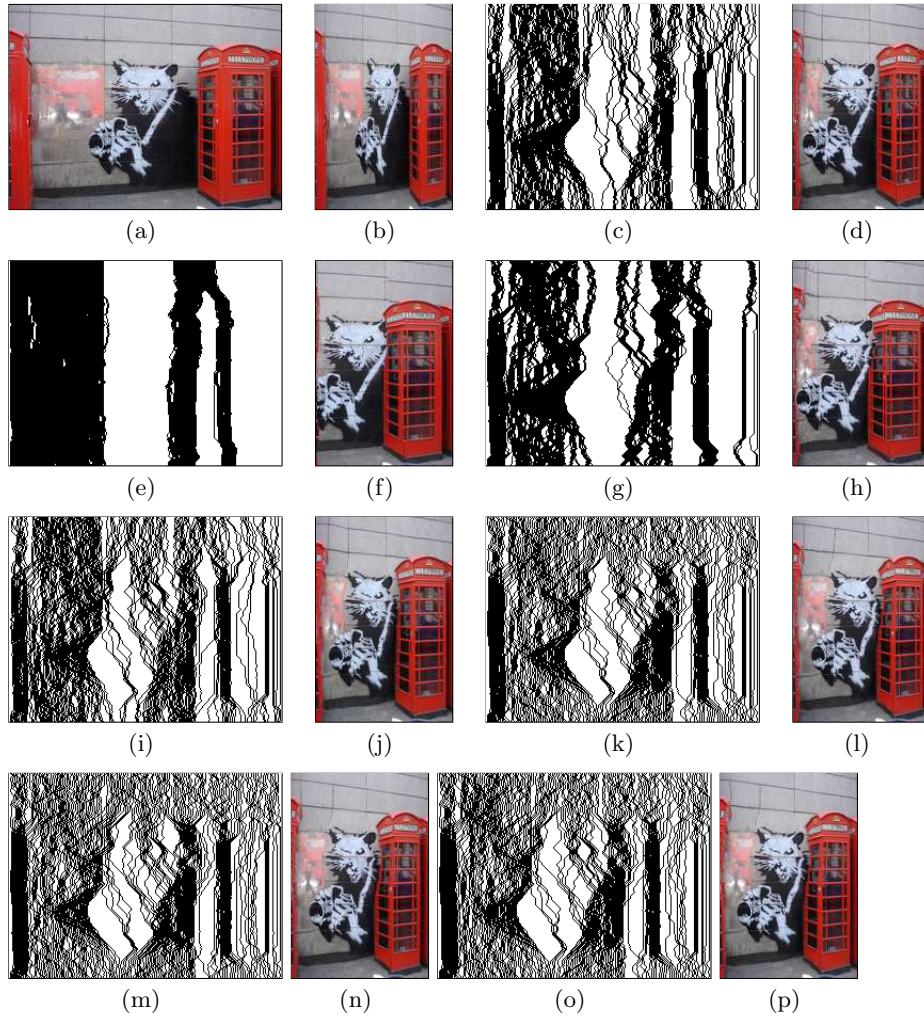


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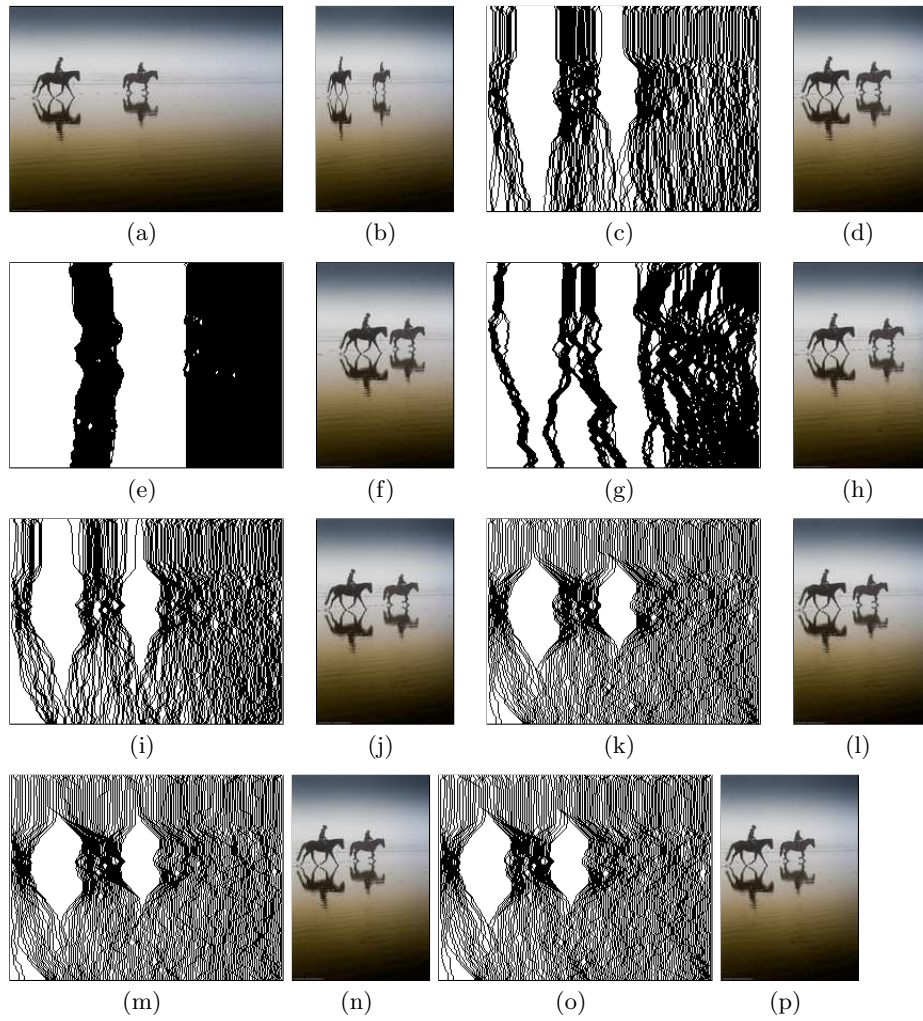


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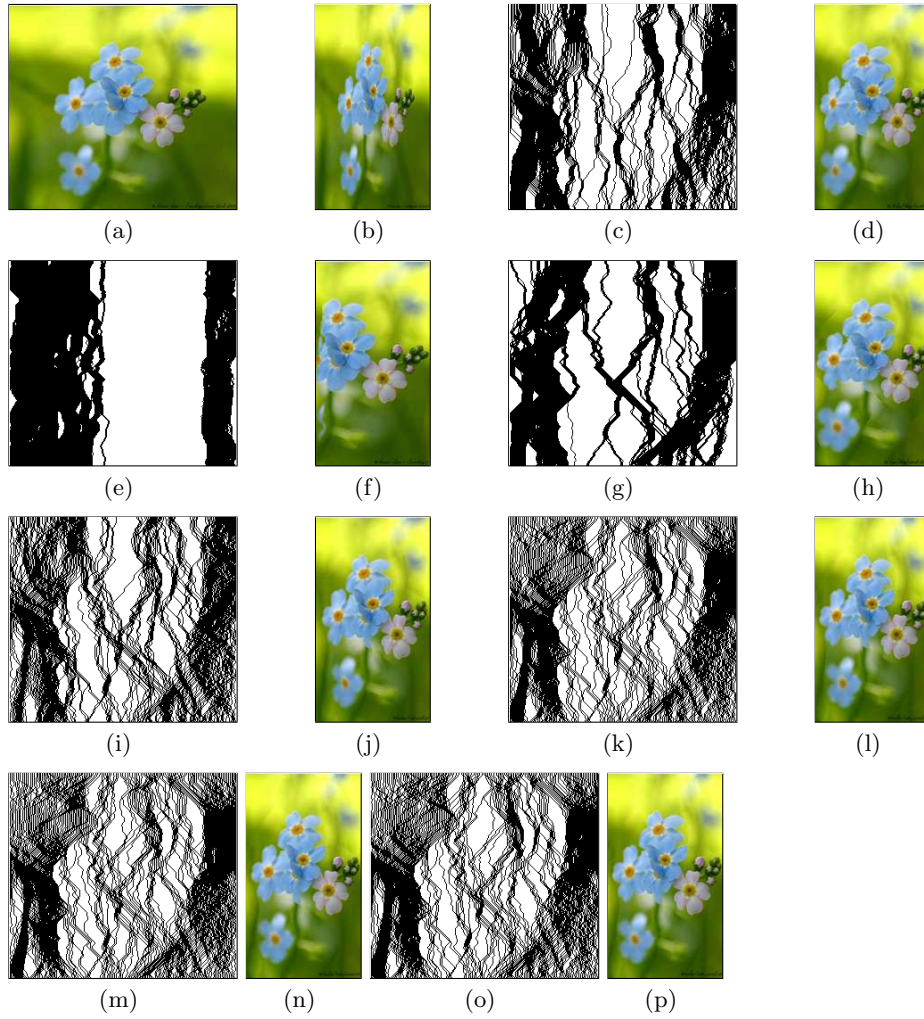


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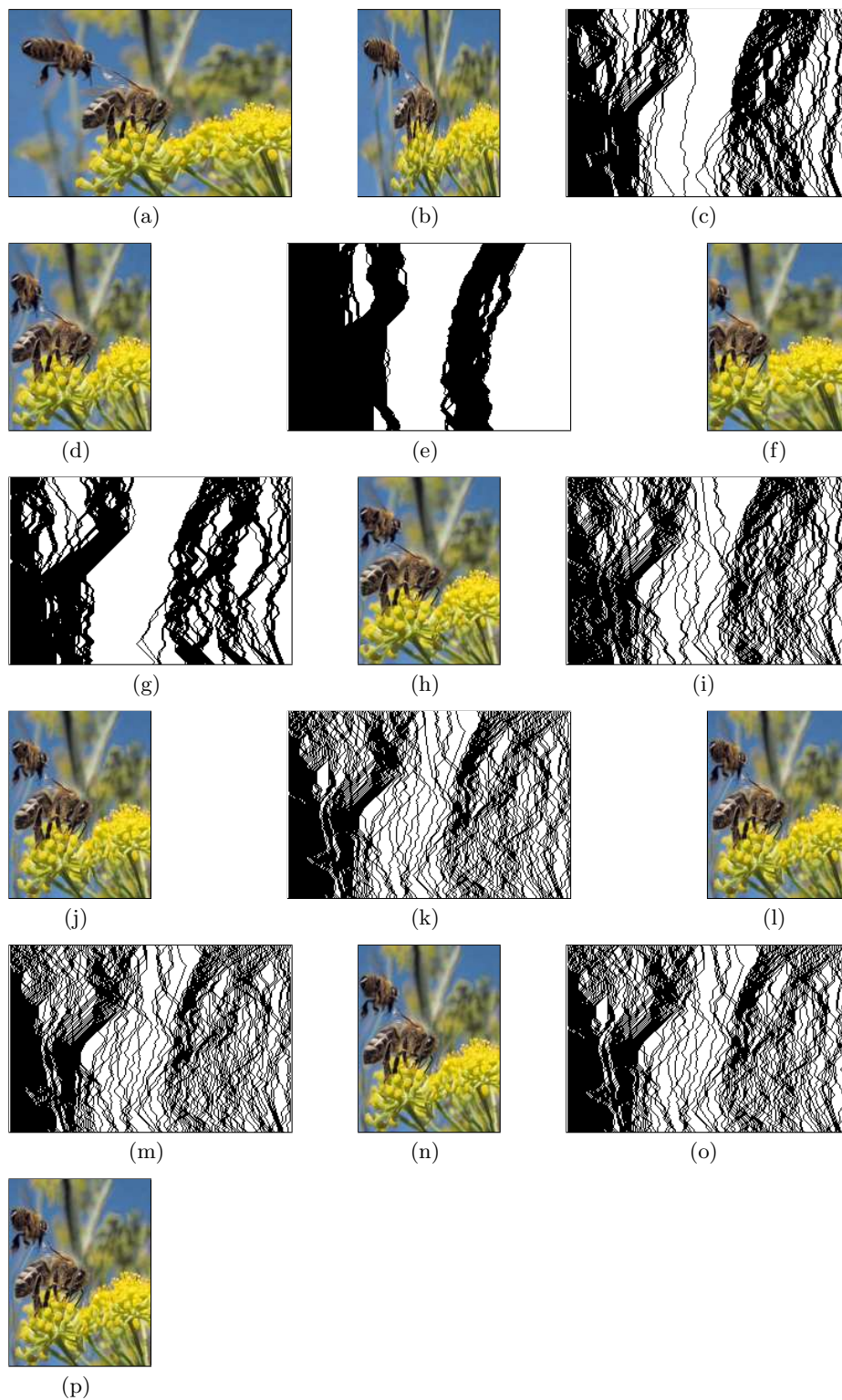


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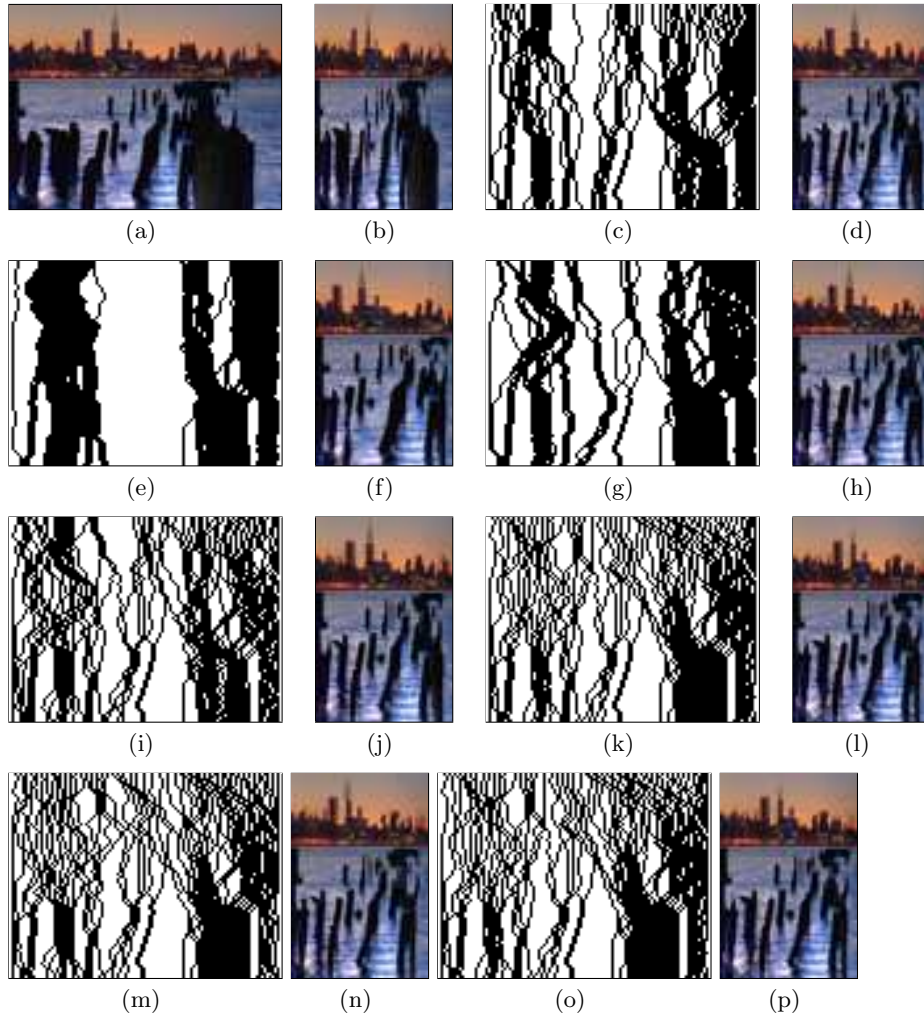


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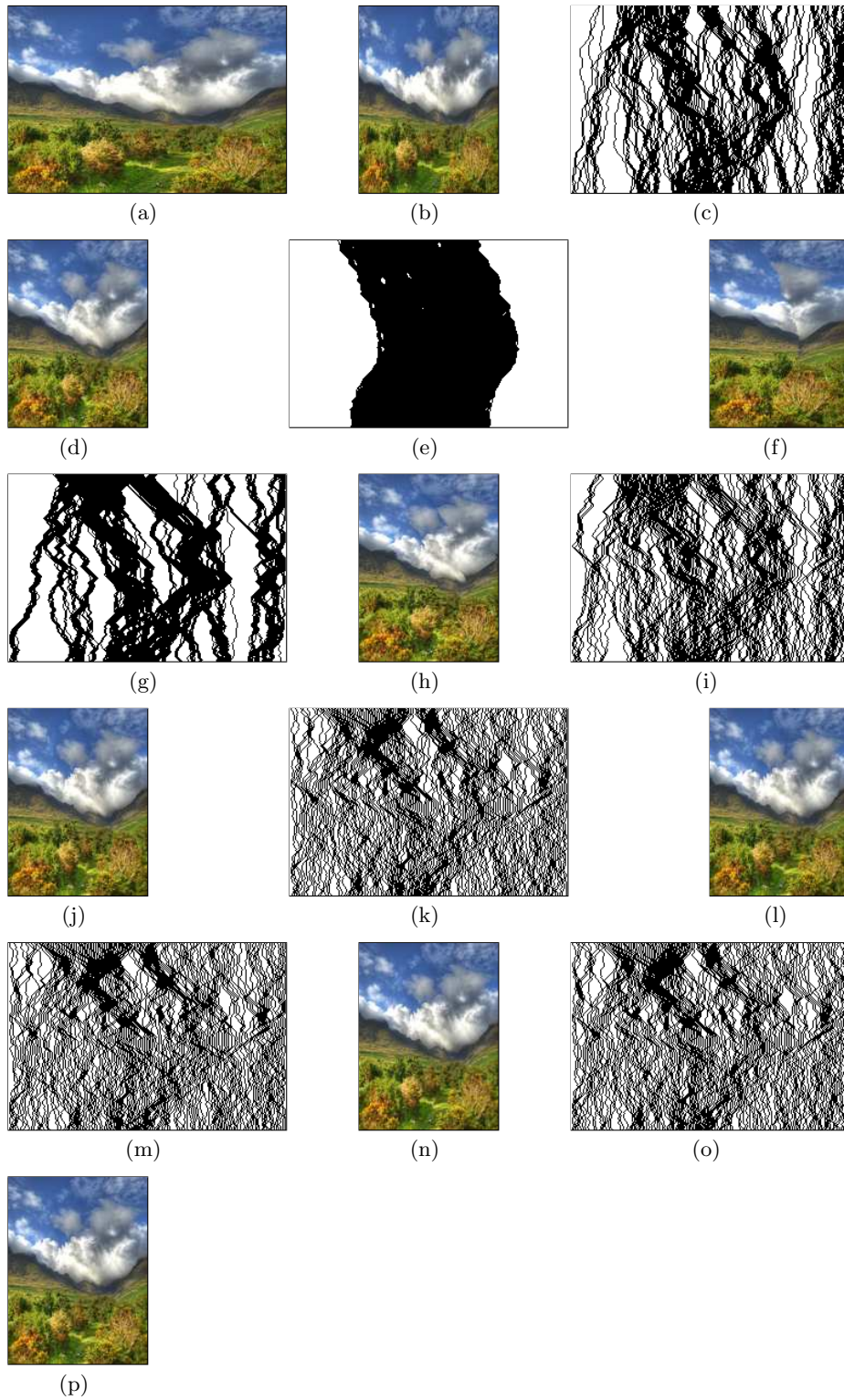


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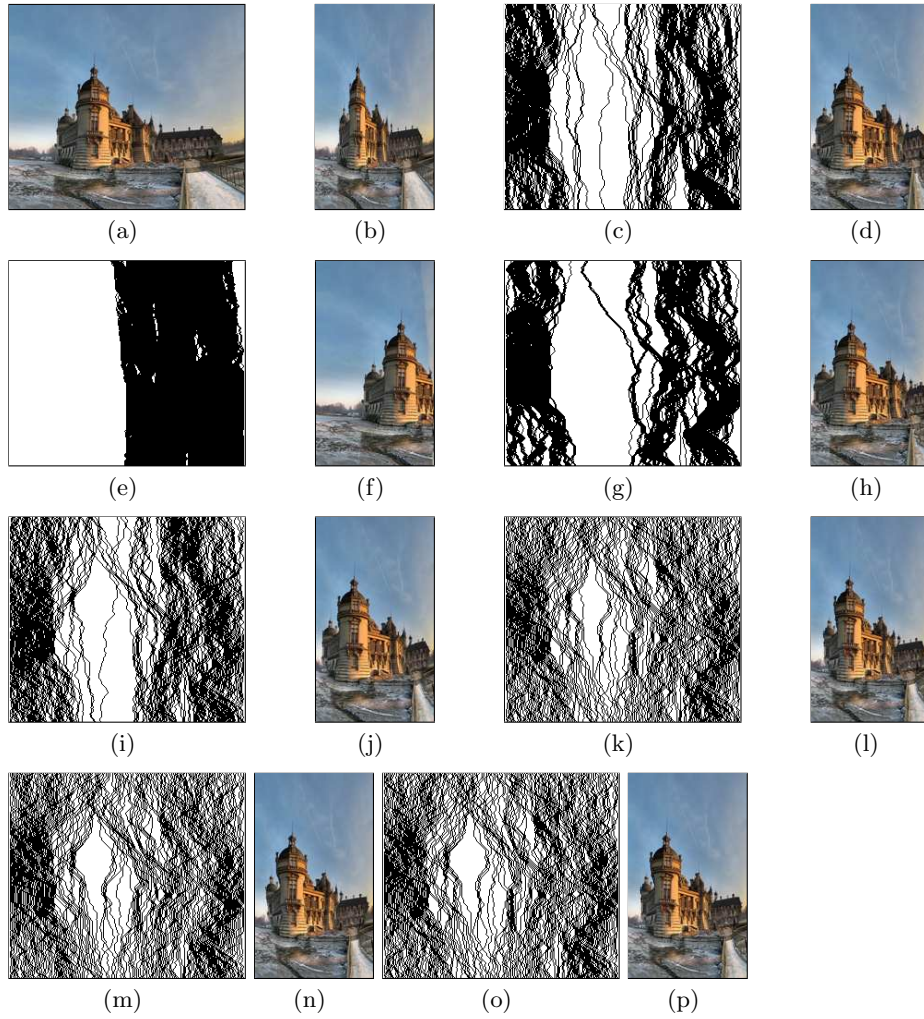


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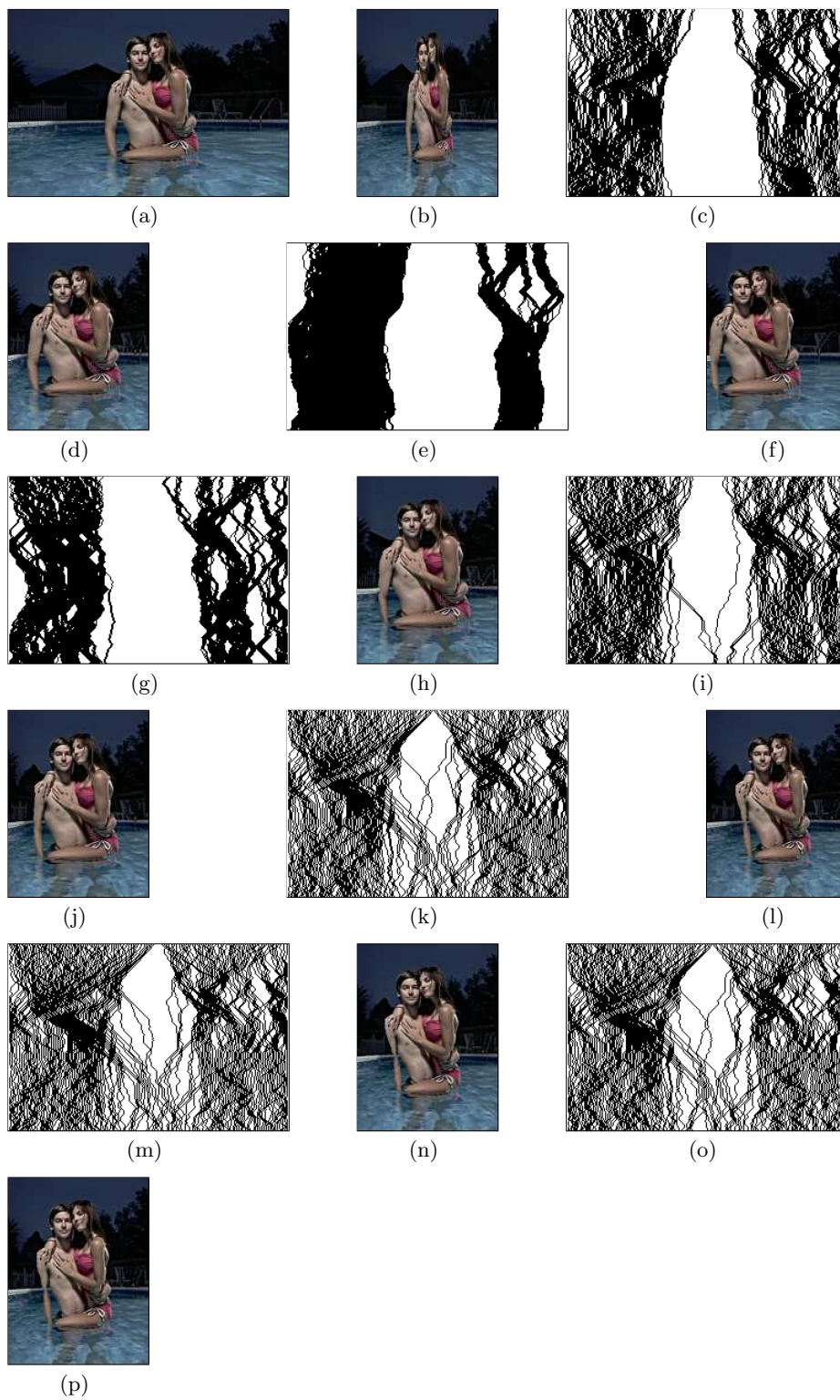


Fig. 75: Image 75

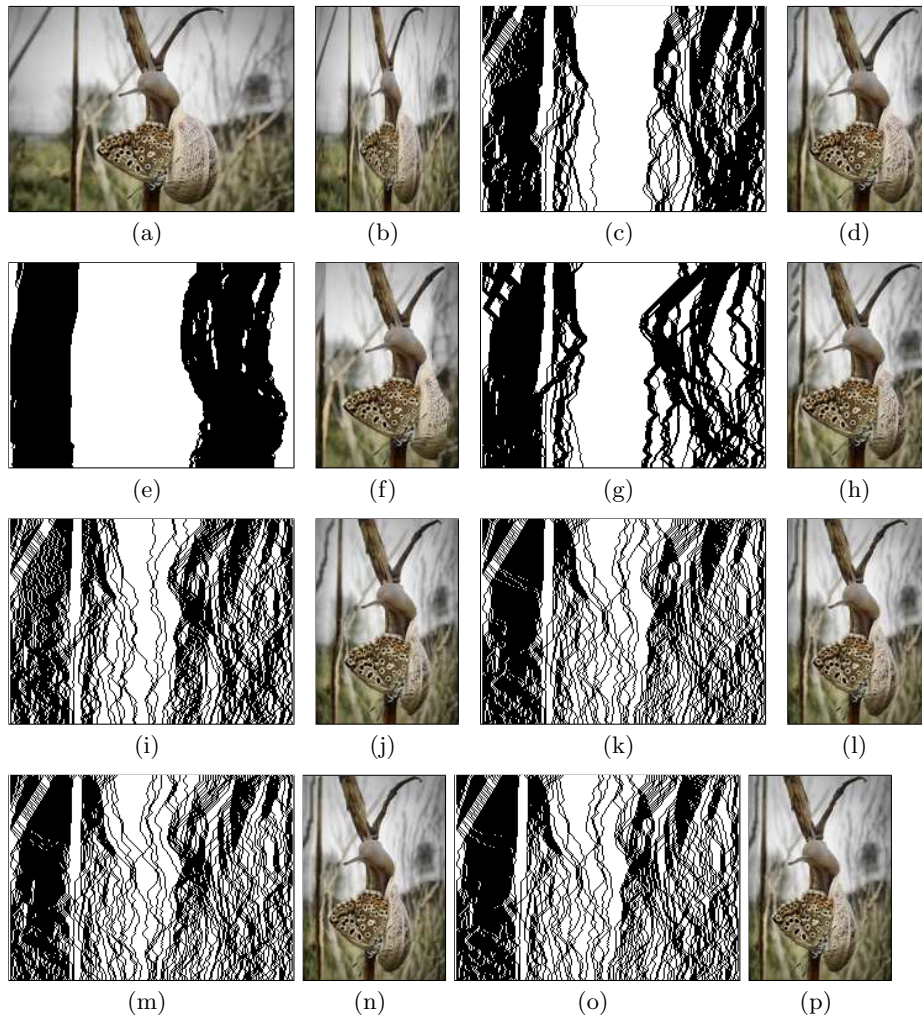


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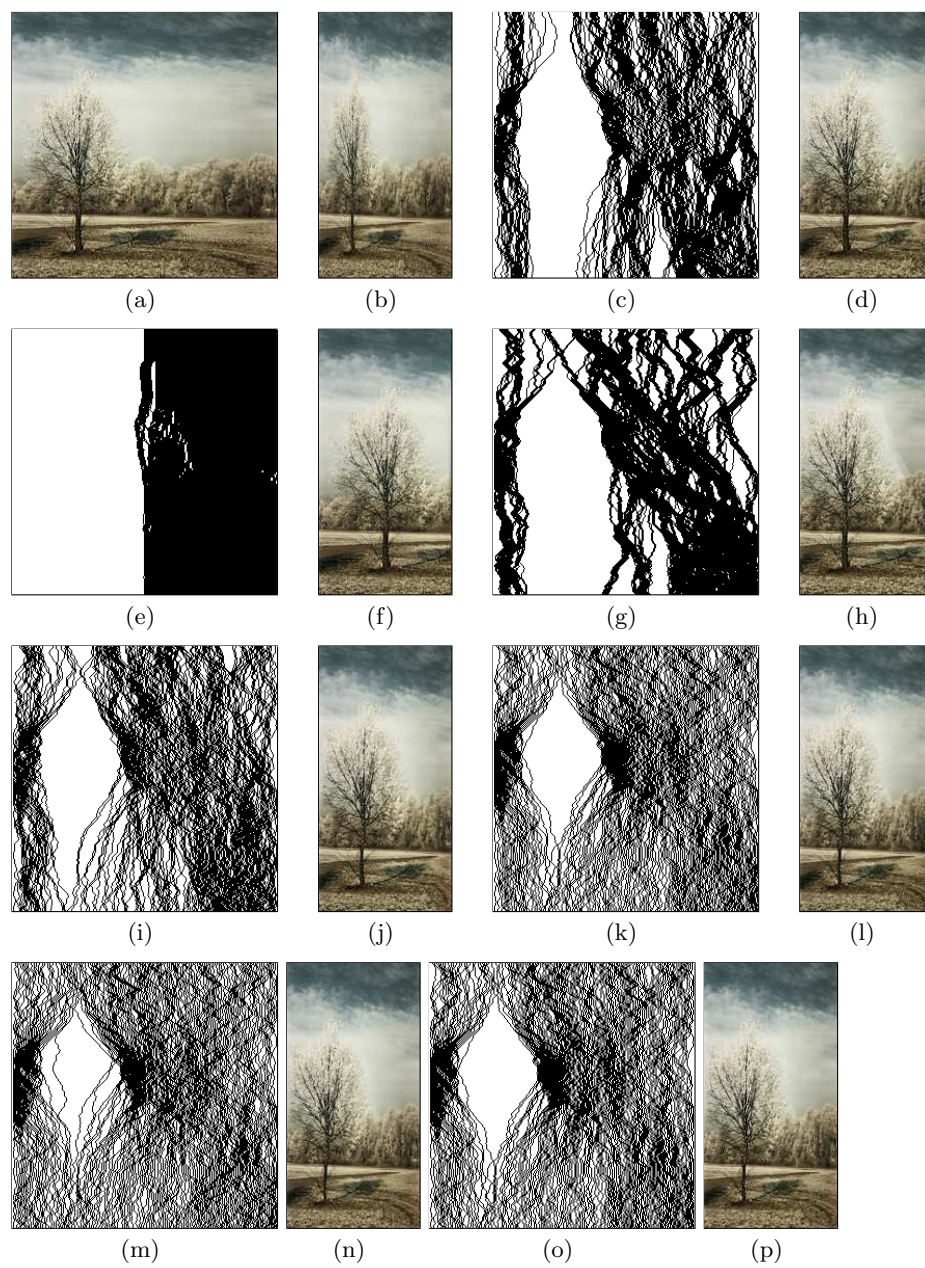


Fig. 77: Image 77

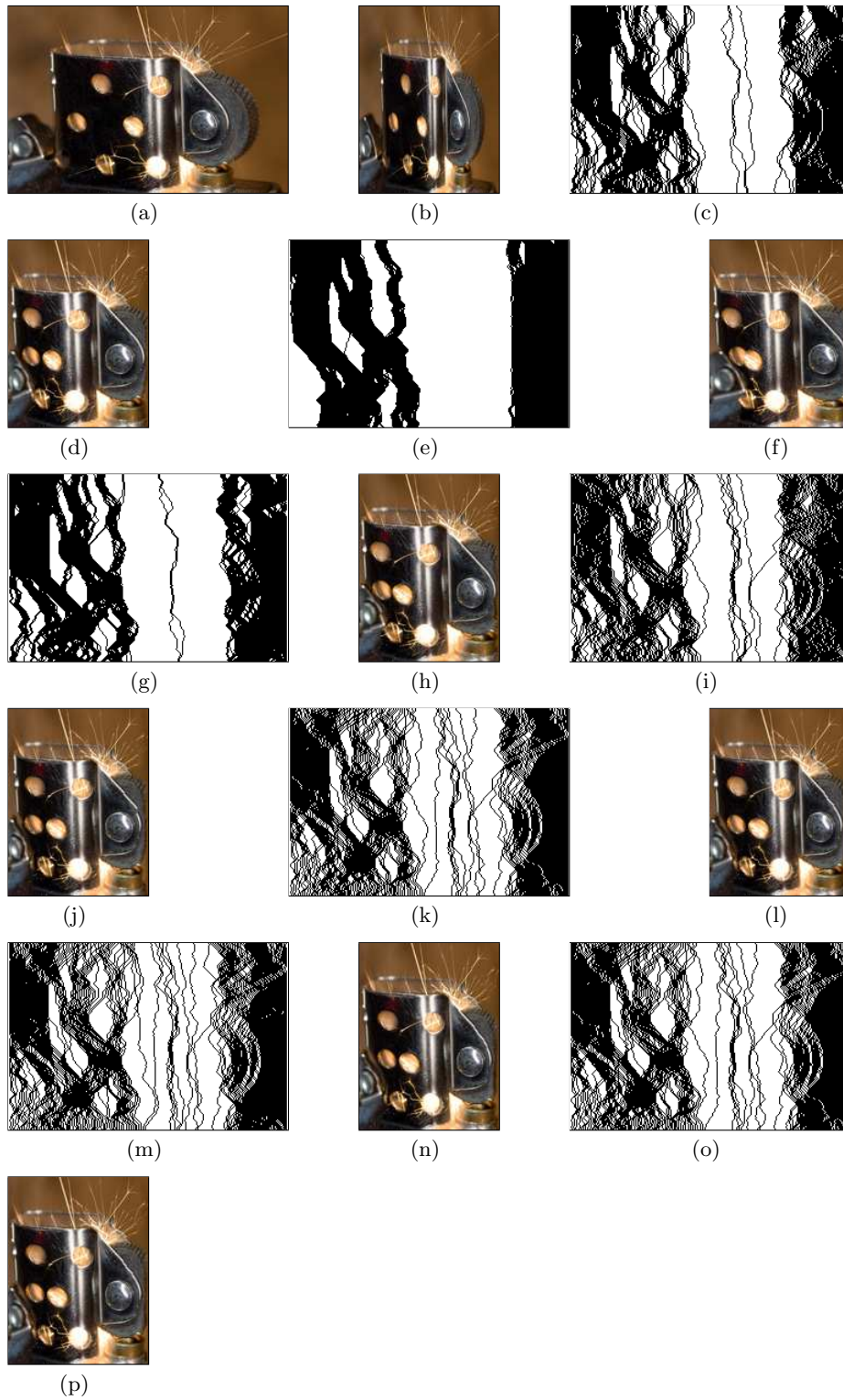


Fig. 78: Image 78

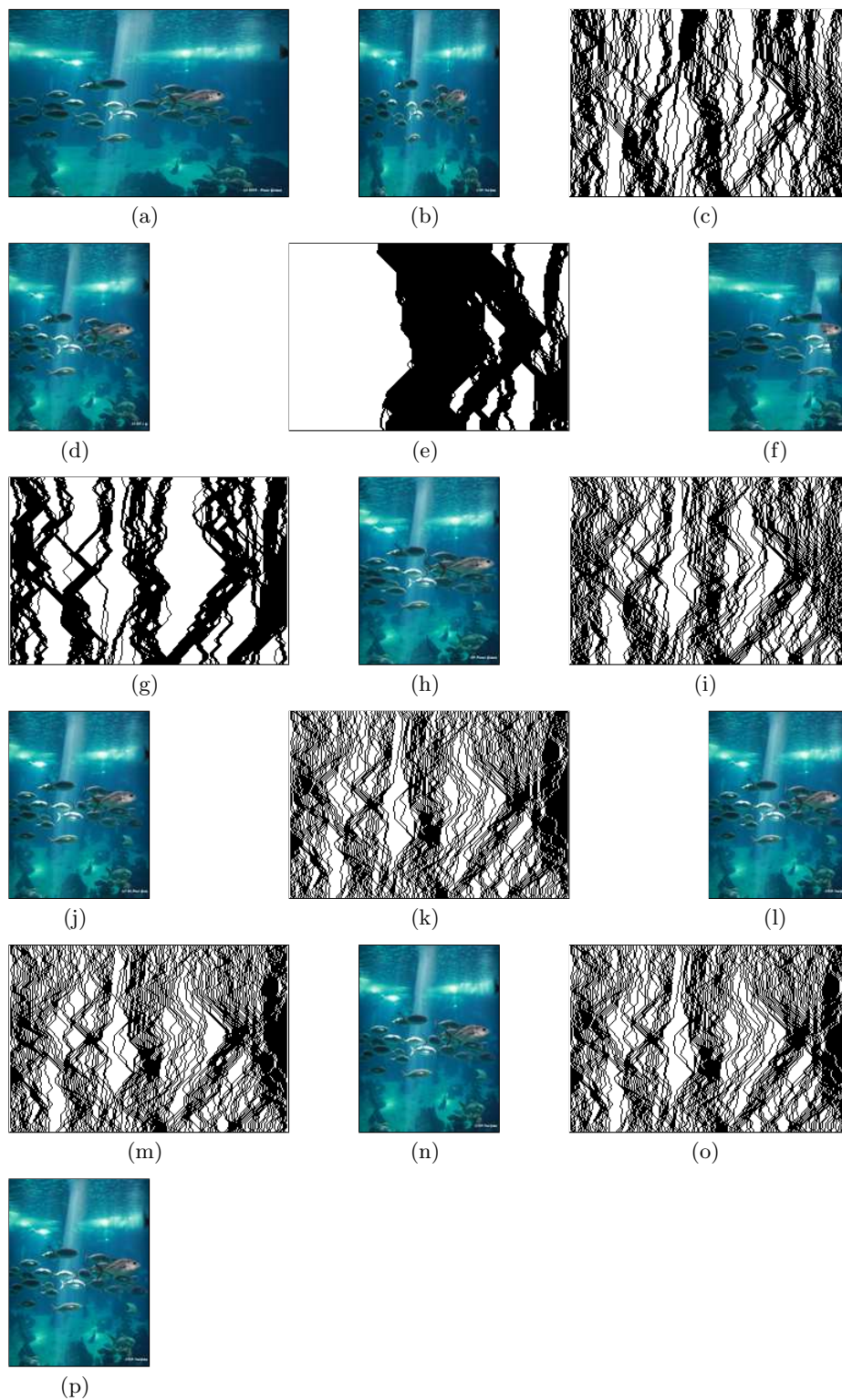


Fig. 79: Image 79

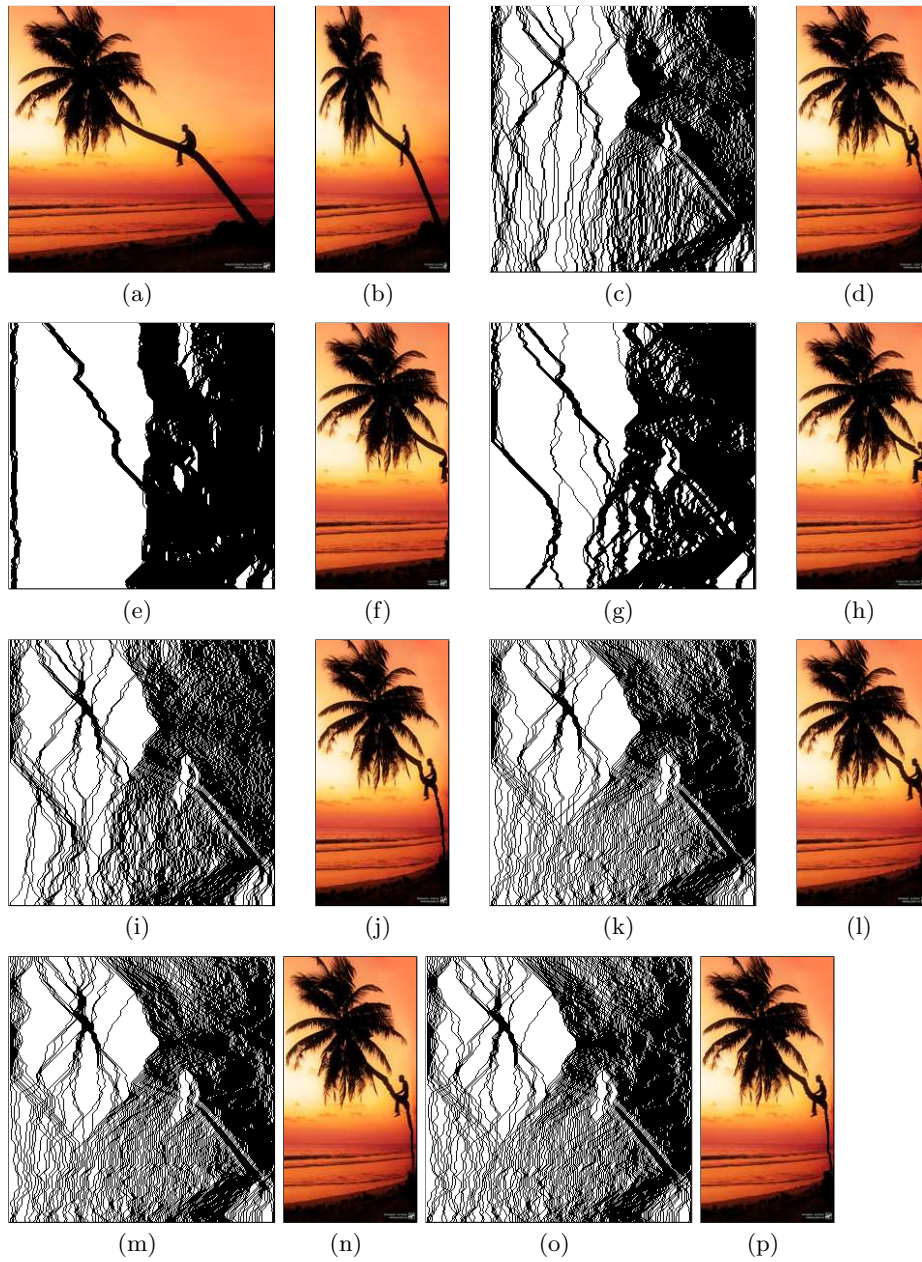


Fig. 80: Image 80

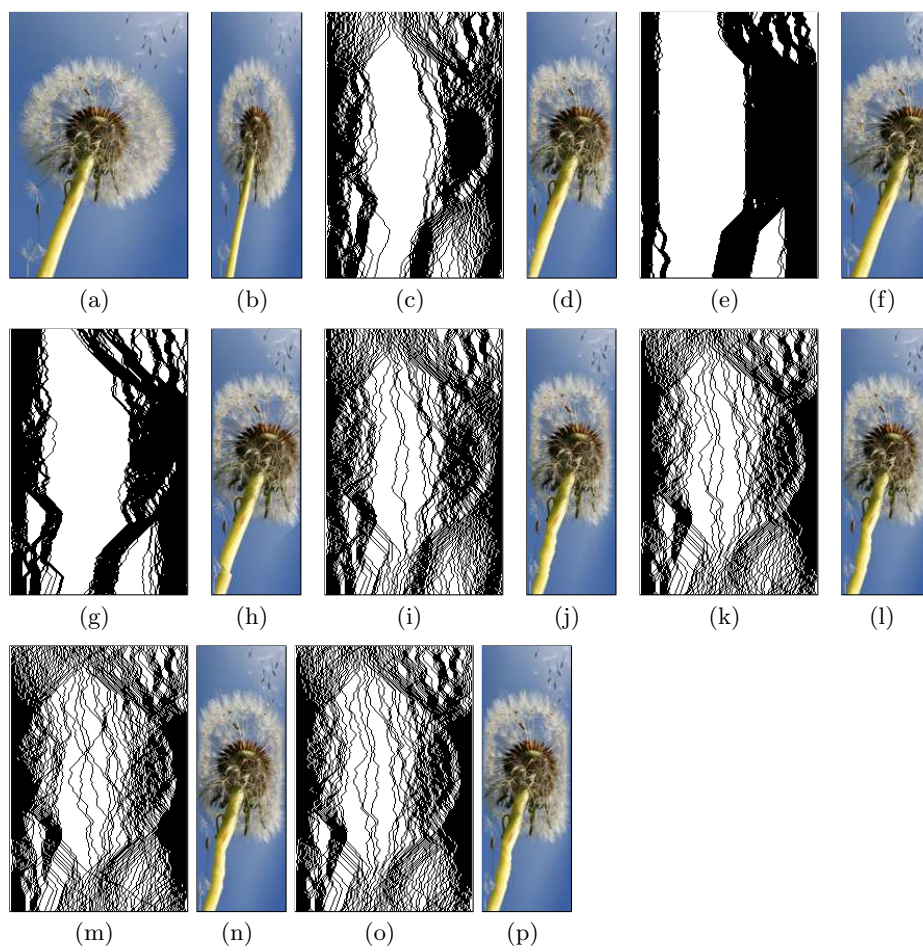


Fig. 81: Image 81

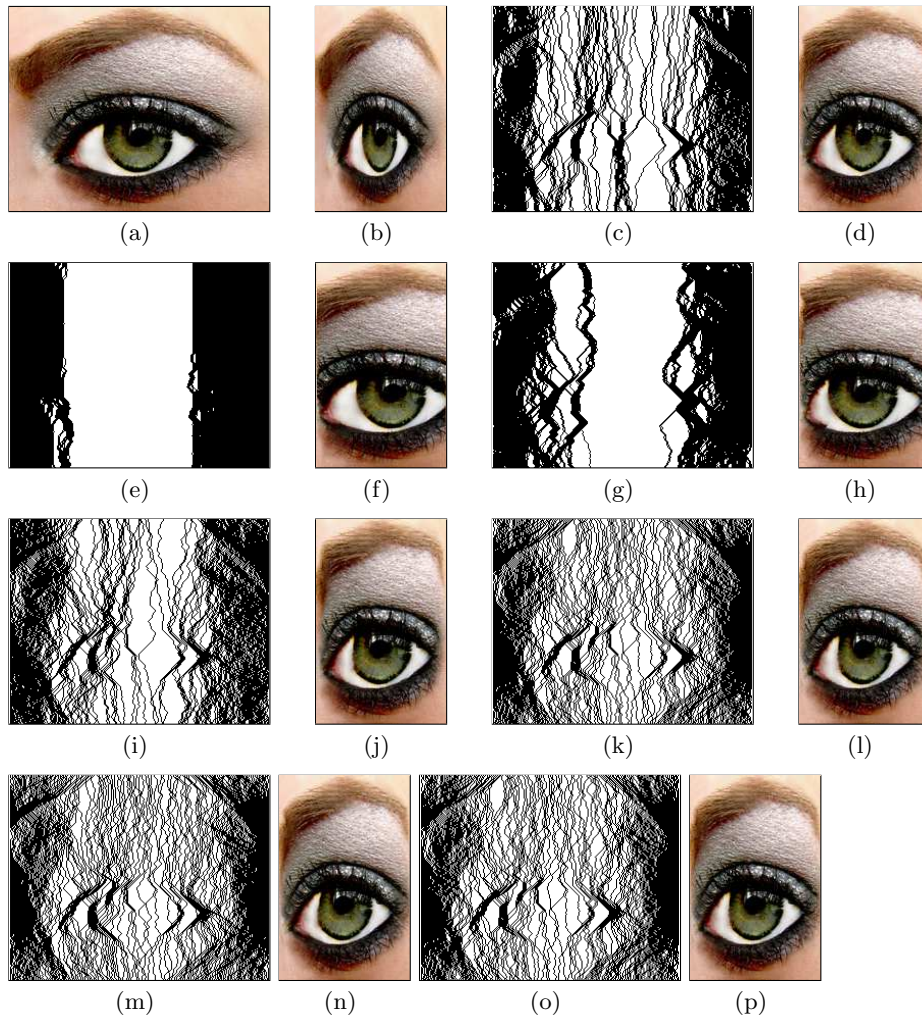


Fig. 82: Image 82

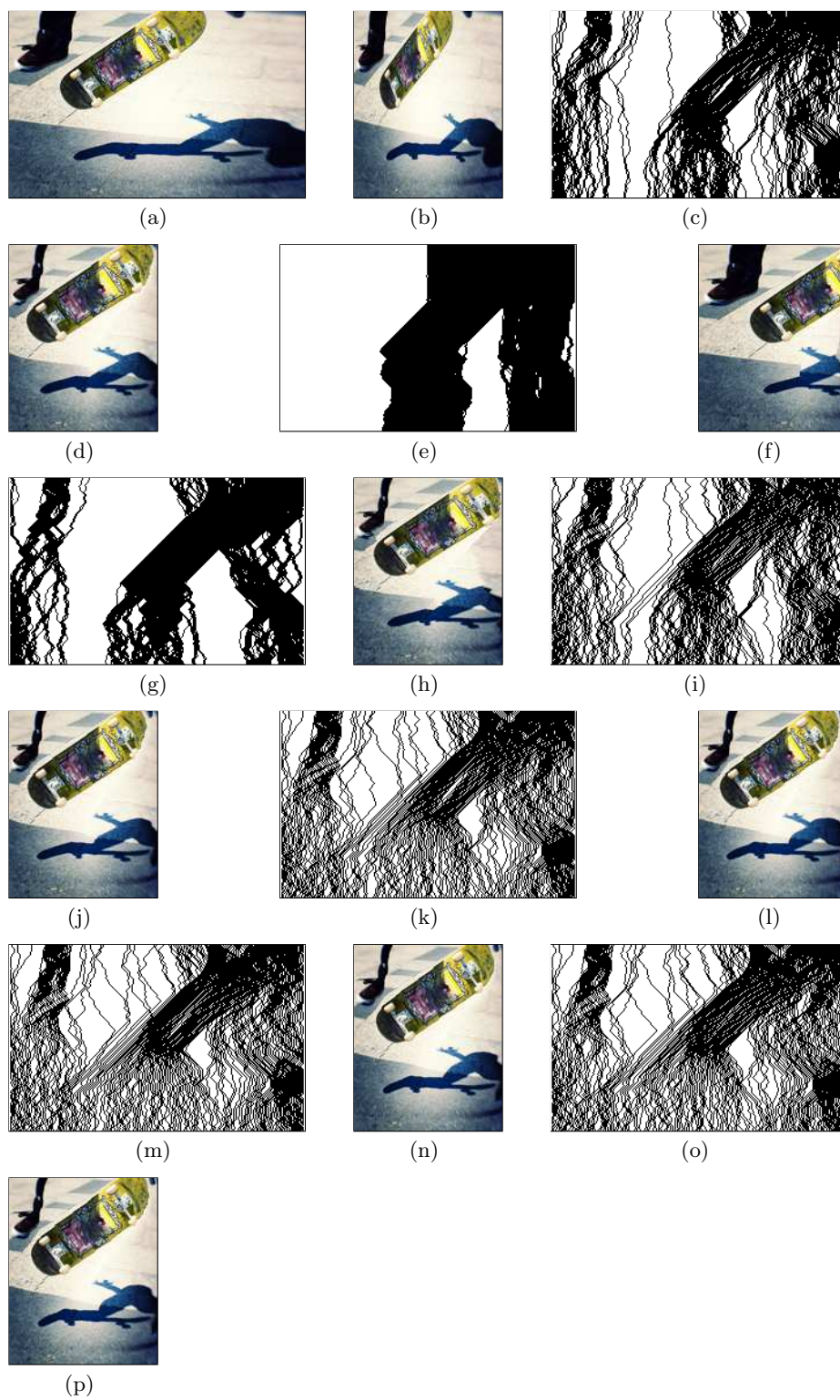


Fig. 83: Image 83

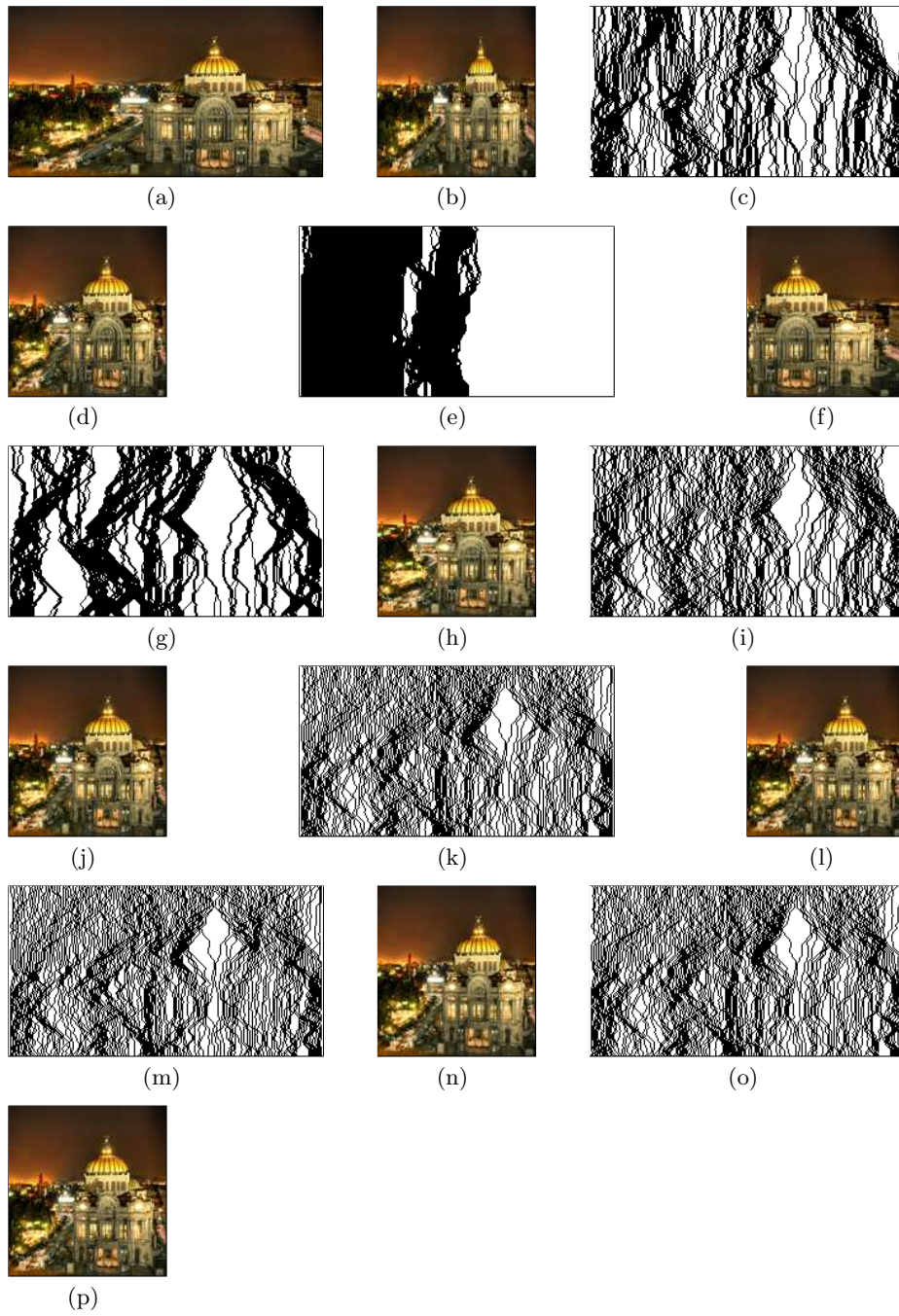


Fig. 84: Image 84

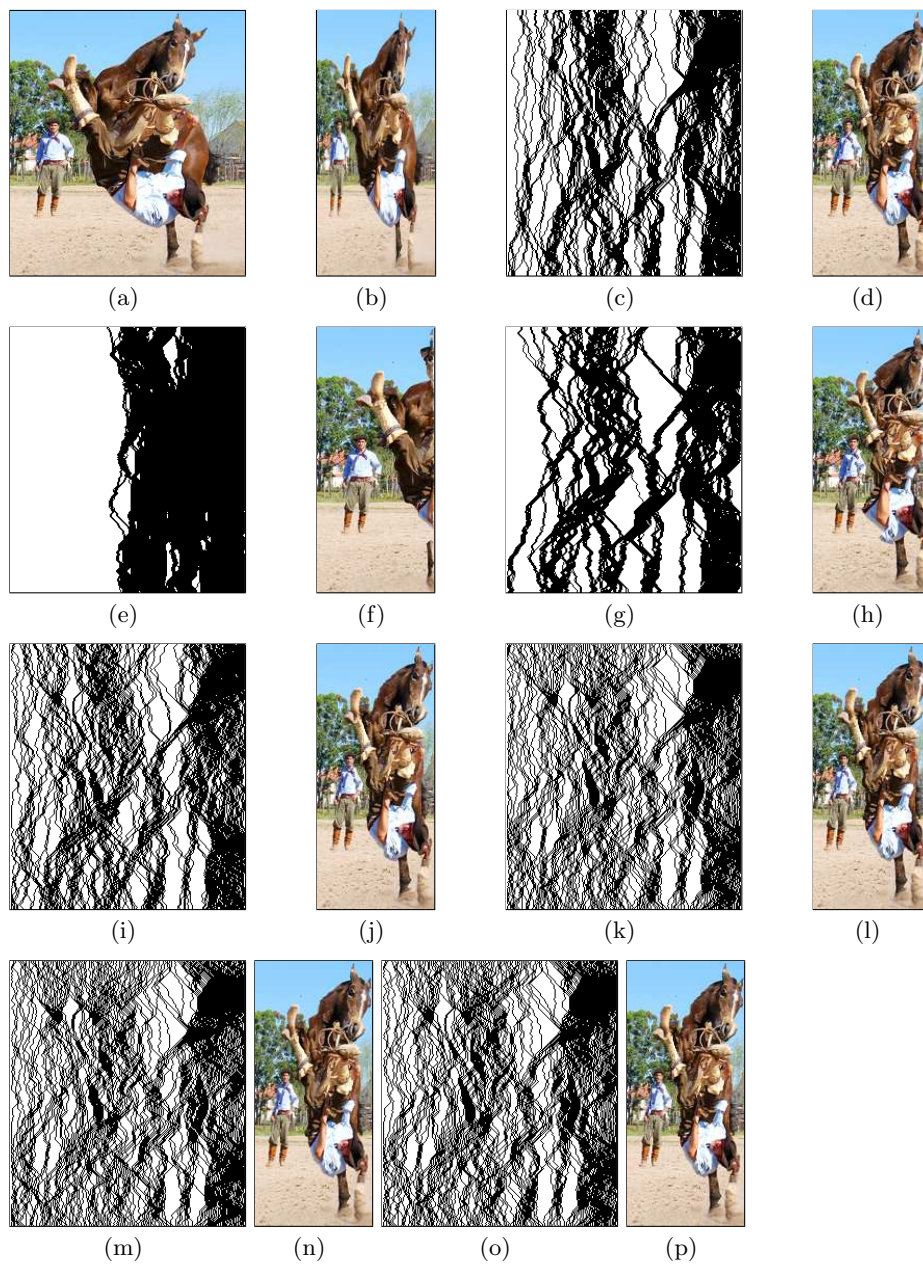


Fig. 85: Image 85

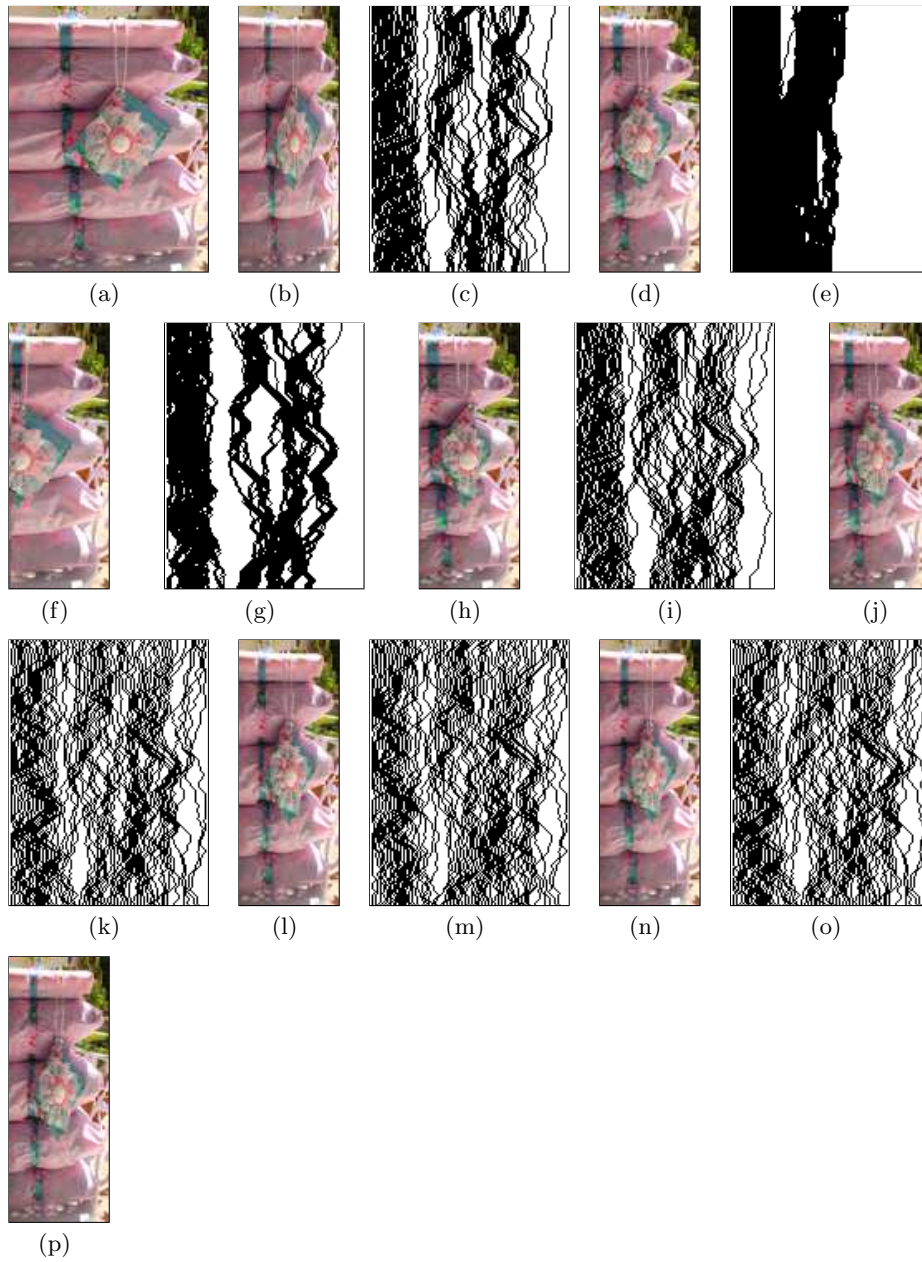


Fig. 86: Image 86

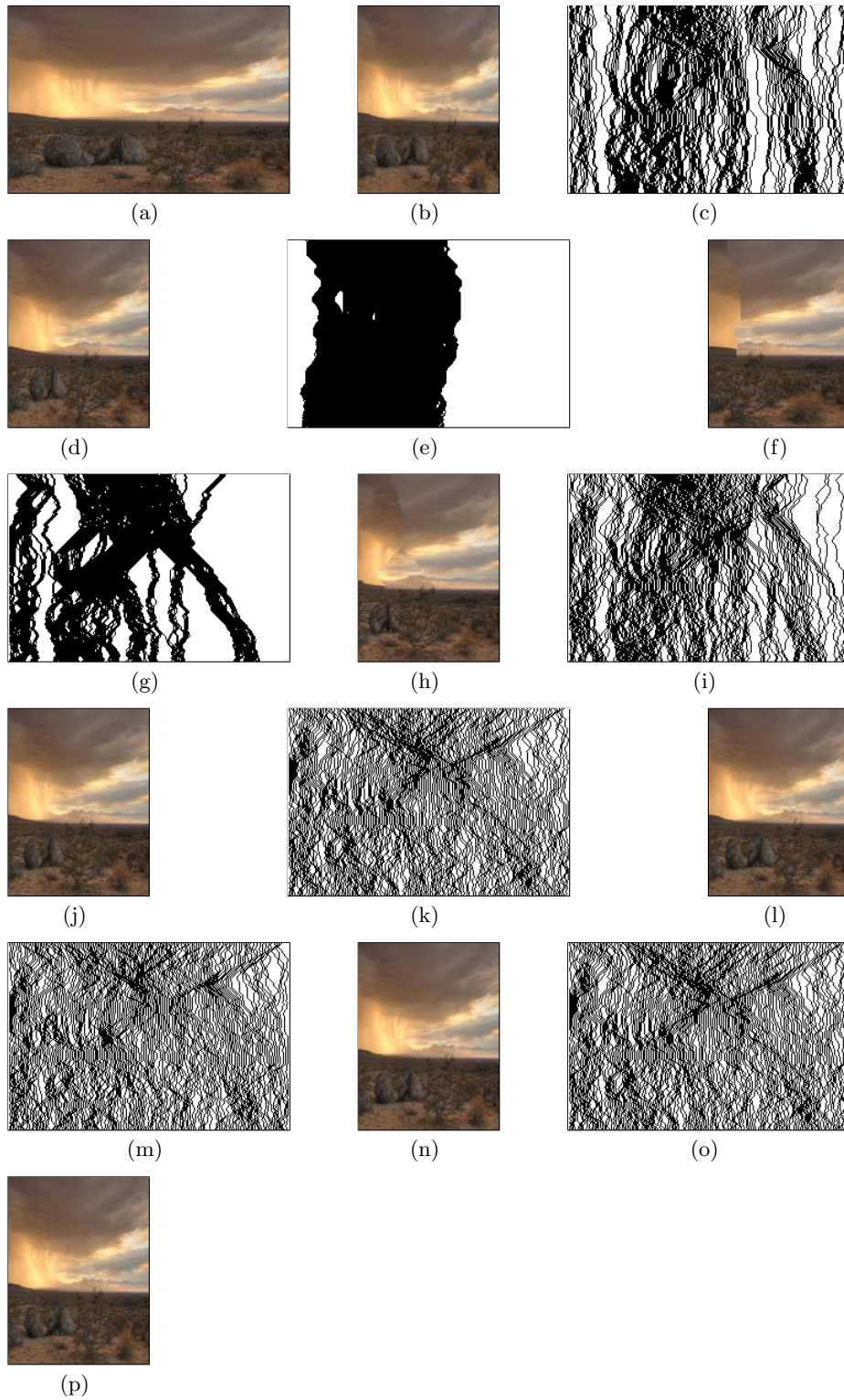


Fig. 87: Image 87

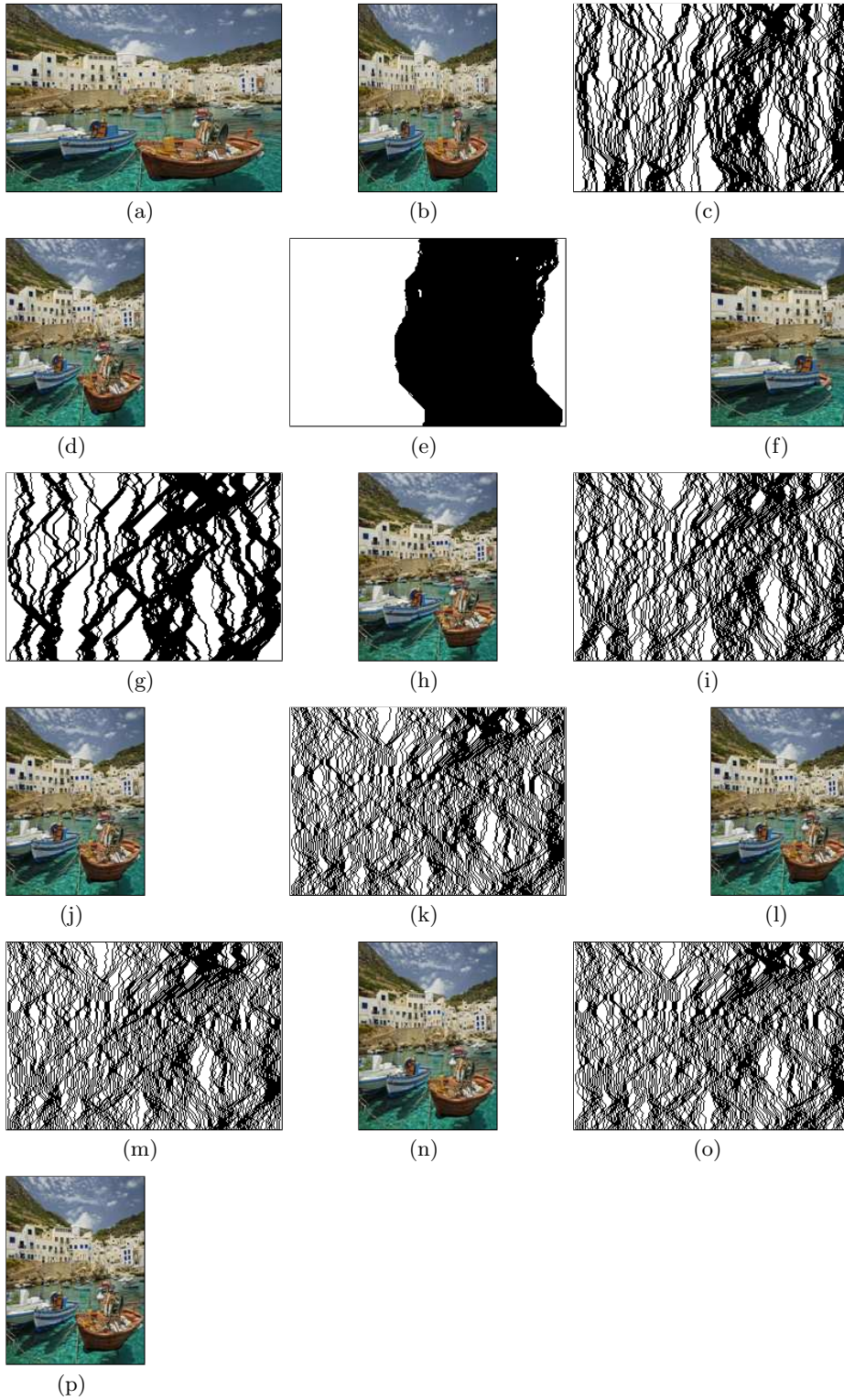


Fig. 88: Image 88

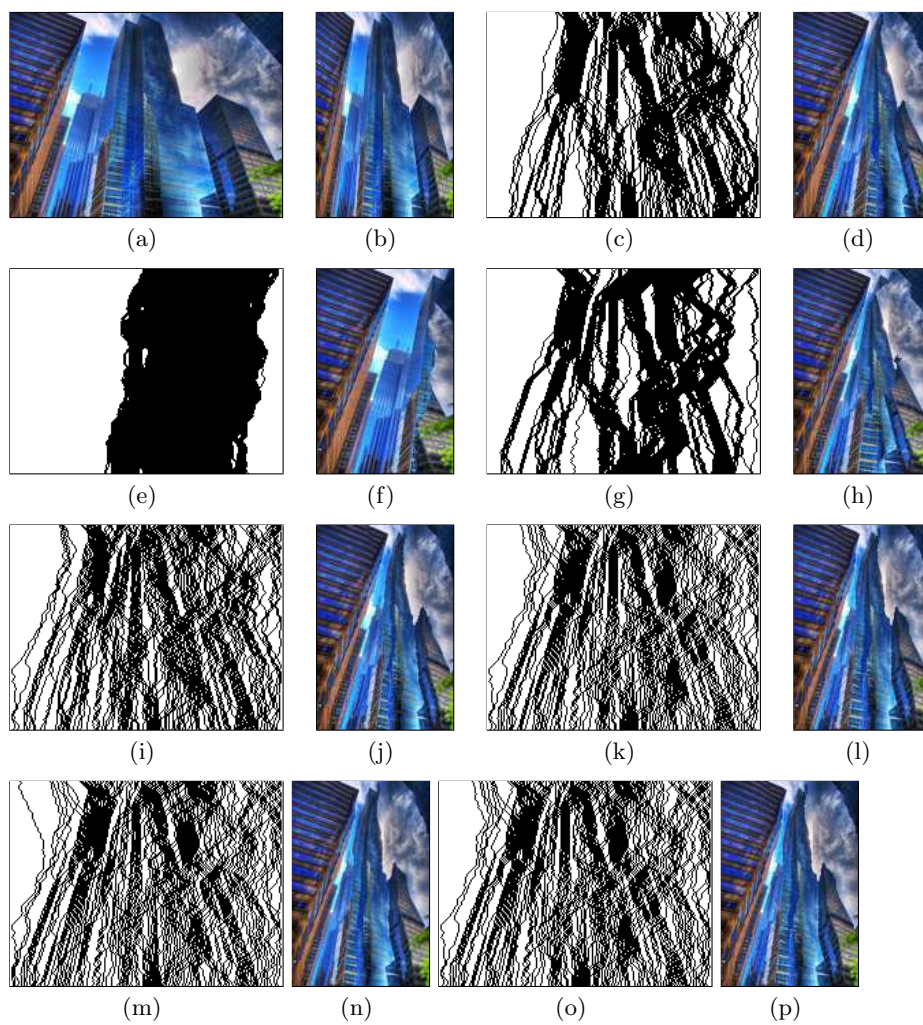


Fig. 89: Image 89

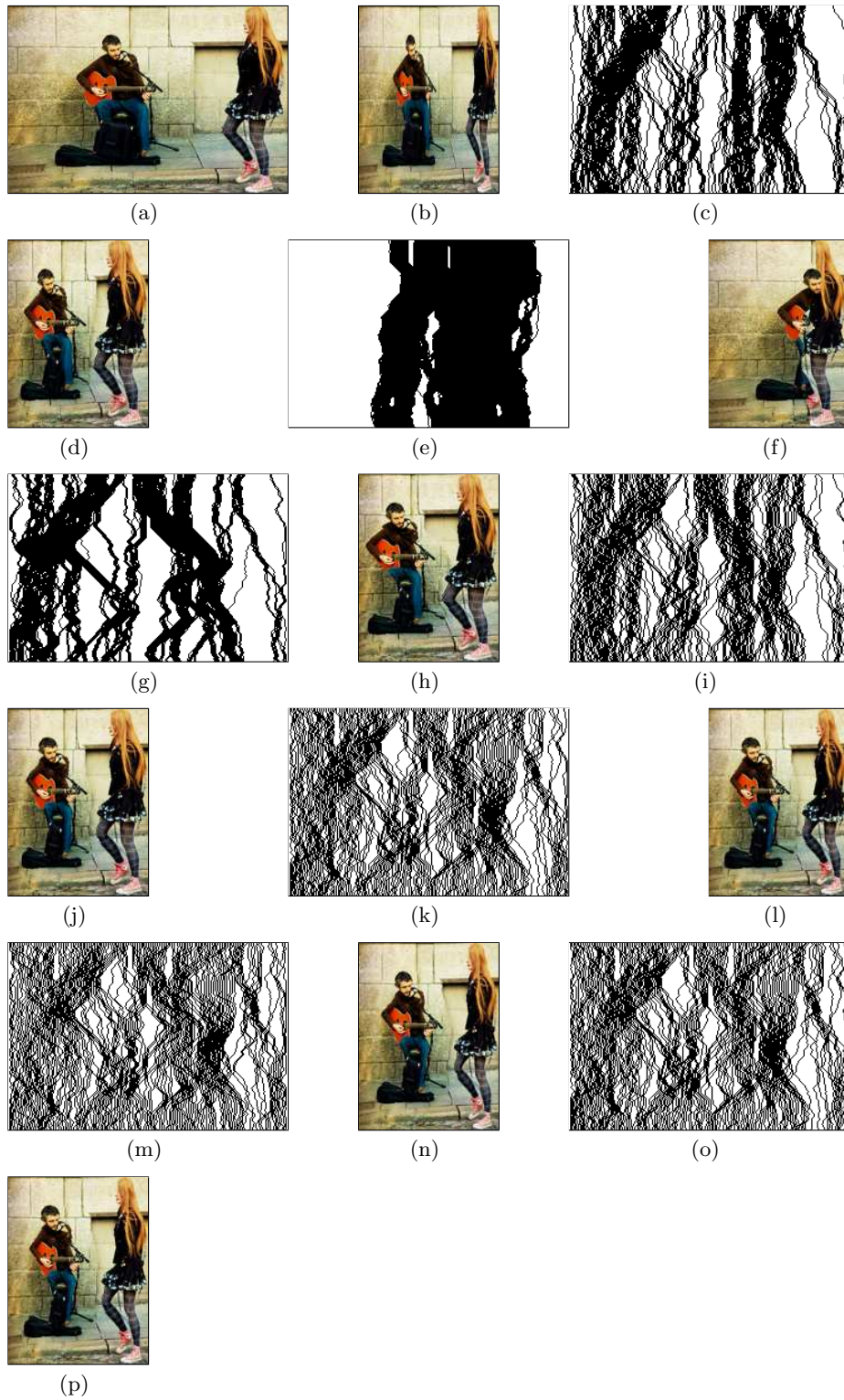


Fig. 90: Image 90

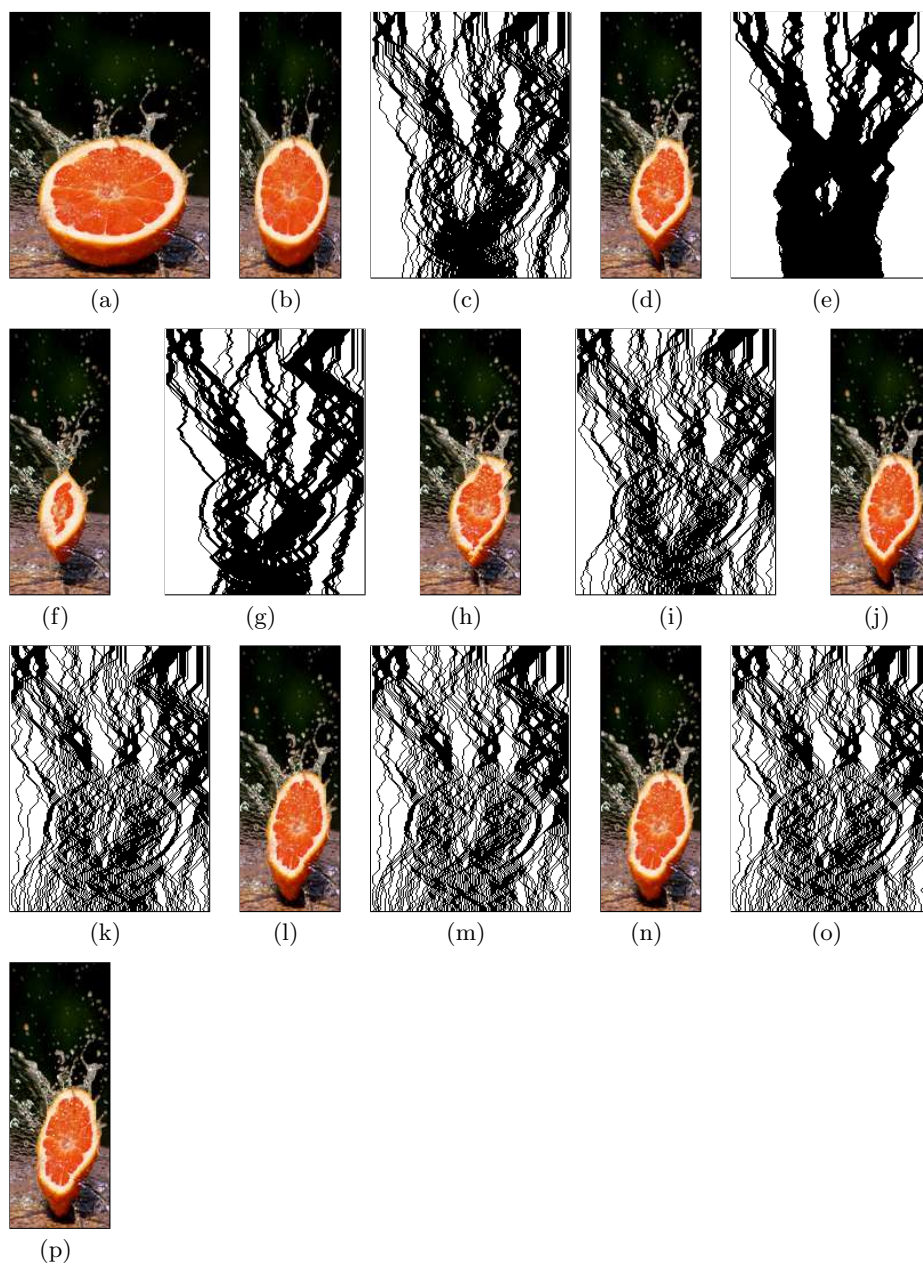


Fig. 91: Image 91

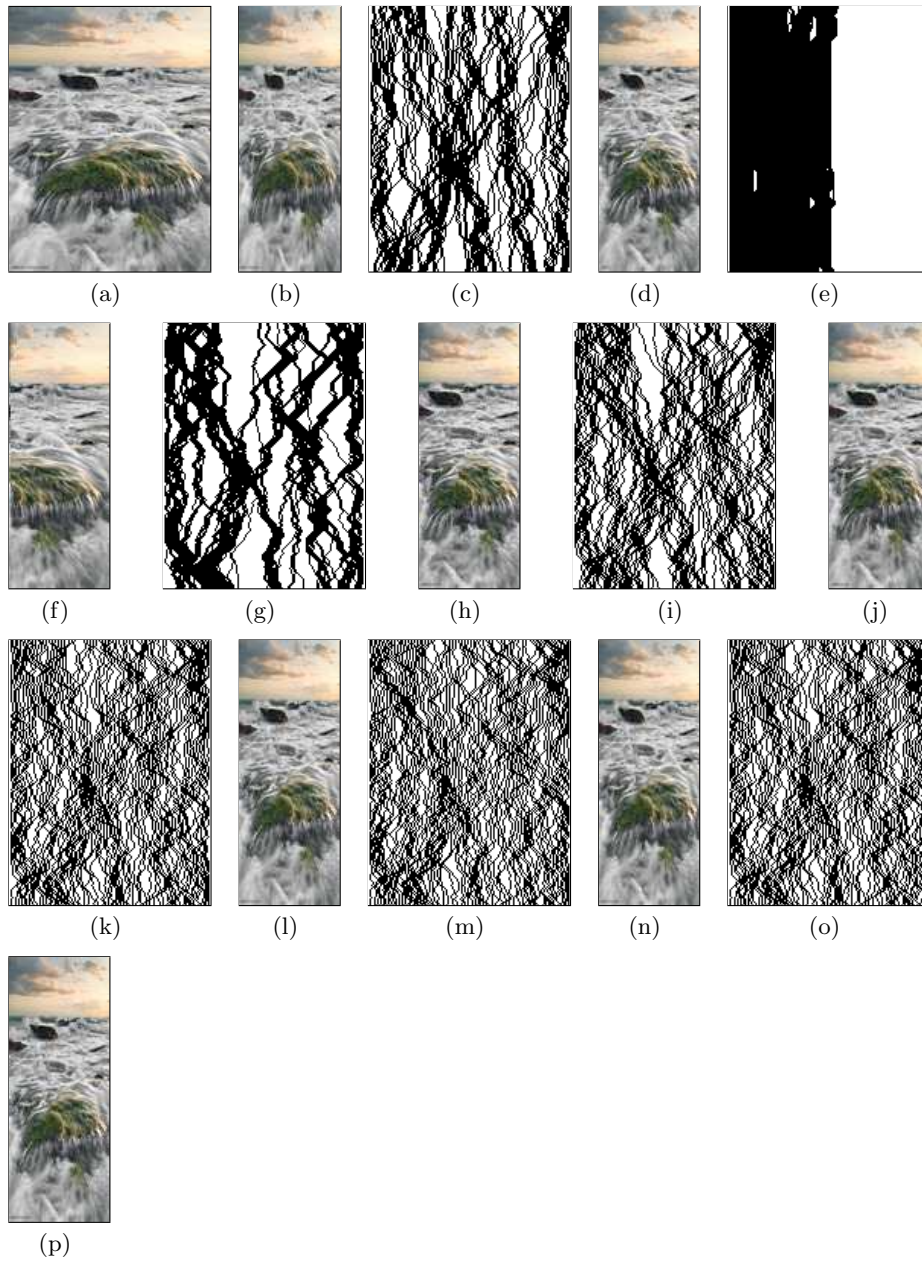


Fig. 92: Image 92

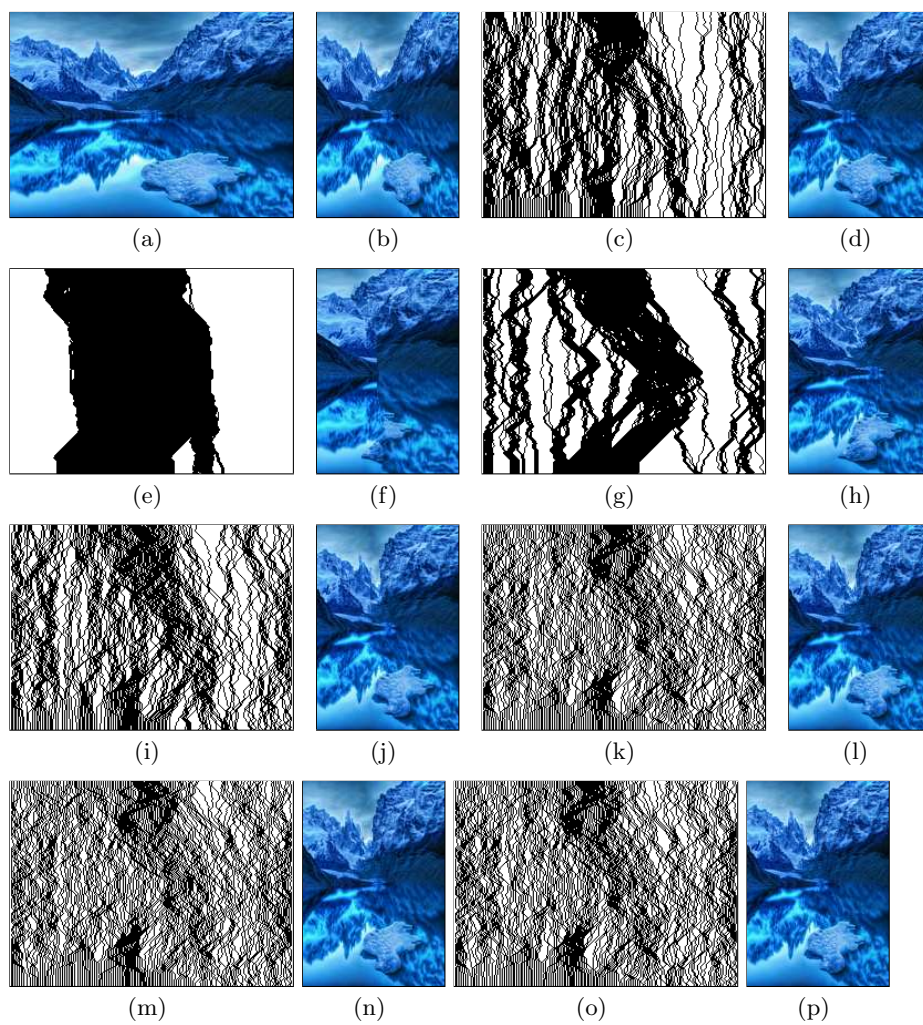


Fig. 93: Image 93

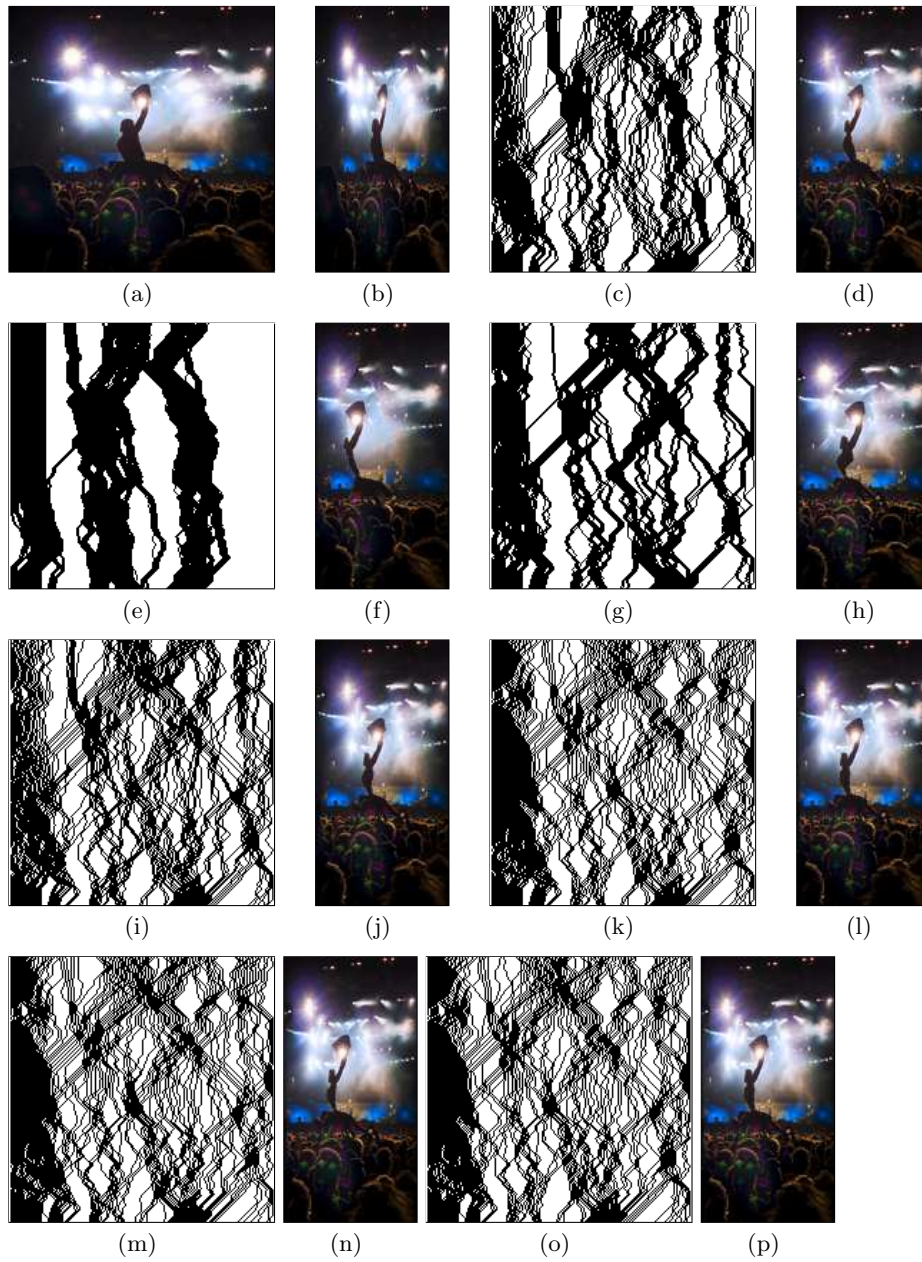


Fig. 94: Image 94

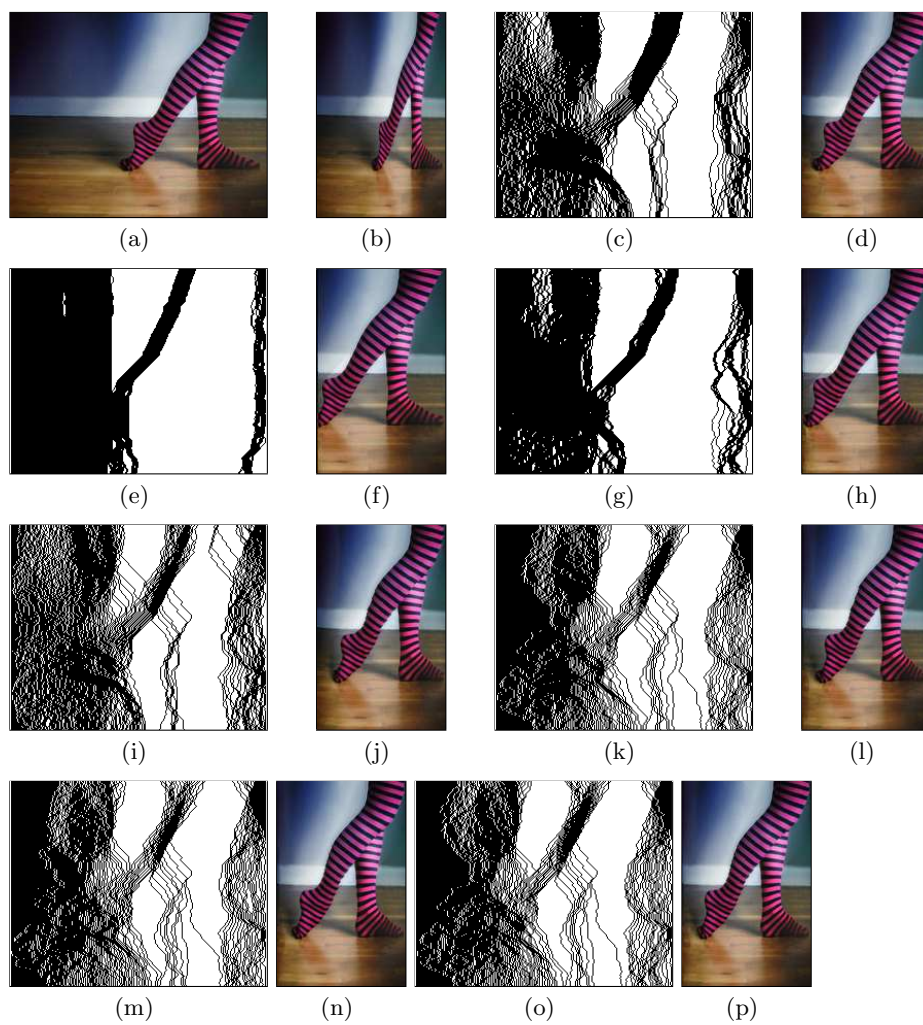


Fig. 95: Image 95

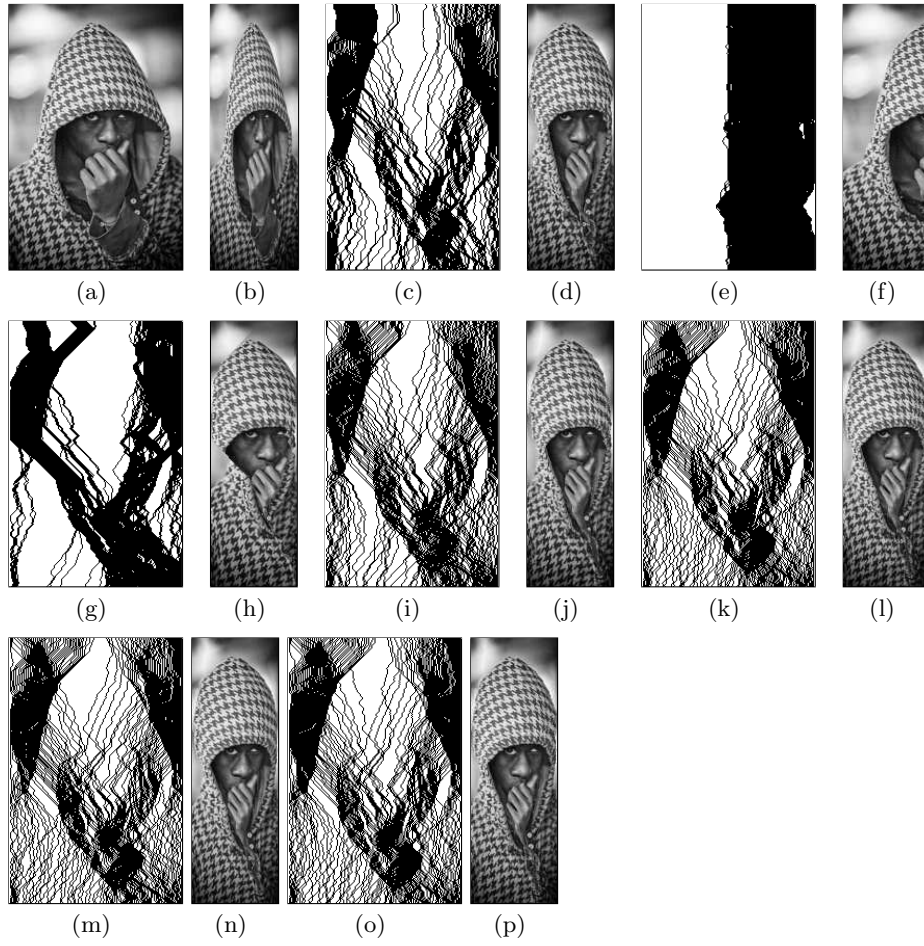


Fig. 96: Image 96

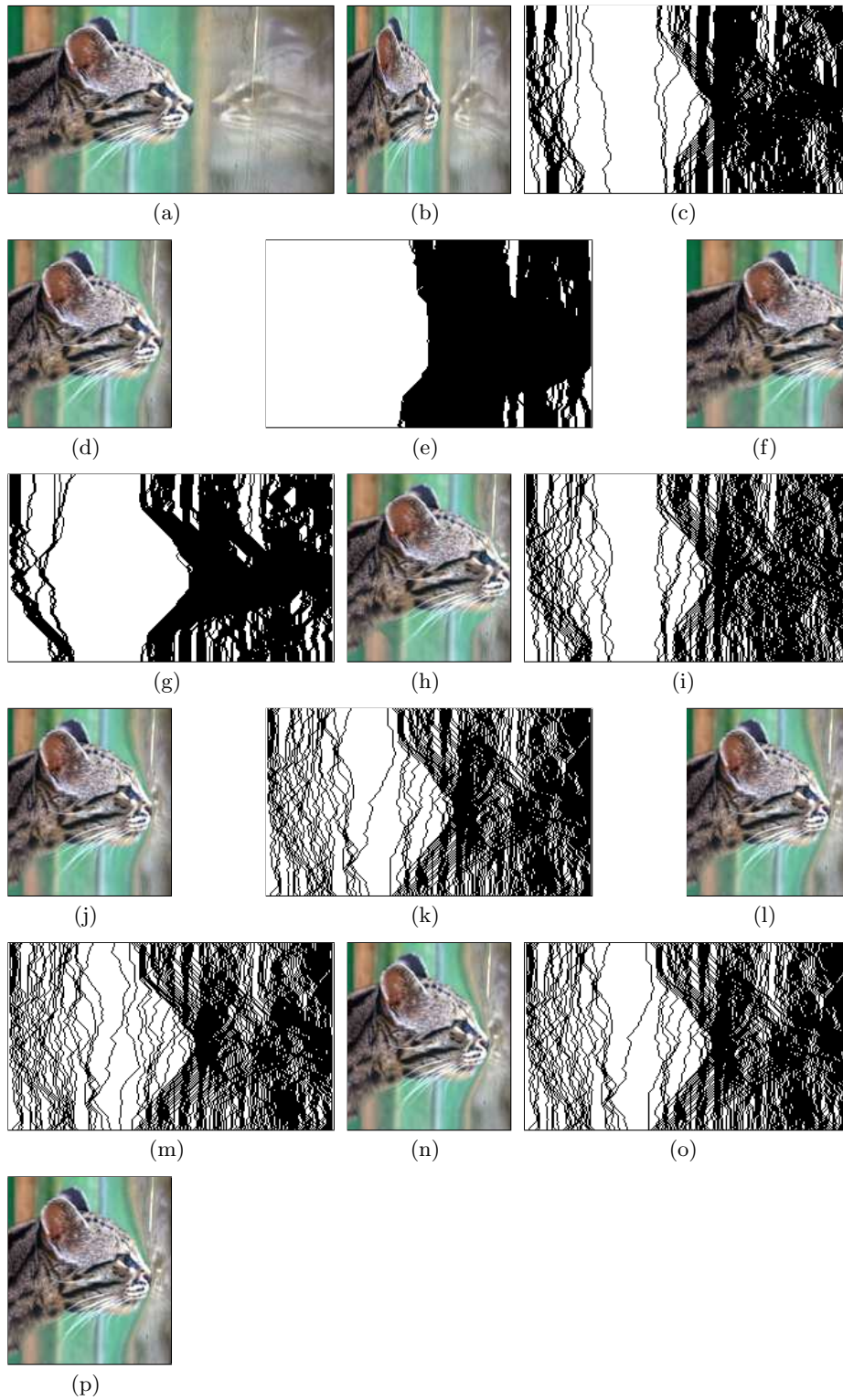


Fig. 97: Image 97

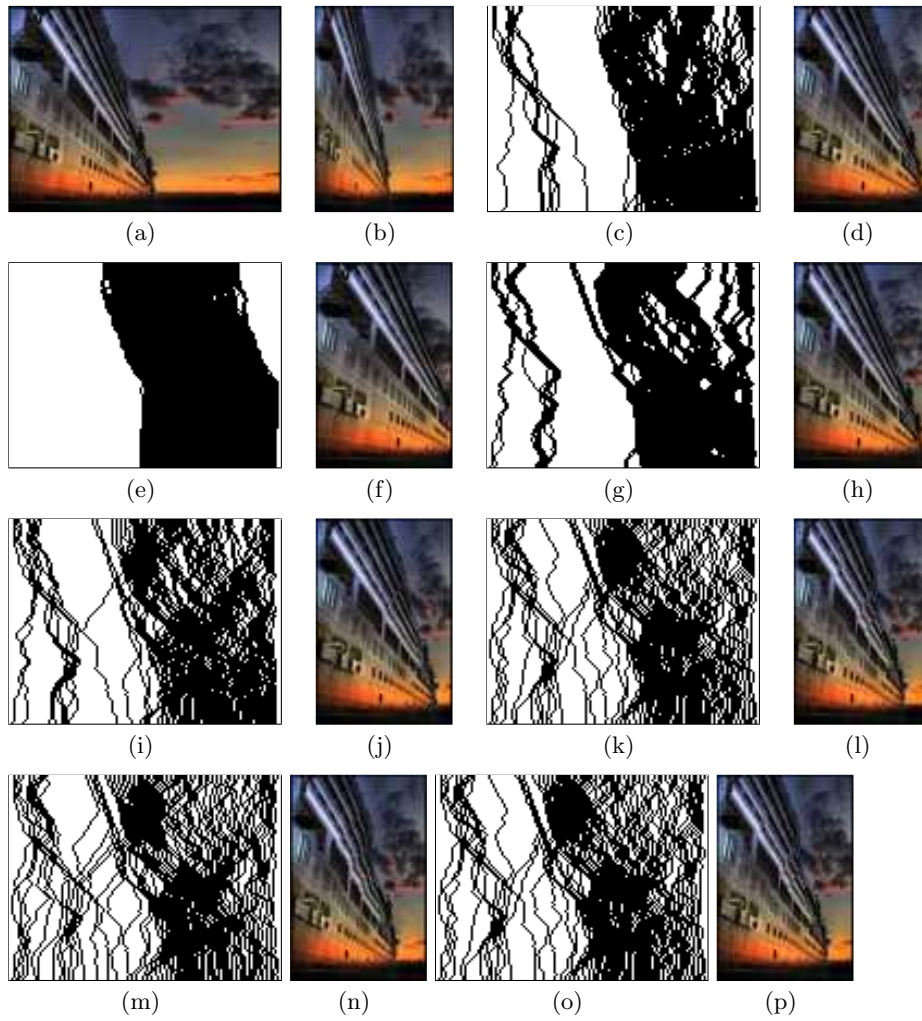


Fig. 98: Image 98

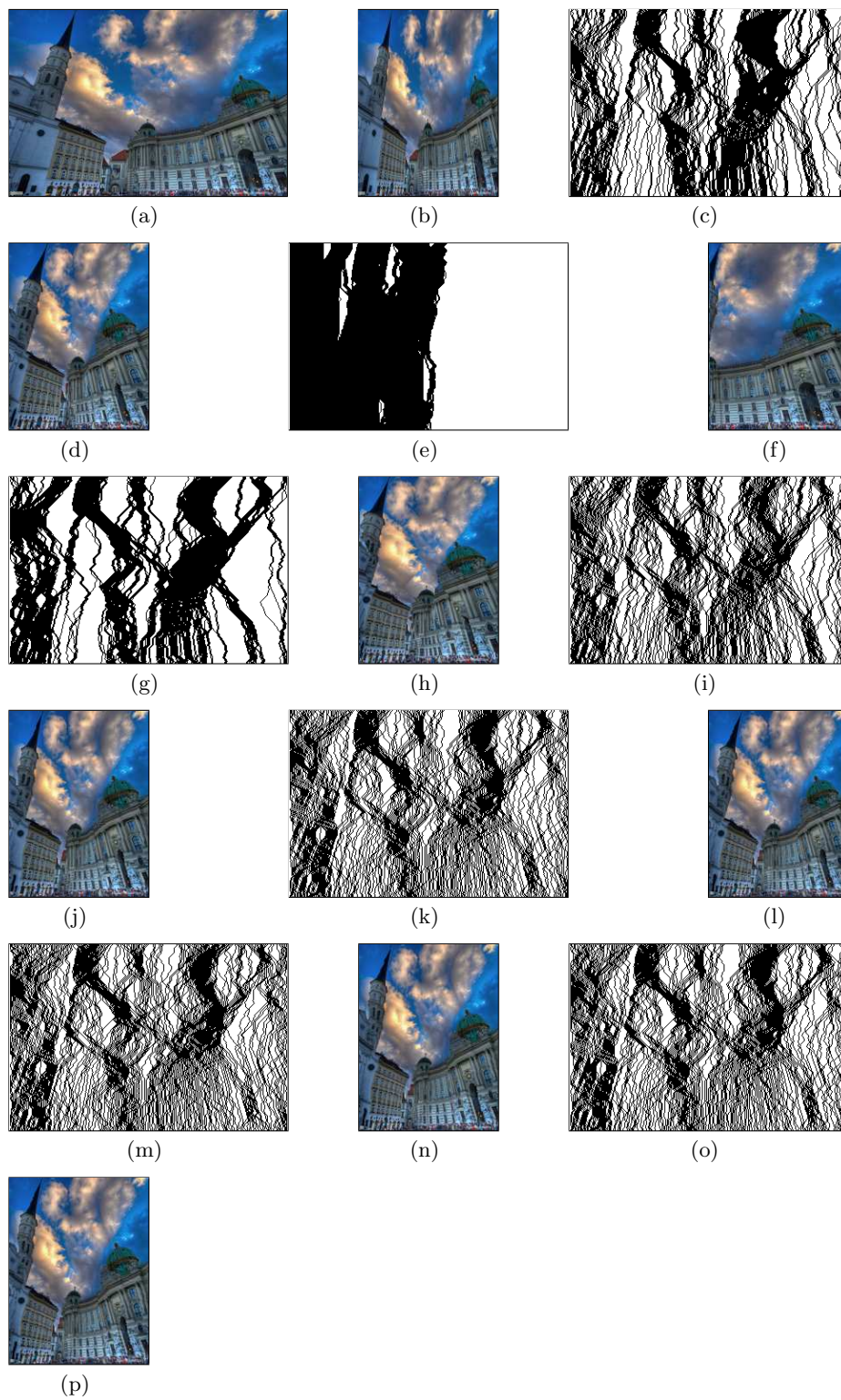


Fig. 99: Image 99

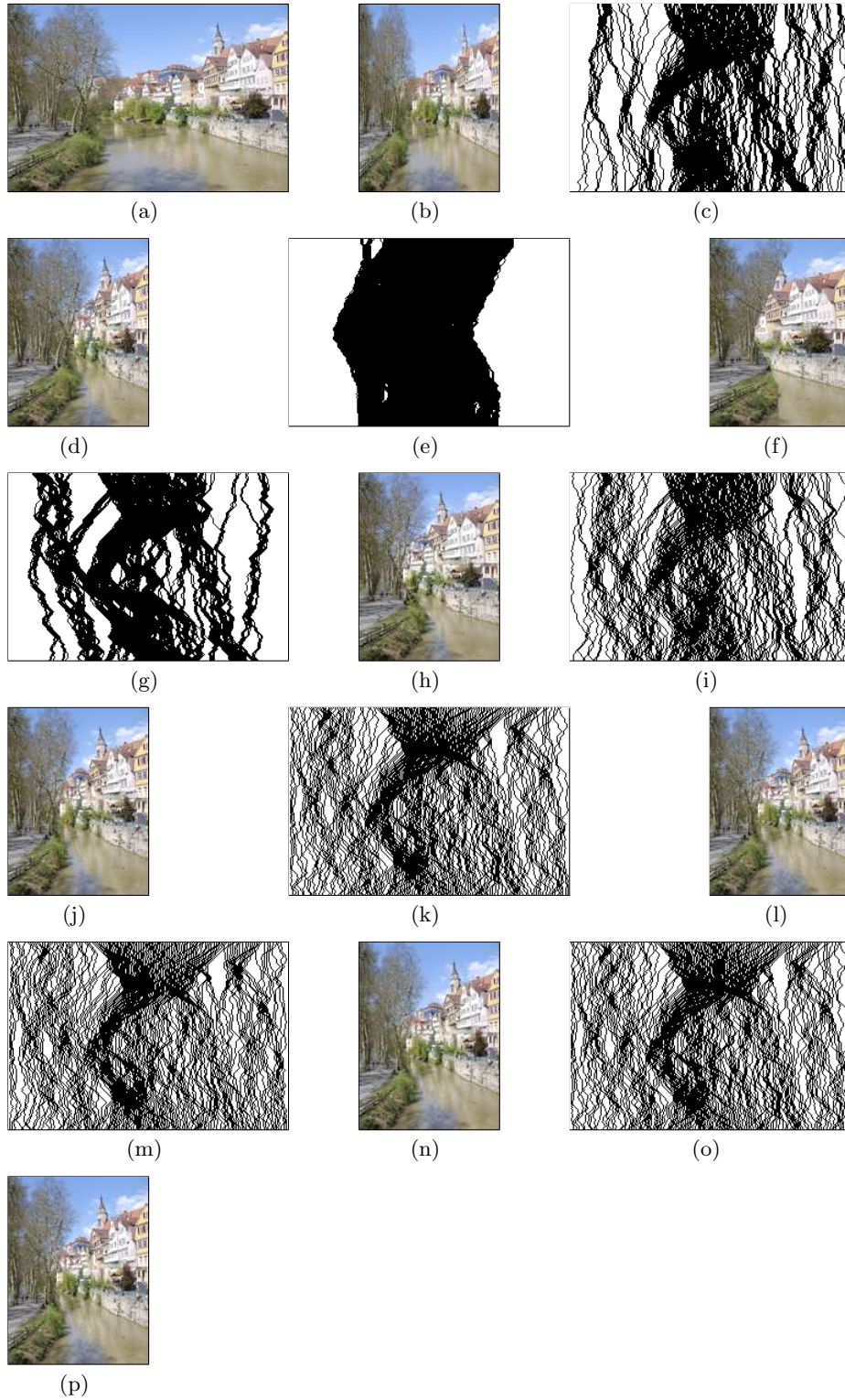


Fig. 100: Image 100