**CLAIMS**

[Claim 1]

A moiré occurrence prediction device comprising:

a communication unit for receiving an input image file, wherein the input image file includes an original image in a vector data format and a halftone dot image in a raster data format;

a periodic structure inclusion determination unit for determining, in the input image file, a plurality of periodic structure regions;

an obtaining unit for obtaining a halftone dot image from the input image file;

a generation unit for generating a difference extraction image indicating a pixel difference between the original image and the halftone dot image;

a moiré prediction unit for determining a degree of risk of moiré occurrence in each periodic structure region by performing a predetermined frequency analysis process only with respect to each of the determined periodic structure regions in the difference extraction image, generating a moiré occurrence notification that indicates the degree of risk for each periodic structure region, and outputting the moiré occurrence notification; and

a pre-processing unit, wherein the pre-processing unit divides the input image file into fixed-size processing blocks,

wherein the periodic structure inclusion determination unit, with respect to the original image:

performs a color conversion process to convert to a predetermined color space;

performs a contour component extraction process for extracting a contour component;

performs a smoothing process;

normalizes maximum and minimum pixel values; and

locates each periodic structure region that includes a periodic structure that induces occurrence of a moiré based on either a frequency peak, a frequency peak intensity, or an intensity distribution of the original image;

wherein the moiré prediction unit, with respect to the original image:

performs a color conversion process to convert to a predetermined color space;

performs a contour component extraction process for extracting a contour component; and

performs a smoothing process; and

wherein the moiré prediction unit, with respect to the halftone dot image:

performs a color conversion process to convert to a predetermined color space;

performs a resolution conversion process for aligning to a resolution of the original image;

performs a smoothing process;

determines, by performing the predetermined frequency analysis process with respect to the difference extraction image, a degree of risk of moiré occurrence based on either a frequency peak, a frequency peak intensity, or an intensity distribution of the difference extraction image; and

generates a moiré occurrence notification that indicates the degree of risk for each periodic structure region.

[Claim 2]

The moiré occurrence prediction device according to claim 1, wherein the periodic structure inclusion determination unit and the moiré prediction unit perform processing with respect to overlapping regions covering a plurality of adjacent processing blocks.

[Claim 3]

The moiré occurrence prediction device according to claim 2, further comprising a region extraction unit for extracting a region to be subjected to moiré suppression processing, wherein the region extraction unit, with respect to the original image:

performs a color conversion process to convert to a predetermined color space; and

generates an element similarity map illustrating similar regions having similar pixel values.

[Claim 4]

The moiré occurrence prediction device according to claim 3, further comprising a moiré suppression unit, wherein the moiré suppression unit generates, by performing a predetermined moiré suppression process with respect to each similar region in the halftone dot image based on the moiré occurrence notification, a moiré suppressed image.

[Claim 5]

A moiré occurrence prediction system comprising a client terminal and a moiré occurrence prediction device according to any of claims 1 to 4 connected via a communication network.