Data Compression wit Security Capability

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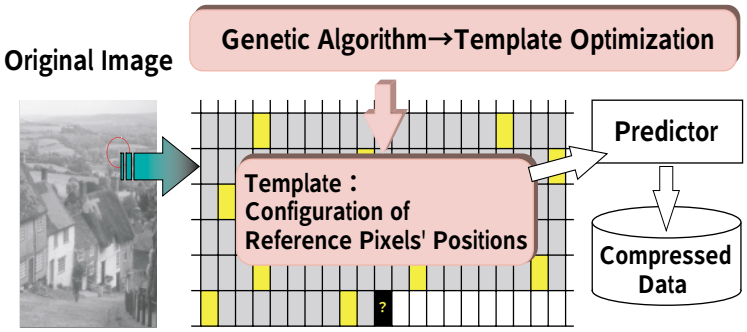
Dispersed Reference Method for print image data compression, which is expected to be included in an ISO standard, has been improved to incorporate the security functions(cryptograph and water mark) . The data compression will commercialized in the on-demand distribution of measured maps used for public enterprise constructions and so on.



Before generating the compressed data, the predictor estimates the value of the pixel to be coded by observing some pixels in its neighborhood. Those pixels are called reference pixels. In the figure, the rectangle with the mark "?" and the yellow rectangles indicate the pixel to be coded and the reference pixels, respectively. The reference pixels are allowed to be placed only in the gray area.

Femtosecond Laser System based on Genetic Algorithum

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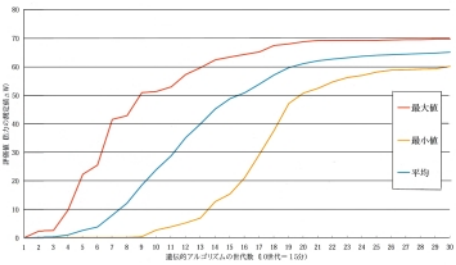
We have proposed and demonstrated femtosecond lasers with an auto-aligned system based on genetic algorithm. The system includes compact sensors and actuators with position accuracy less than 1 mm. These components are inevitable for achieving fast alignment to reduce error signals in the feed-back system. The system has succeeded to optimize the cavity alignment for femtosecond lasers in 30 minutes, which is more than 100 times faster than manual alignment.



Laser Output Power versus Iterations