



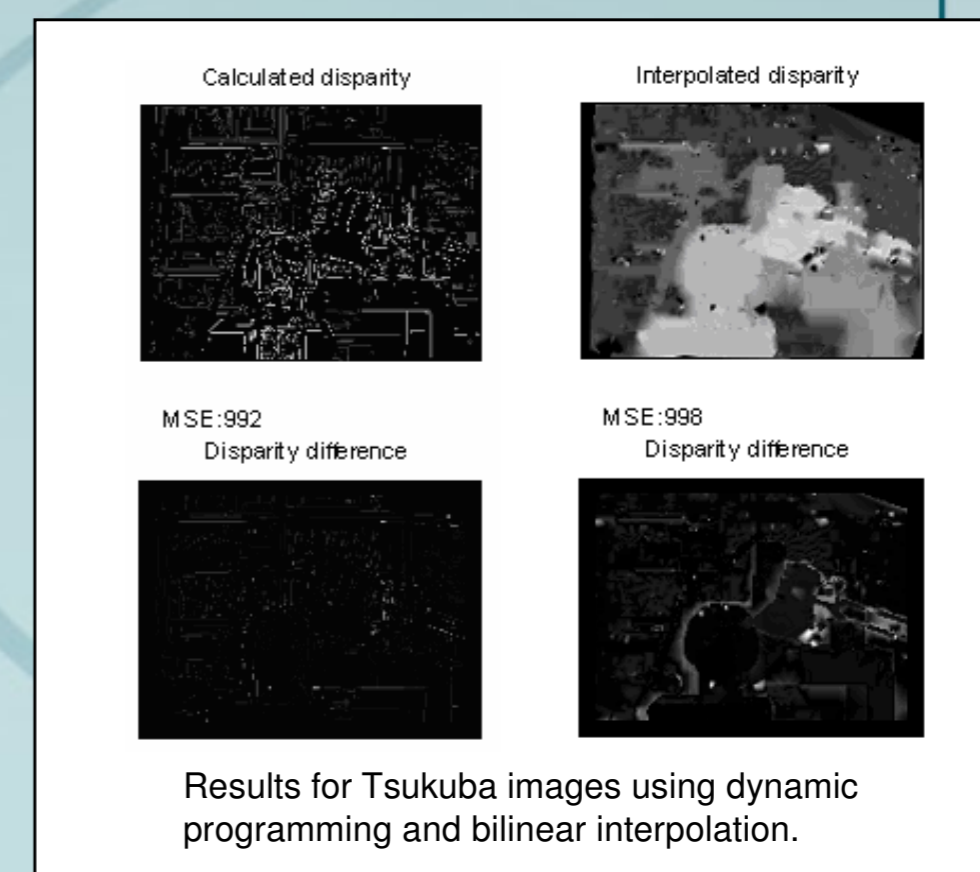
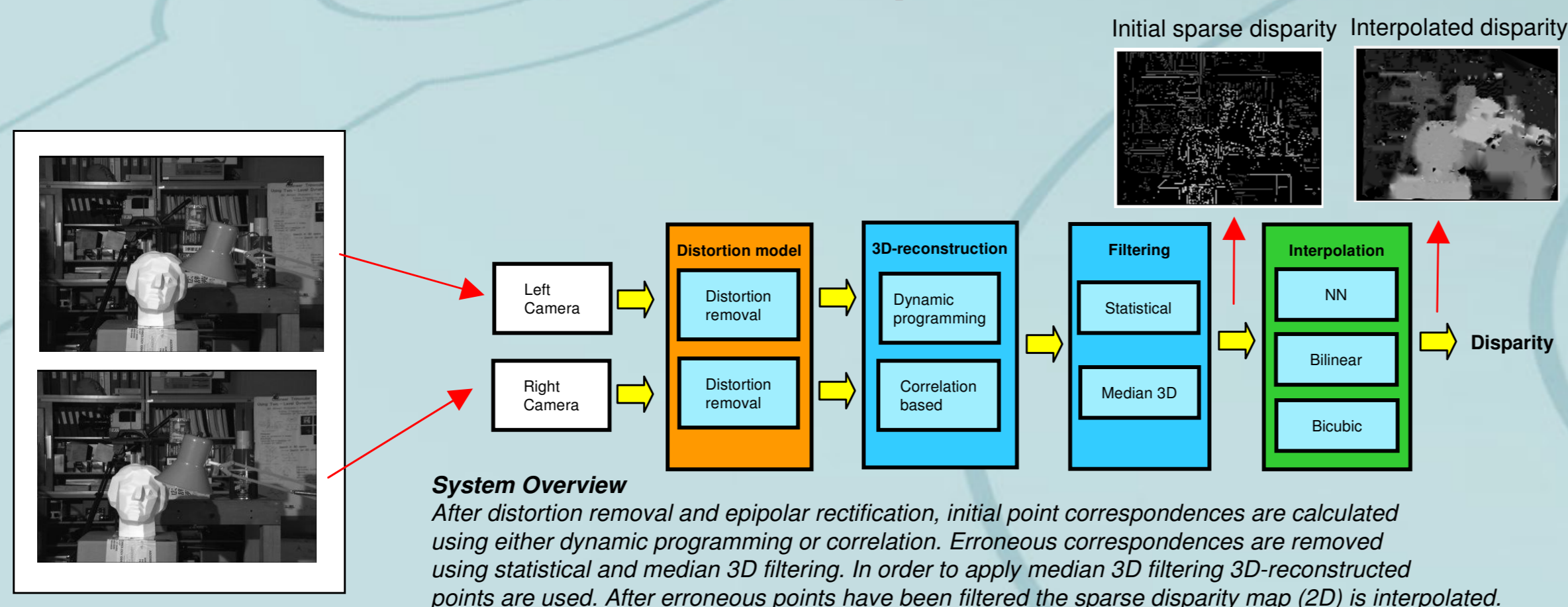
Increasing Efficiency in Disparity Calculation

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Motivation

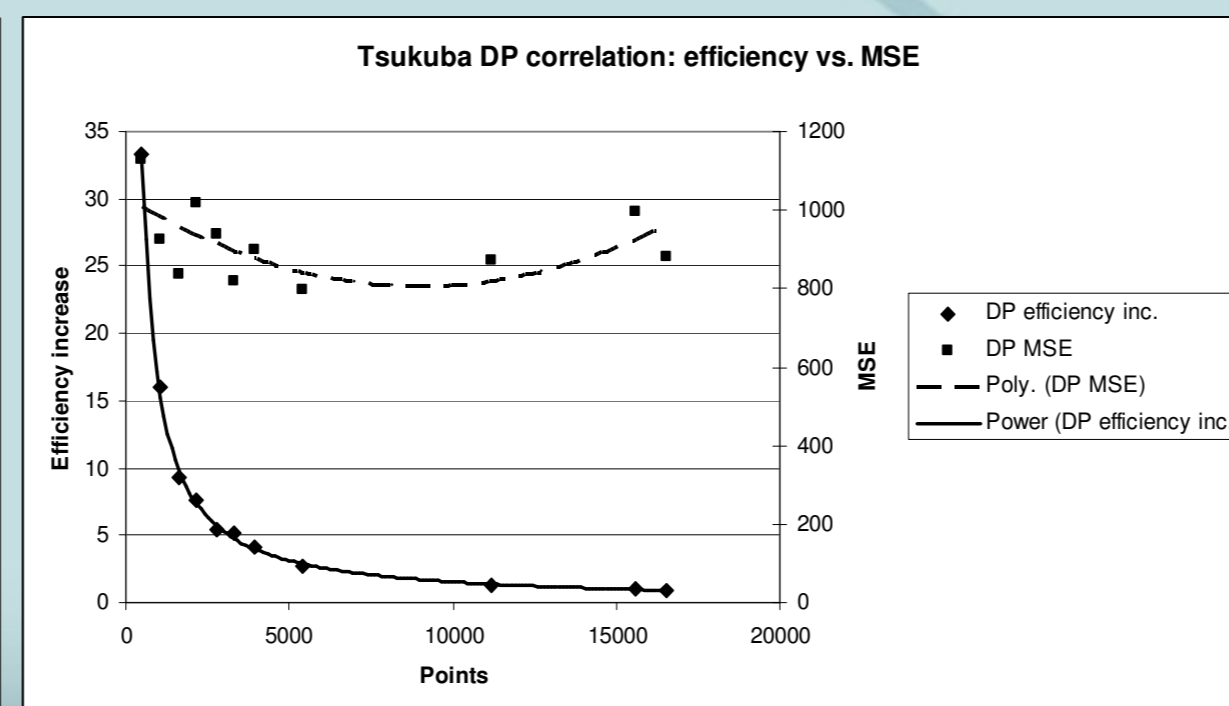
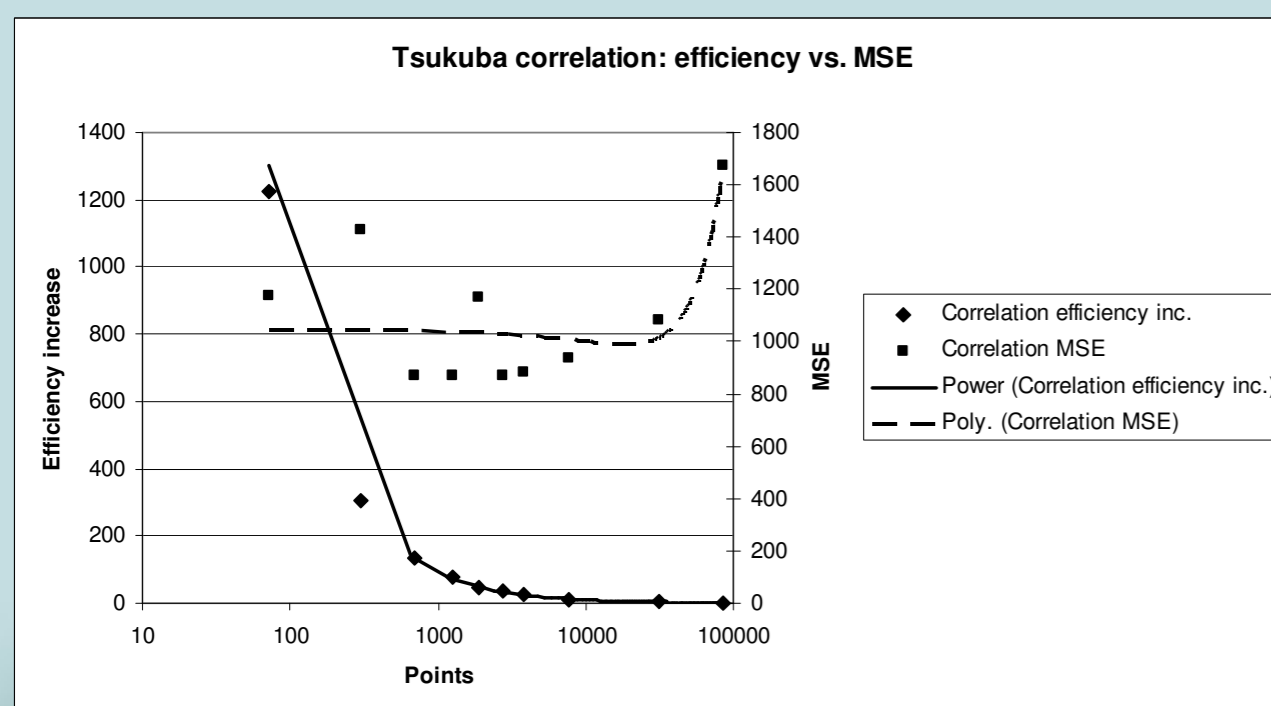
Interpolation is a typical post-processing step in many computer vision applications. Since interpolation can be considered computationally inexpensive it can be used to increase disparity calculation efficiency by calculating disparity directly for fewer positions and deriving the 100% dense disparity map by interpolation. Image features, such as edges, contain most of the information in the images and thus disparity at these places carry most of the image disparity information. Trying to calculate disparity directly in homogeneous zones is error prone and in-efficient.

System Overview



Results

The following figures display error versus efficiency increase for Tsukuba images.



Conclusions

Efficiency increase using interpolation is a trade-off between quality versus efficiency. Increase in efficiency depends on the method and parameters used for deriving the initial sparse disparity map. Systems aiming at real-time throughput can benefit considerably by calculating a high-quality sparse disparity map which then is densified by interpolation.