

Fast Parallel Image Rotation Algorithm

Dhrubajyoti Mandal
School of Computer Engineering
Kalinga Institute of Industrial Technology
Bhubaneswar, India
22053859@kiit.ac.in

Sourav Kumar Parida
School of Computer Engineering
Kalinga Institute of Industrial Technology
Bhubaneswar, India
22051032@kiit.ac.in

Subhadeep Bhadra
School of Computer Engineering
Kalinga Institute of Industrial Technology
Bhubaneswar, India
2205336@kiit.ac.in

Dr. Sujoy Dutta
Asst. Prof. & Asst. CoE
School of Computer Engineering
Kalinga Institute of Industrial Technology
Bhubaneswar, India
sdattafcs@kiit.ac.in

Chiranjeev Bhaya
Lead Engineer (Camera System)
Samsung R&D Institute
Bangalore, India
c.bhaya@samsung.com

Chandra Mohan V
Architect (Camera System)
Samsung R&D Institute
Bangalore, India
chandra.mv@samsung.com

Abstract—This paper presents a novel fast image rotation algorithm that leverages CPU parallelization while maintaining high image quality. The proposed method is a single-pass algorithm, derived from the existing Double-Line Rotation (DLR) method, which reduces computational complexity and generalizes the algorithm. Initially, a baseline for the given image is calculated to determine the starting line, which defines the initial point for each vertical or horizontal line in the image to be rotated. The corresponding pixels to be mapped are identified using floating point arithmetic, and trigonometric calculations are performed only once per line. This approach ensures precise image transformation with minimal computational overhead.

Index terms: Image rotation, line rotation image transform, double-line rotation (DLR), parallel image rotation.

REFERENCES

- [1] H. Kopka and P. W. Daly, *A Guide to L^AT_EX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.

I. INTRODUCTION

This demo file is intended to serve as a “starter file” for IEEE conference papers produced under L^AT_EX using IEEE-tran.cls version 1.8b and later. I wish you the best of success.

mds

August 26, 2015

A. Subsection Heading Here

Subsection text here.

1) Subsubsection Heading Here: Subsubsection text here.

II. CONCLUSION

The conclusion goes here.

ACKNOWLEDGMENT

The authors would like to thank...