Fast Poisson Image Blending using Parallelized Jacobi Method

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Introduction

Add your information, graphs and images to this section.

Problem Description

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Effect of Parallelizing the Code

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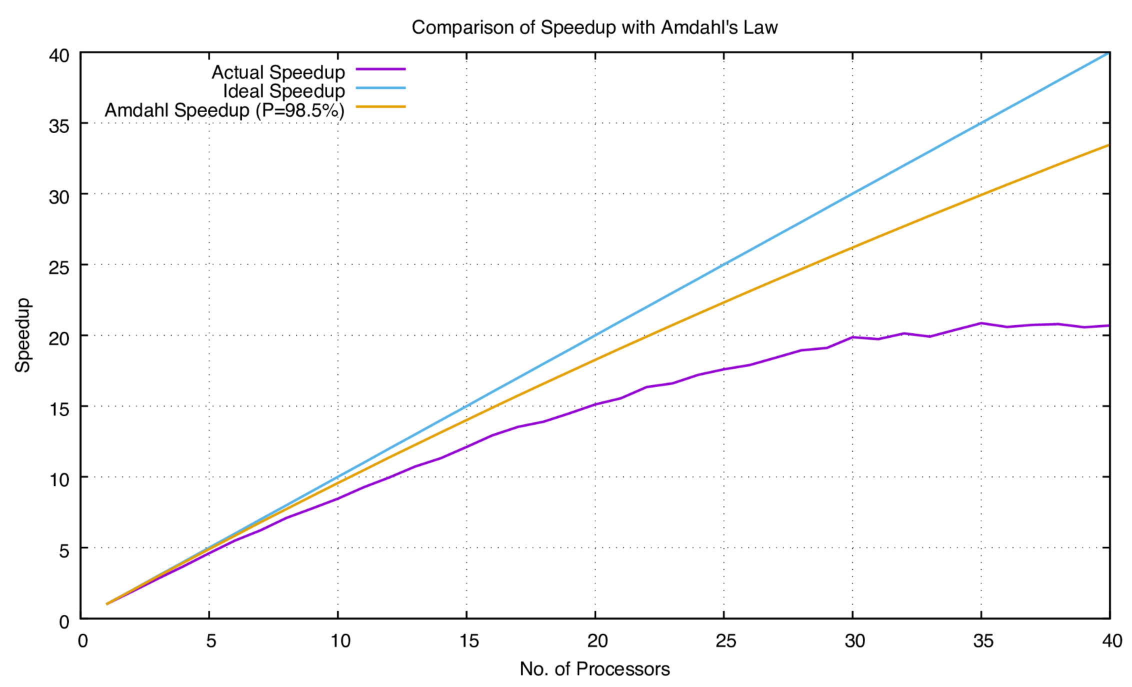
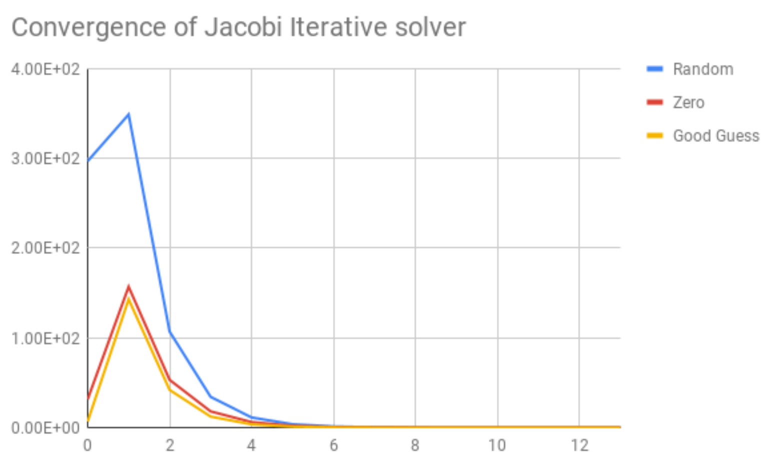


Direct vs. Indirect Solvers

- Our 'A' matrix is sparse, so indirect solver Jacobi does better.
- Sparse matrices do not generally have sparse LU decomposition, so it gets harder to fit the matrices in memory as the problem size goes larger.
- For Jacobi method, we can just store the A matrix in sparse representation.
- We tweaked the initial conditions to achieve fast convergence of direct solver Jacobi.



Strong Scaling

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Results Overview

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Coupling

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Acknowledgements

ICS-ACI computing resources were used to perform the computations.

All resources were provided by Dr. Adam Lavely and Dr. Chris Blanton.

Code Availability

The code is publicly available in github:
https://github.com/amatur/cse597_parallel_solver

Bibliography

1] Poisson blending. Retrieved from http://eric-yuan.me/poisson-blending/ accessed 2018-09-23.
[2] Poisson image editing. Retrieved from http://www.ctralie.com/Teaching/PoissonImageEditing/, accessed 2018-09-23.
[3] Barker, B. Message passing interface (mpi). In Workshop: High Performance Computing on Stampede (2015), vol. 262.