Random Walker with Priors

- Random walker (RW) algorithm [1, 2] segments images using user-given seed pixels
- RW calculates random walk probabilities on a weighted graph constructed from an image, and includes intensity priors as new nodes
- Without priors, [3] shows how to speed this calculation using offline precomputation
- This allows the user to update seeds and see the results interactively
- With intensity priors, the graph changes as the seeds change, so a new precomputation scheme is needed to maintain interactivity

Key Contributions

- By extending the precomputation method from [3] to work with a dynamic image graph, we achieve interactive speeds while still incorporating intensity priors
- Using additional precomputation, we minimize the number of computations between matrices of size O(# of unseeded pixels).
- Code available at fastrw.cs.sfu.ca

References


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