UNIVERSITY OF SOUTH FLORIDA

Defense of a Doctoral Dissertation

Efficient Viewshed Computation Algorithms on GPUs and CPUs

by

Faisal Qarah

For the Ph.D. degree in Computer Science and Engineering

Viewshed computing and visibility analysis is the problem of finding visible areas on the map to a certain point-of-interest. Viewshed algorithms are widely used in GIS applications, games development, and in creating communication networks. However, current viewshed algorithms with high accuracy are suffering from poor performance compared to other algorithms that approximate the visibility results. Based on the necessity for having an accurate and time-efficient algorithm. This work presents a parallel radial-sweep algorithm on GPUs, and an optimized CPU-based algorithm for an efficient viewshed computing on both platforms.

Examining Committee
Ran Tao, Ph.D., Chairperson
Yicheng Tu, Ph.D., Major Professor
Adriana Iamnitchi, Ph.D.
Yan Zhang, Ph.D.
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Joni Downs, Ph.D.

Publications

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Friday, June 19, 2020
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faisalq@usf.edu

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