creating a new-generation building energy simulation program." *Energy and buildings* 33 (4): 319–331.

Dagum, Leonardo, and Ramesh Menon. 1998. "OpenMP: an industry standard API for shared-memory programming." *IEEE computational science and engineering* 5 (1): 46–55.

Hoover, Joel, and Timur Dogan. 2017. "Fast and Robust External Solar Shading Calculations using the Pixel Counting Algorithm with Transparency." 08.

Hottel, H. C. 1954. *Radiant heat transmission*. 3.

Jones, Nathaniel L, and Donald P Greenberg. 2012. "ARDWARE ACCELERATED COMPUTATION OF DIRECT SOLAR RADIATION THROUGH TRANSPARENT SHADES AND SCREENS." *Proceedings of SimBuild* 5 (1): 595–602.

Kramer, Stephan C, Ralf Gritzki, Alf Perschk, Markus Rösler, and Clemens Felsmann. 2015. "Fully parallel, OpenGL-based computation of obstructed area-to-area view factors." *Journal of Building Performance Simulation* 8 (4): 266–281.

Lawson, C. L., R. J. Hanson, D. R. Kincaid, and F. T. Krogh. 1979. "Basic Linear Algebra Subprograms for Fortran Usage." *ACM Trans. Math. Softw.* 5 (3): 308–323 (September).

Lo, Yu Jung, Samuel Williams, Brian Van Straalen, Terry J Ligocki, Matthew J Cordery, Nicholas J Wright, Mary W Hall, and Leonid Oliker. 2014. "Roofline model toolkit: A practical tool for architectural and program analysis." *International Workshop on Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems*. Springer, 129–148.

Nickolls, John, Ian Buck, Michael Garland, and Kevin Skadron. 2008. "Scalable Parallel Programming with CUDA." *ACM SIGGRAPH 2008 Classes*, SIGGRAPH '08. New York, NY, USA: ACM, 16:1–16:14.

## NOMENCLATURE

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|---|---|
| BEM | Building Energy Modeling |
| BLAS | Basic Linear Algebra Subprograms |
| CPU | Central Processing Unit |
| GPU | Graphical Processing Unit |
| DDR5 | Double Data Rate Type 5 Synchronous Graphics Random-Access Memory |
| RAM | Random Access Memory |
| CUDA | Compute Unified Device Architecture |
| NLWR | Net Long Wave Radiation |