

# SpeedSim-for-DIVA

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## Introduction

This short paper introduces the new *GRASSHOPPER* [1] plugin named *SpeedSim-for DIVA* [2] which is a plugin for *DIVA-for Rhino* version 3 [3]. *SpeedSim-for-DIVA* (“*SpeedSim*”) allows you to execute multiple radiance simulations in parallel by using the full processing power of multicore desktops or laptops. The number of parallel simulations can be interactively adjusted according to the user needs or computer capabilities. In addition, *SpeedSim* processes the results making it easy to evaluate the daylighting performance through different metrics.

*SpeedSim* performs the required simulations for the daylighting modelling files created by *DIVA-for-Rhino* plug-in in *GRASSHOPPER* which are generated by using the (“*Write Only*”) function in the *DIVA* Daylight Analysis component. It executes the simulations through *GRASSHOPPER* native components coupled with C# and VB.NET scripting components.

## SpeedSim in Academia

Wagdy and Fathy [4] was the first journal article that used *SpeedSim* technology before the plugin named “*SpeedSim*” and became available online for other scholars and professionals. Since then, *SpeedSim* was successfully implemented in several scientific research papers such as;

- Shaping the slats of hospital patient room window blinds for daylighting and external view under desert clear skies by Sherif, Sabry [5].
- Daylighting simulation for the configuration of external sun-breakers on south oriented windows of hospital patient rooms under a clear desert sky by Wagdy, Sherif [6].
- Parametric Investigation of Brick Extrusion Patterns Using Thermal Simulation by Abdelwahab and Elghazi [7].
- Evaluating visual comfort in open-plan offices: Exploration of simple methods for evaluation and prediction by Garcia-Hansen, Allan [8].
- Evaluating the Daylighting Performance of Dynamic Façades by Using New Annual Climate-Based Metrics by Wagdy, Fathy [9].
- A Parametric Approach for Achieving Daylighting Adequacy and Energy Efficiency by Using Solar Screens by Wagdy and Fathy [10].
- Parametric analysis of solar shading parameters in intermediate orientations located in desert climates by Wagdy, Mokhtar [11]

All these papers can be accessible through the link below:

[https://scholar.google.com.au/scholar?hl=en&as\\_sdt=0%2C5&q=SpeedSim-for-DIVA&btnG=](https://scholar.google.com.au/scholar?hl=en&as_sdt=0%2C5&q=SpeedSim-for-DIVA&btnG=)

## References

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2. Wagdy, A. *SpeedSim-for-DIVA software version 1.2*. 2015 [cited 2015 September 12 ]; Available from: <http://www.aymanwagdy.com/#!speedsim/cjg9>.
3. Solemma, L. *DIVA-for-Rhino software version 3*. 2015 [cited 2015 5 September]; Available from: <https://www.solemma.com/>.
4. Wagdy, A. and F. Fathy, *A parametric approach for achieving optimum daylighting performance through solar screens in desert climates*. *Journal of Building Engineering*, 2015. **3**: p. 155-170.
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6. Wagdy, A., A. Sherif, H. Sabry, R. Arafa, and I. Mashaly, *Daylighting simulation for the configuration of external sun-breakers on south oriented windows of hospital patient rooms under a clear desert sky*. *Solar Energy*, 2017. **149**: p. 164-175.
7. Abdelwahab, S. and Y. Elghazi. *A GENERATIVE PERFORMANCE-BASED DESIGN FOR LOW-COST BRICKWORK SCREENS 2*. in *The Building Simulation and Optimization Conference (BSO16)*. 2016.
8. Garcia-Hansen, V., A.C. Allan, G. Isoardi, A. Wagdy, and S.S. Smith, *Evaluating visual comfort in open-plan offices: Exploration of simple methods for evaluation and prediction*, in *CIE 2017- Smarter Lighting for Better Life*. 2017: Jeju, South Korea.
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10. Wagdy, A. and F. Fathy, *A Parametric Approach for Achieving Daylighting Adequacy and Energy Efficiency by Using Solar Screens*, in *PLEA 2016 - 36th International Conference on Passive and Low Energy Architecture*. 2016: Los Angeles, California, USA.
11. Wagdy, A., S. Mokhtar, and A. Abdel-Rahman, *Parametric analysis of solar shading parameters in intermediate orientations located in desert climates*, in *Third IBPSA - England Conference BSO2016*. 2016: Newcastle, UK.