



## Nathaniel Jones

Building Physicist

[nljones.github.io](https://github.com/nljones)  
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### SPECIALTIES

Building Performance  
Simulation

Daylighting Analysis

Thermal Comfort

Microclimate Analysis

Airborne Disease Spread

Software Development

High-Performance  
Computing

### GOAL

*To make IBPSA  
the most  
effective it can  
be at producing,  
promoting, and  
sharing  
innovations in  
all areas of  
building  
performance  
simulation.*

### EMPLOYMENT

**Senior Consultant / Lighting Analyst / Americas Research Specialist**, Arup, Boston, MA 02.2020 – Present  
Adjudicated and administered internal and collaborative proposals for regional and global research funding pools  
Developed web-based interfaces for annual lighting, thermal comfort, and microclimate simulations

**Adjunct Professor**, Parsons School of Design, The New School, New York, NY 08.2023 – Present  
Taught Environmental Technology II (PSCE 5310/CRN 11603) for 20 graduate architecture students  
Wrote and graded assignments for NAAB-required learning objectives

**Adjunct Professor**, Wentworth Institute of Technology, Boston, MA 01.2021 – Present  
Taught Energy and Resources in Architecture and Passive and Active Systems in Architecture for 100 students  
Wrote and graded modeling and simulation assignments for NAAB-required learning objectives

**Advanced Technology & Research Analyst**, Arup, San Francisco, CA 06.2017 – 01.2020  
Developed *comfort.arup.com* web tool for simulation and prediction of human thermal sensation and comfort  
Published a machine learning approach to predicting wind-induced noise on building façades  
Performed computational fluid dynamics analysis for thermal, wind, acoustic, and microclimate projects

### IBPSA LEADERSHIP

**Secretary**, IBPSA-USA Executive Committee 02.2022 – Present

**Board of Directors**, IBPSA-USA 02.2020 – Present

**Chair**, SimBuild 2024 Scientific Committee 08.2021 – Present

**Chair**, HackSimBuild Organizing Committee 08.2021 – Present

**Chair**, IBPSA-USA Research Committee 01.2018 – Present

**Scientific Committee**, BPACS 2022 08.2021 – 09.2022

**Editor**, *Ask a Modeler* IBPSA-USA Newsletter Column 04.2019 – 02.2022

**Chair**, IBPSA-USA Emerging Simulation Technology Research Subcommittee 12.2014 – 02.2022

**Program Committee**, Building Simulation 2017 08.2016 – 08.2017

### EDUCATION

**PhD in Building Technology**, Massachusetts Institute of Technology, Cambridge, MA 06.2017

**Master of Architecture**, Cornell University, Ithaca, NY 05.2009

**Bachelor of Science in Civil Engineering**, Johns Hopkins University, Baltimore, MD 05.2005

### SELECTED PUBLICATIONS

**Predicting thermal comfort for diverse populations**, Building Simulation 2021 (BS2021) 2021

**Simulation of COVID-19 ultraviolet disinfection using coupled ray tracing and CFD**, BS2021 2021

**Fast climate-based glare analysis and spatial mapping**, BS2019 2019

**Detailed thermal comfort analysis from preliminary to final design**, BS2019 2019

**Aeroacoustic facade noise validation**, BS2019 2019

**Effects of real-time simulation feedback on design for visual comfort**, JBPS 2018

**Aeroacoustic facade noise: Predicting wind-induced noise from perforated facade panels**, SimBuild 2018

**Experimental validation of ray tracing as a means of image-based visual discomfort prediction**, BAE 2017

**Speedup potential of climate-based daylight modelling on GPUs**, BS2017 2017

**Parallel multiple-bounce irradiance caching**, Computer Graphics Forum 2016

**Validation of GPU lighting simulation in naturally and artificially lit spaces**, BS2015 2015

**Irradiance caching for global illumination calculation on graphics hardware**, SimBuild 2014

**Sustain: An experimental test bed for building energy simulation**, Energy and Buildings 2013

**Automated translation and thermal zoning of digital building models for energy analysis**, BS2013 2013

**Fast comp. graph. techniques for calculating direct solar radiation on complex build. surfaces**, JBPS 2012

**Fast computation of incident solar radiation from preliminary to final building design**, BS2011 2011

### SELECTED AWARDS

**Emerging Contributor Award**, IBPSA-USA 2020

**Best Paper Award**, Journal *Building and Environment* 2017

**Student Travel Scholarship**, Society of Building Science Educators 2016

**Outstanding Paper Award**, Symposium on Architecture and Urban Design 2012

**Best Research Paper**, IBPSA Building Simulation 2011

**Henry Adams Certificate of Merit**, American Institute of Architects 2009