

Funded Post-Doctor and Ph.D. Student Positions in the SBS Lab

The [Sustainable Building and Societies Laboratory](#) (SBS Lab) at the University of Colorado Boulder currently has one PostDoc position and multiple fully-funded Ph.D. positions in multi-scale modeling and optimization for the design and operation of smart, sustainable and resilient cities starting in the Summer/Fall 2020.

The research topics include 1) Develop multi-scale modeling technique for future smart and connected cities using the equation-based Modelica language and building upon our open source [Smart and Connected Community \(SCC\) Modelica library](#) and apply it to the local communities in Boulder; 2) Develop and perform field test of advanced control strategies for grid-interactive efficient, resilient communities expanding upon our open source [Net Zero Energy Community \(NZE\) Modelica library](#) based on a real-world net zero energy community; 3) Create open source Modelica models for the modeling of [energy efficient district energy system](#) and improve the energy efficiency of our campus district energy system using the models. This is also a part of [IBPSA Project 1](#), which is an international collaborative project in developing Modelica-based techniques for building and community energy systems. 4) Urban scale building energy modeling; 5) Urban scale modeling for contaminants using CFD.

Requirements For Ph.D. Students

In addition to the requirements (English, GPA, etc.) by our graduate program, we expect the following qualifications from our candidates:

1. Ability to work independently in a team environment
2. Solid background in Engineering and/or Mathematics and/or Physics and/or Computer Science
3. Programming experience (e.g. C/C++, Modelica, Matlab, Python, OpenCL, CUDA) is preferred
4. For Topic 4: Building energy modeling skills (OpenStudio, EnergyPlus etc.)
5. For Topic 5: CFD skills (RANS, LES, DES).
6. Experience in research with tangible outcome is preferred
7. Experience in modeling and simulation for research is a plus
8. Excellent verbal and written communication skills

Requirements For PostDoctors

The Post-Doctor will work on a newly awarded 3-Year DOE project on the next generation grid-interactive efficient district energy system. Led by the SBS lab, this is a joint project of multiple universities, DOE national labs and companies. In addition to the research and programming skills required for Ph.D. students, the post-Doctor candidate should

- have project management skill
- have knowledge in district energy system, distributed energy resource, microgrid
- be able to advise the Ph.D. students

How to Apply

Ph.D. students

Students can apply to **The Department of Civil, Environmental and Architectural Engineering (CEAE)** or **The Department of Mechanical Engineering (ME)**. To apply, please visit the corresponding department's graduate program website: CEAE Department: <https://www.colorado.edu/ceae/prospective-students/graduate-studies> and ME Department: <https://www.colorado.edu/mechanical/graduate/prospective-graduate-students>. In both cases, please **indicate that you want to work with Dr. Wangda Zuo in your Personal Statement** so that we can receive your application. Applicants are encouraged to submit their application before the graduate school deadlines. However, we will accept applications after the deadlines until the positions are filled.

PostDoctor

Please send your CV directly to Dr. Zuo.

About Us

The SBS Lab focuses on developing cutting edge modeling and simulation technology and applying them for the design, operation and optimization of sustainable, smart, and resilient buildings, communities and cities. We currently have 8 Ph.D. students and are one of the major contributors to the Modelica Buildings Library. Our lab is hosting the American Modelica Conference in March 2020. Our research is funded by the National Science Foundation, U.S. Department of Energy, U.S. Department of Defense, U.S. Department of Homeland Security, ASHRAE, and large cooperations (e.g. JPMorgan Chase). We have joint projects with cities (e.g. Boulder, Miami, Miami Beach), universities (e.g. Virginia Tech and University of Miami), US Department of Energy's national laboratories (e.g. Lawrence Berkley National Lab, National Renewable Energy Lab, Oak Ridge National Lab, Pacific Northwest National Lab), and companies (e.g. Schneider Electric and Amzur Technologies). Dr. Zuo also currently holds a joint appointment at the National Renewable Energy Lab. For more information, please visit our website: <https://www.colorado.edu/lab/sbs/>.

University of Colorado Boulder is ranked **No. 38 Global Universities** by ARWU and **No. 50 Best Global Universities** by US News. Located at the foothill of Rocky Mountain National Park and with 300 sunny days a year, Boulder is named "The Happiest City" and "The Healthiest City" by National Geographic.

Contact Information

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