**JESSICA GRANDERSON**

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**EDUCATION**

 Ph.D. in Mechanical Engineering, 2007, University of California, Berkeley

A.B. in Mechanical Engineering, 1998, Harvard University

**Appointments**

***Lawrence Berkeley National Laboratory, Building Technology and Urban Systems Division***

Deputy Director for Research Programs October 2011-Present; Staff Scientist May 2017-Present; Research Scientist March 2011-May 2017; Postdoctoral Research Fellow 2007-2011

**Deputy for Research Programs:** Deputy to Division Director, in support of development and management of the ~$40M/yr research program; manage collaborations, partnerships and client relationships; review research execution and quality; assist in securing funding at project and program level; coordinate and support Research Groups’ and Department strategic planning.

**Strategic Planning, Roadmapping:** Developed a 20-year action plan for carbon neutrality in the national commercial building stock; identified pathways to reach the Department of Energy’s Building Technology Program savings targets and to inform future program development; developed a strategic plan for LBNL’s Energy Technology Area’s work in resilience.

**Energy Management and Information Systems (EMIS):** Collaborated with owners to implement best practices in large campuses and enterprises; developed an open-source Energy Information System; assessed technology costs and benefits in 500M sf of commercial install space; developed a handbook for efficiency data analytics; worked with utility industry to inform the design and delivery of EMIS-based whole-building programs; worked with utility industry to accelerate adoption of measurement-based savings estimation.

**Advanced Building Controls:** Developed and tested grid-interactive deep reinforcement learning controller for HVAC, batter, and rooftop PV systems; developed algorithms for integrated lighting and shading systems to accommodate demand response, user personal control and energy efficiency; developed fault detection and measurement and verification algorithms for lighting controls; field tested and evaluated emerging commercial HVAC optimization systems in large commercial facilities; developed an automated small building retro-commissioning technology; led the development of a hybrid model-based and data-driven diagnostic and optimization tool for Department of Defense.

**SELECTED publications**

***Refereed Journals***

1. Granderson, J, Fernandes, S, Touzani, S, Lee, CC, Crowe, E, Sheridan, M. 2020. Spatio-temporal impacts of a utility's efficiency portfolio on the distribution grid. Energy 212. DOI: https://doi.org/10.1016/j.energy.2020.118669
2. Crowe, E, Mills, E, Poeling, T, Curtin, C, Bjornskov, D, Fischer, L, Granderson, J. 2020. Commissioning costs and savings across two decades and 1500 buildings. Energy and Buildings 227. DOI: https://doi.org/10.1016/j.enbuild.2020.110408
3. Lin, G, Pritoni, M, Chen, Y, Granderson, J. 2020. Development and implementation of fault-correction algorithms in fault detection and diagnostics tools. Energies 13(10). DOI: https://doi.org/10.3390/en13102598
4. Granderson, J, Lin G, Harding, A, Im, P, Chen Y. 2020. Building fault detection data to aid diagnostic algorithm creation and performance testing. Nature: Scientific Data 7(65). DOI: https://doi.org/10.1038/s41597-020-0398-6
5. Lin, G, Kramer, H, Granderson, J. 2020. Building fault detection and diagnostics: Achieved savings and methods to evaluate algorithm performance. Building and Environment 168. DOI: https://doi.org/10.1016/j.buildenv.2019.106505
6. Harris, N, Shealy, T, Parrish, K, Granderson, J. 2019. Cognitive barriers during monitoring-based commissioning of buildings. Sustainable Cities and Society 46, 101389. DOI: https://doi.org/10.1016/j.scs.2018.12.017
7. Touzani, S, Ravache, B, Crowe, E, Granderson, J. 2019. Statistical change detection for building energy consumption: applications to savings estimation. Energy and Buildings 185:123-136. DOI: https://doi.org/10.1016/j.enbuild.2018.12.020
8. Kramer, H, Lin, G, Curtin, C, Crowe, E, Granderson, J. 2019. Building analytics and monitoring-based commissioning: Industry practice, costs, and savings. Energy Efficiency. DOI: https://doi.org/10.1007/s12053-019-09790-2
9. Granderson, J, Lin G, Blum, D, Page, J, Spears, M, Piette, MA. 2019. Integrating diagnostics and model-based optimization. Energy and Buildings 182:187-195. DOI: https://doi.org/10.1016/j.enbuild.2018.10.015
10. Hu, RL, Granderson, J, Auslander, DM, Agogino, A. 2019. Design of machine learning models with domain experts for automated sensor selection for energy fault detection. Applied Energy 235:117-128. DOI: https://doi.org/10.1016/j.apenergy.2018.10.107
11. Granderson, J, Lin, G, Singla, R, Fernandes, S, Touzani, S. 2018. Field evaluation of performance of HVAC optimization system in commercial buildings. Energy and Buildings 173:577-586.
12. Harris, N, Shealy, T, Kramer, H, Granderson, J, Reichard, G. 2018. A framework for monitoring-based commissioning: Identifying variables that act as barriers and enablers to the process. Energy and Buildings: 168:331-346.

**SELECTED Intellectual property**

***Licensed Technology and Open Source Software Licenses***

1. 2018. Technology license agreement with Efficiency Valuation Organization: Measurement and verification (M&V) tool testing portal.
2. 2017. Technology license agreement with GreenPath Energy Solutions and BEELAS Group: Retro-commissioning Sensor Suitcase.
3. 2018 Non-routine Event Detection and Adjustment (NRE) v1: Industry’s first automated algorithm to identify/adjust meter-based savings for utility attribution/claims.
4. 2017 RM&V 2.0: Automated tool to use meter data to create building energy baseline models, quantify energy savings, and detect potential non-routine events.