



## NSF RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE) Agenda (subject to change)

**Theme:** International Workshop on Putting Sustainability into Convergence: Connecting Data, People, and Systems

**Date:** January 28-29, 2018

**Venue:** Kent Ridge Guild House, National University of Singapore (NUS), Singapore

Time	Monday January 28, 2018
7:30 – 8:00am	<b>Registration and Continental Breakfast</b>
8:00 - 8:30am	Welcome Remarks by <i>Chien-fei Chen, University of Tennessee</i> & <i>Yong Tao, Nova Southeastern University (PI for this group)</i> Opening Remarks by Khee-Poh Lam from NSU
8:30 – 9:00am	<b>Keynote 1:</b> Understanding Human Requirements in the Built Environment: An Interdisciplinary Challenge - Prof. Ardeshir Mahdavi
9:00 – 10:20am	<b>Session 1:</b> Human Building Interaction, Design and Urban Planning <ul style="list-style-type: none"> <li>• Da Li, Carol Menassa &amp; Vineet Kamat - Improving Human Health and Wellness in Buildings through Contactless Thermography Based Comfort Interpretation</li> <li>• Cui Li - Study the Intelligent Control of Indoor Environment and Energy Management for Open Office Building Based on the UWB</li> <li>• Amy Kim, Lindsay McCunn, Shuoqi (Stanley) Wang, &amp; Aleksejs Prozuments - Psychoacoustical research pertaining to the healthy workspaces</li> <li>• Tapeesh Sood - Learning Trial</li> <li>• Clinton Andrews - Rethinking Evidence-Based Building Design</li> <li>• Tianzhen Hong - Urban Systems: Connecting Buildings, Humans and Microclimate</li> </ul>
10:20 – 10:40am	<b>Break (Refreshments)</b>
10:40 - Noon	<b>Session 2:</b> Critical Infrastructure and Social and Physical Factors <ul style="list-style-type: none"> <li>• Beta Paramita - Strengthen Building Morphology for Urban Hazard Mitigation, a Manifestation of Urban Health and Well-Being in a High-dense of Kampong</li> <li>• Siddharth Suryanarayanan, Neil Grigg, Suren Chen, Zinta Byrne, Katherine Browne, &amp; Michael Bell - Achieving Interdependent Critical Infrastructures and Community Resilience through Convergence of People, Predictions, Processes, and Performance: An Overview</li> <li>• Larissa Larsen, Brian Stone, Santiago Grijalva, Sharon Harlan, David Hondula &amp; Marie O’Neill - Black Out Vulnerability: Investigating Social and Physical Factors that Influence Restoration Time of the Electrical Grid in Atlanta, Detroit, and Phoenix</li> <li>• Joshua Fu &amp; John D - Impacts of Extreme Weather Events on Future Human health and Energy infrastructure</li> <li>• Hiba Baroud - Predictive Analytics for Achieving a Sustainable Resilience of Infrastructure and Communities.</li> <li>• Andrea Mammolia, Chien-fei Chen &amp; Joana Abreu. A Bottom-up Technology-Behavior Model for Real-time Demand Response and Load Shedding from Aggregated Residential Energy Services.</li> </ul>
12:00 -1:00pm	<b>Lunch and Steering Committee Meeting</b>

<b>1:00 - 1:30pm</b>	<b>Keynote 2:</b> Enhancing Outage Management with Smart Meter Data - Prof. Chen-Ching Liu
<b>1:30 – 2:50pm</b>	<b>Session 3:</b> Modeling, Simulation for Building Infrastructure and Sustainability <ul style="list-style-type: none"> <li>• Balasubramanian S. &amp; P. Balachandra - Modelling Electricity Demand with Representative Load Curves: A Simulation-based approach</li> <li>• Saptarshi Bhattacharya, Koushik Kar, &amp; Joe Chow - Intelligent HVAC-load control in Smart Grids for Ensuring Economic Operation and Consumer Fairness</li> <li>• Dimitris Papanikolaou - Data Driven System Dynamics Methods for Scenario Analysis in Mobility-on-Demand Systems</li> <li>• Qianqian Zhao, Huibin Dua &amp; Hongyang Zou - An Agent-Based Diffusion Modeling and Simulation of New Energy Vehicles</li> <li>• Robert Zupko - Agent Based Life Cycle Sustainability Assessment to Assess Regional Potential for Second Generation Biofuel Development</li> <li>• Mark Roulea- ForestSim: Agent-Based Simulation for Forest Management Policy Experimentation and Bioenergy Sustainability Assessment</li> </ul>
<b>2:50 - 3:10pm</b>	<b>Break (Refreshments)</b>
<b>3:10 – 4:50pm</b>	<b>Session 4:</b> Artificial Intelligence and Big Data for Building Performance and Landscape <ul style="list-style-type: none"> <li>• Dan Li &amp; See-Kiong Ng - Deep learning for Building Fault Detection and Diagnostics</li> <li>• Prashant Anand - Estimation of Energy Saving for Cooling Loads using Occupancy-based VAV Control Analysis of An Institutional Building</li> <li>• Xueying Jiang - Is China's Transportation Infrastructure Balanced in Spatial Distribution?"</li> <li>• Yan Chen, Kate Sherren, Mike Smit &amp; Mona Holmlund – Using Machine Learning to Understand Landscape Perceptions via Social Media</li> <li>• Junjing Yang, Punit Varshesh Gandhi, &amp; Siew Eang Lee - Occupancy Based Energy Performance Evaluation and Control through Data Driven Analytics</li> <li>• Yimin Zhu - Supporting Collaborative Virtual Experiments: A Meta-Model Approach</li> </ul>
<b>4:50 – 5:30pm</b>	Wrap-up Day 1 (Committee members moderate with research themes/questions based on day's presentations).
<b>6:00 – 8:00 pm</b>	<b>Dinner at Café on The Ridge</b>

<b>Time</b>	<b>Tuesday January 29, 2018</b>
<b>7:40 – 8:10am</b>	<b>Registration and Continental Breakfast</b>
<b>8:10 - 8:40am</b>	<b>Keynote 3:</b> Emissions, Inequality, and Human Well-being - Prof. Andrew Jorgenson
<b>8:40 - 10:00am</b>	<b>Session 5:</b> Energy Justice, Collection Action, Renewables and Education <ul style="list-style-type: none"> <li>• Sergey Gavrillets - Collective Action Problem and Its Solutions</li> <li>• Lazardous Adua - Context Matters! States, Households and Residential Energy Consumption</li> <li>• Jing Shuai, Chuanmin Shuai, Liping Ding &amp; Jing Wang - Interaction between Ecosystem Services and Rural Poverty Reduction: Evidence from China</li> <li>• David Krantz, Maxx Patterson, Jessica Otten &amp; Tara Nietzold - Community Partnership for Disaster-Response Solar PV</li> <li>• Huibin Du, Xinyu Jia &amp; Houyang Zou - Effectiveness of the Net-Metering Policy in China's Distributed Photovoltaic System</li> <li>• Nirav S. Patel - Coupling Energy Education and the United Nations Sustainable Developmental Goals (UN-SDGs).</li> </ul>
<b>10:00 – 10:20am</b>	<b>Break (Refreshments)</b>

<b>10:20– 12:00pm</b>	<p>Section 6: Behavior, Economic and Policy Implications for Energy Use</p> <ul style="list-style-type: none"> <li>• Stephen Bird - Data, Motivation, Feedback, Engagement, and Individuation: Next Step Challenges in Smart Housing Implementation</li> <li>• Da Li, Xiaojing Xu, Chien-fei Chen &amp; Carol C. Menassa - An Integrated Framework of Energy-Saving Behaviors in the Workplace: The Role of Motivation, Opportunity, and Ability Factors</li> <li>• Weiyu Ji - The Adoption and Willingness to Pay for Smart Home Energy Technology by Urban Residents</li> <li>• Dina Azhgaliyeva - Green Fintech: New Opportunities for Governmental Support and Regulation</li> <li>• Huibin Dua, Qun Lia, Xi Liua &amp; BinBin Peng - Costs and Potentials of Reducing CO2 Emissions in China’s Transport Sector: Findings from an Energy System Analysis</li> <li>• Akhil Joseph &amp; P. Balachandra - An Energy Internet Architecture Based on Private Blockchain</li> </ul>
<b>12:00 -1:00pm</b>	<b>Lunch (potential to have boxed lunch)</b>
<b>1:00 – 2:00pm</b>	Wrap-up Day 2 (Committee members moderate with research themes/questions based on previous presentations).
<b>2:00 – 2:40pm</b>	Break out section or steering committee member meeting
<b>3:00 - 4:30 pm</b>	School of Design and Environment Tour (Net Zero Energy Building)

**Workshop Committee:**

Chair: Chien-fei Chen, University of Tennessee, Knoxville  
Co- Chair: Khee Poh Lam, National University of Singapore  
Daniel Hil: National University of Singapore  
Yong X. Tao: Nova Southeastern University  
Carol Menassa: University of Michigan  
Yimin Zhu: Louisiana State University