



## RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems

Cleveland State University – Department of Mechanical Engineering

### BIOSENSING-ENABLED, WELLBEING-CENTRIC SUSTAINABLE BUILT ENVIRONMENT ECOSYSTEMS

*- Preparation and Network Sustainment Meeting*

**8:30 am – 3:00 pm, Monday, December 9, 2019**

**Washkewicz Hall 405**

**Cleveland State University, Cleveland, Ohio**

The NSF-funded Research Coordination Network (RCN) in Science, Engineering and Education for Sustainability (SEES) will hold a special working group meeting, organized by the RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE) and hosted at Washkewicz College of Engineering.

The meeting has two topics:

- Preparation for the June 8-9, 2020, US-UK international workshop on data sensing and analysis for sustainable human-building environment, building energy efficiency, and quantification for wellbeing and social equality;
- Progress on SHBE-RCN's long-term sustainment.

The meeting is a follow-up event after the July workshop in University of North Carolina, Charlotte. The participants will continue to discuss the tasks identified to develop a long-term, sustainable platform that enables researchers from multiple disciplines to continuously engage in active collaborations under a broader umbrella of **Wellbeing-Centric Human-Building Ecosystems** by employing **Big Data Analytics Research**, inspired by the NSF RCN-SEES vision, and identified from previous SHBE-RCN workshops.

During the July workshop at UNC Charlotte, the participants engaged in the discussion by in the following themes:

- 1) Fostering new research collaboration related to
  - Human wellbeing-centric technology
  - City-scale research on sustainable human building ecosystems
  - Multi-scales analysis: building, neighborhoods, cities, metros and states
  - Efforts to influence individual behavior related to sustainability
  - Economic and social equity and the spatial benefits from sustainability technology
  - Disaster resilience and sustainability.
- 2) Outreach, information dissemination and communication
  - Shared vocabulary and translation of technical information
  - Repository of challenges and research questions, multi-scale, interactive reference data sets
  - Join symposia/special issue of interdisciplinary publication (journal)
  - Impact of RCN on public/research community
  - Trusted academic-industrial partnership.
- 3) Education and talent development
  - New ways to engage young researchers
  - Additional resource for multi-disciplinary studies.

We encourage participation by data scientists, political/policy scientists, social scientists, engineers, computer scientists, architects, policymakers, and industry to discuss big data analytics research including the application of statistical methods, machine learning/deep learning methods, and visual analytic methods as well as big data architectures to the above-listed topics. The participation is by invitation only. Please RSVP to PI, Dr. Yong Tao ([y.tao19@csuohio.edu](mailto:y.tao19@csuohio.edu)) by November 25, 2019.

#### **About SHBE-RCN**

The SHBE-RCN is an NSF-RCN aiming at developing a collaborative research platform centered on overcoming bottlenecks in engineering, software and social/economic sciences that impede wider application of sustainable building technology. The network activities will focus on defining an innovative, new interdisciplinary area, "Sustainable Human-Building Ecosystem (SHBE)," that integrates human behavioral science, social and economic sciences in tandem with sciences of building design, engineering, and metrology for data validation of building energy consumption and occupant comforts. For more information, check [www.shbe.org](http://www.shbe.org) or contact PI Dr. Yong Tao at [y.tao19@csuohio.edu](mailto:y.tao19@csuohio.edu).