Dr. Aya Hagishima has been awarded the AIJ Prize 2015 for her contribution to the research field of architectural environmental engineering. Dr. Hagishima’s research focuses on clarification of the effects of urban vegetation and buildings on urban climate.

In recent years, climatological phenomena caused by various human activities in urban areas, i.e., urban climate, has become an important issue. The most well-known and distinctive urban climate feature is known as an urban heat island. In this phenomenon, a high air temperature is exhibited in an urban region compared to the surrounding rural areas. Urban heat islands correspond with increased energy demands and pose health risks associated with heat-related illnesses in regions that experience hot summers.

Dr. Hagishima has conducted a series of experimental studies to improve the accuracy of urban climate forecasting, and to quantify the effects of various factors on the urban climate, including architectural design, urban planning, and urban vegetation. In her research, three distinctive methods are applied: field observations of micro climates in real-world urban sites, outdoor experiments using an idealized scale model of an urban building array on a scale of 1:5, and wind-tunnel experiments. These methods have yielded a comprehensive database on urban forcing in terms of momentum, heat, and scalar transport phenomena. Furthermore, Dr. Hagishima has developed several innovative implementation techniques to translate experimental or theoretical research output for use by architects and urban planners, so as to facilitate the design of a sustainable and comfortable city.