

## Pre-conference workshop – AGILE 2020

Chania, Monday 15 June 2020

<https://agile-online.org/conference-2020>

### 1. Workshop name/title (and acronym is applicable)

Living structure as organized complexity for identifying and planning sustainable built environments

### 2. Description of the workshop by listing topic(s), objective(s) and planned outcome(s)

#### 2.1 Topic(s)

Alexander's wholeness, structural perspective of space, spatial cognition, big data analytics, Scaling Law, Tobler's Law, differentiation, adaptation

#### 2.2 Objective(s)

To advocate living structure as a scientific foundation of spatial data science

To bridge two fundamental concepts of geography through living structure or wholeness: space and place

To practise on the topological and scaling analysis tools:

- Axwoman (<http://giscience.hig.se/binjiang/axwoman/>),
- head/tail breaks ([https://en.wikipedia.org/wiki/Head/tail\\_Breaks](https://en.wikipedia.org/wiki/Head/tail_Breaks)), and
- NaturalCitiesModel (<http://www.arcgis.com/home/item.html?id=47b1d6fdd1984a6fae916af389cdc57d>)

#### 2.3 Planned outcome(s)

The workshop is likely to stimulate fruitful discussions surrounding research on place, the human experienced space. Actually, place is little subjective, and it can be well quantified and measured through the very concept of living structure or wholeness and the related spatial analysis tools.

## Abstract

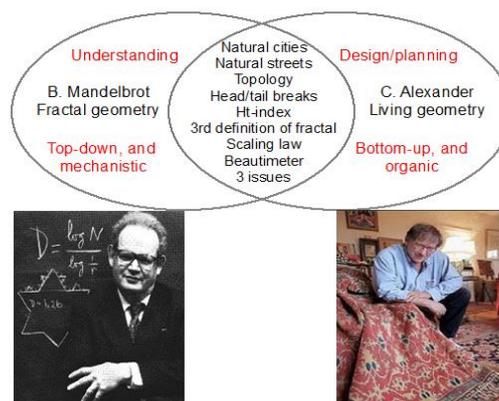
According to Christopher Alexander, living structure is defined as a mathematical and physical structure of space that pervasively exists in our surroundings: not only in nature, but also in things we human beings make or build. This workshop provides a structural perspective on goodness of space – both large- and small-scale – in order to bridge together the two concepts of space and place through the very concept of wholeness or living structure. A space is good – genuinely and objectively – if its adjacent spaces are good, the larger space to which it belongs is good, and what is contained in the space is also good. Eventually, goodness of space is considered a matter of fact rather than of opinion under the new view of space: space is neither lifeless nor neutral, but a living structure capable of being more living or less living. Under the new view of space, geography will become part of complexity science not only for understanding complexity of the Earth's surface, but also for effectively planning built environments to be more livable or more sustainable.

The major theme of the workshop – under the framework of fractal or living geometry – is not only to better understand space, but also to create good space, with which people have a good sense of feelings such as belonging, healing, and well-being. It is based on a series of novel concepts that are developed to fill the gap between these two geometries, or the gap between the understanding and the planning; see the following diagram. For example, three fundamental issues of geography about space: (1) how it looks, (2) how it works, and (3) what it ought to be; two fundamental laws of geography: (1) scaling law, and (2) Tobler's law. The workshop will combine with lectures, demos, hands-on exercises, and discussions on related works, e.g.

Jiang B. (2019b), A recursive definition of goodness of space for bridging the concepts of space and place for sustainability, *Sustainability*, 11(15), 4091; <https://doi.org/10.3390/su11154091>

Jiang B. (2019a), New paradigm in mapping: A critique on Cartography and GIS, *Cartographica*, 54(3), 183–205. Reprinted in the magazine *Coordinates*, October issue, 9–21.

Omer I. and Jiang B. (2015), Can cognitive inferences be made from aggregate urban flow data? *Computers, Environment and Urban Systems*, 54, 219–229.



Prospected participants are encouraged to read the above three papers prior to the workshop. The hands-on exercises are largely based on Axwoman, head/tail breaks, and NaturalCitiesModel, and the related concepts such as natural cities, natural streets, and the third definition of fractal.