Panel 5: Robert's Position

Cognition Challenges in Digital Society

Nice
June 2023

Dr. Robert Laurini

- **Cognition and Reasoning in Urban Planning**
  - *"Cognition provides the foundation for reasoning by acquiring knowledge and understanding"*
- **Question: Can AI assist urban planning and how?**
- **Two ways:**
  - Management of knowledge acquired by experts, from big data, etc.
    - Knowledge bases built on rules and spatial inference engines (2D and 3D geometric reasoning)
  - Deep learning with training based on previous experiences
    - For instance, designing ground plans
- **Origin of the intervention**
  - Many works in computing for urban and environmental planning (GIS, etc.)

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- **Urban design**
  - Usually integrating
    - new concepts for organizing space
    - new social problems to solve
    - new environmental approaches
    - economic constraints (costs, etc.)
  - Urban project: collaborative effort (urban planners, elected officials, participating citizens, building contractors, etc.)
    - Usually with multiple steps and different modalities of decisions made at each step
  - How to boost cross-fertilization between multiple stakeholders?
  - How to stimulate creativity?
  - What about negotiation in spatial reasoning?
- **Orientation**
  - Mixing artificial, human and collective intelligence
  - What if each actor has his/her own AI-tool?

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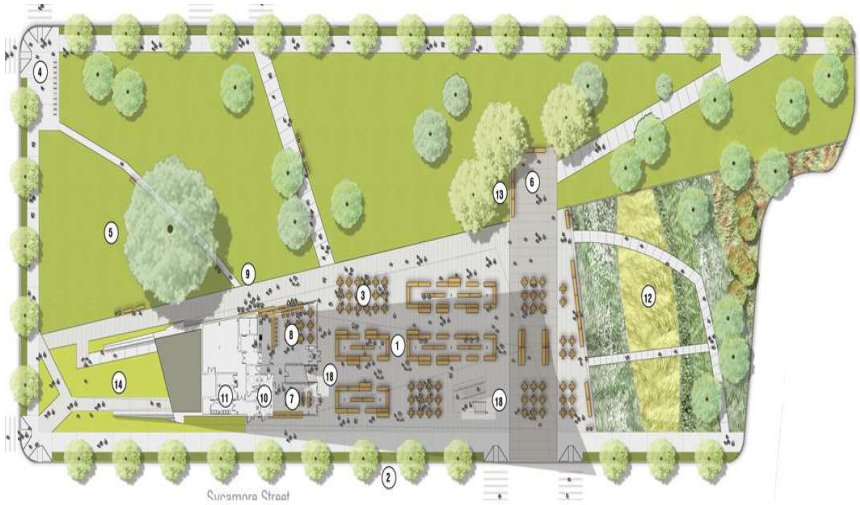
- Ground plan



Main reasoner: building contractor:
Requirements, building laws, landuse plans, best practices, costs
Then: subcontactors

- Urban design/renewal

Main reasoners: city officials, citizens, activists
Requirements, building laws, landuse plans,negotiations
Then: building contractors and subcontractors