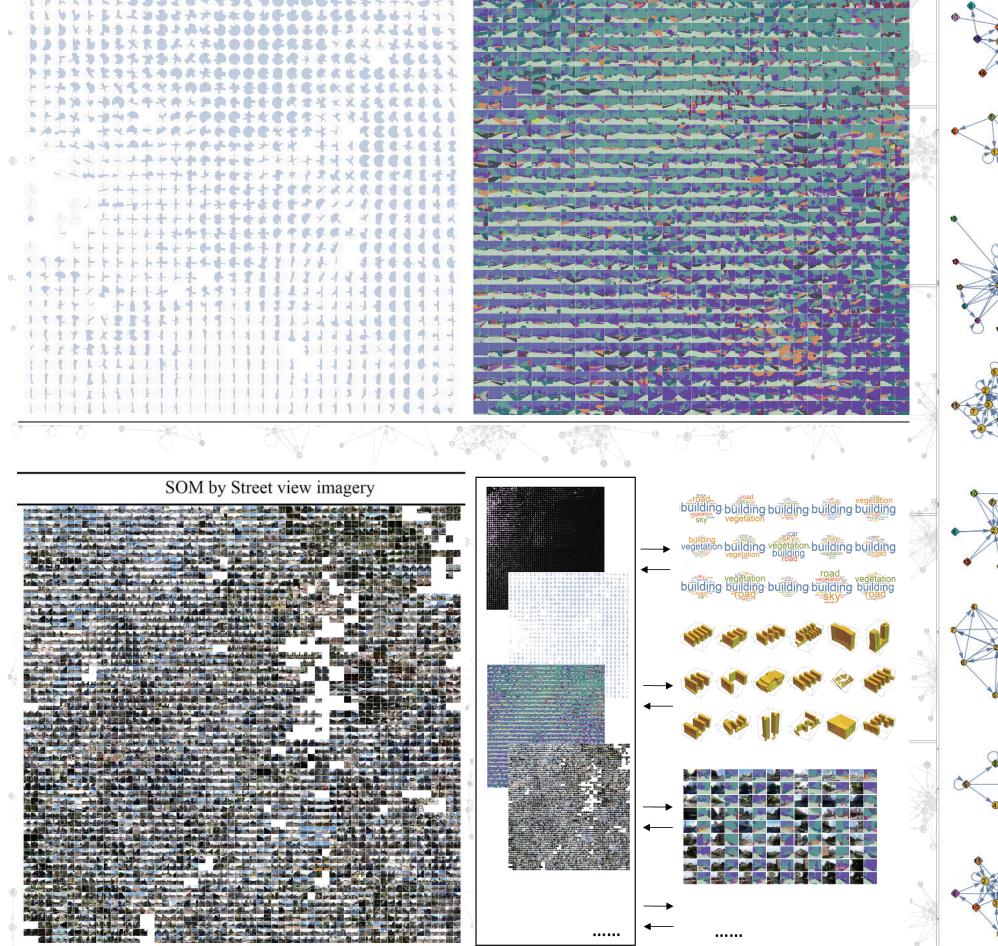
Science

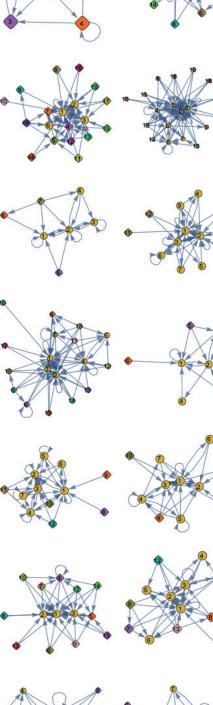
A systematic way of linking city science and urban design is significant for progressing both sides. Both urban design and science can be enhanced by allowing individual intuitional knowledge as input to derive more generalizable evidence.

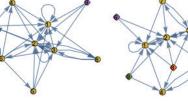
Urban Patterns

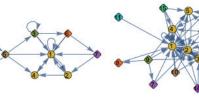
SOM by Spatial Elements

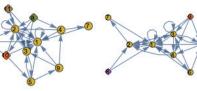
SOM by Perceptional Elements











Design

Complex urban elements - the topics of science and design - need multi-source data and representations. We see a lack of digital modeling approaches for integrating heterogeneous data and facilitating interactions between humans and machines.

Individual observations

| | | | | | 0 | | 4 | | | -00 | 9 | | | |
|---|-------------|--------------------------------------|---------------------------|-----------------------------------|---------------------------|---|-------------------------------|---|---|----------------------------|-----------------------------------|---|----------------------------------|---|
| | | | | | | inder | | © building vegetation erroad | 2 | | | | | |
| | 10 | Location:118.77 | 1,32.0227 | skyroad | | road | sky | | Location:110.632, 32.3413 | Location: 118.835, 32.3423 | Location:118.014,31.0436 | Location:118.761,32.2359 | Location: 118.772, 32.0225 | > |
| | 13 | | I de se autorité | sky vegetation wat taitte sign | vegetation | vepetation | nder tette sign motorsycle | building bui | Location:118.742, 32.1369 | Location:110.742, 32.1368 | Location: 118. 742, 32, 1364 | Location: 118.742, 32.1366 | Location:118.742, 32.1365 | |
| | | Location:118.78 | 4,32.0342 | | | | | | Location:118.736,32.1531 | Location:110.736, 32.153 | Location : 118 . 767 , 32 . 0207 | Location:118.759,32.0464 | Location:119.021, 31.6592 | |
| | | Jocation:118.77 | CARLES IN CARLES | | 1. 100 | | sitewak C K V/person | n building | | Location:118.818,31.9714 | Location:118.019,31.9714 | Location:118.805, 32.3322 | Location:110.785,32.0347 | ŀ |
| | | | | terrer SKY and | building | road | road | n vegetation | Location:118.814, 32.1392 | Location:118.777,32.0352 | Location:118.783,32.0559 | Location:118.779,32.0578 | Location:110.76,32.0532 | |
| | 9 <u> </u> | .ocation:118.83 | 2, 32.3413 | | and the | vegetation building b | | n vegetation road | Location:110.034, 32.344 | Location:110.734, 32.2053 | Location:118.009, 32.0747 | Location:110.020, 32.0177 | Location:118.008, 32.0748 | |
| | | | | vegetatio | road | sidewalk Infoce | vegetation building | | Location:110.793, 32.3305 | Location:110.043, 32.3649 | Location:110.037, 32.3215 | Location:130.043, 32.35 | Location:110.095, 32, 3211 | |
| 3 | - - 1 | .ocation:118.73 | 4,32.0009 | × | SKy A | | | ٩ | Location: 118, 734, 32, 0009 | Location:118.706,31.9935 | Location:118.035, 32.3511 | Location:118.835, 32.3506 | Location:118.729, 31.9947 | |
| | ٥ | Step 1 | | | | | | 6 | Step 1 + | | | | | |
| | G | ecation:112.784,22.042 | Scettor:118.786,82.1891 | Location:111.125,42.355 | resign:110.114, 82.14 | sign:110.524,82.1004 | n:118.657,01.8805 | on:111.772,91.976 | 20001118-032,023433 2000118-032,023433 2000118-032,023433 | ation110.79.22.048 | 29 Lestimile 7, 1, 1, 991 | intility 74,12,027 | .6941 Leastion 110.055, 22.002 | |
| × | | Location:115.544,21.9247 | Eration: 15.61, 22.327 | Location: 111, 100, 92, 0131 | estion:112.714, 22.024 | nen: 110. 643, 13. 6931 | n:113.745),22.003 | an 111.773, 22.049 | Constant 127, 529, 527, 527, 527, 527, 527, 527, 527, 527 | | | | 137 Learnin 11, 77, 2, 541 | |
| | | Locasicon: 118.794, 91.946 Step 2 | Location:113.796, 32.044 | Location:118.822,92.1022 | reation:118.767,92.0777 | nien:118.737,32.0833 | m:118.789,22.0891 | n:118.776, 32.1536 | teessteer:110.041,32.3403 te Step 2 ↓ | antine:118.77, 82.238 | a Leaster:118.701,01.919 | in::110.797, 22.234 Location::110.84, 3 | . 344 Examine: 116. 917, 92. 93 | |
| • | | Location:119.794,92.094 | Lecation:118.607,92.084 | Location:121.747,92.000 | reston: 113, 783, 82, 081 | tem:111.754,32.083 | n:119.727,32.055 | m.115.62, 92.0628 | Iscretisni 111.932/12.941 | estien: 111.017,12.401 | 7 Leestien:18.187,82.444 | Limila. Hof J2: 1447 | | |
| | • | | | | | | | | | | | | | |
| | | Location:118.77, 32.0557 | Locamion:118.791, 22.0391 | Location:118.728, 32.0559 Lo | cation: 118.174, 32.0628 | nien:118.782, 32.0345 | m:118.779,32.0515 Locatio | en:118.772, 32.065 | Location:118.824,32.2473 Lo | cation:118.075, 12.322 | E2 Location:110.055,52.3378 Locat | ion:118.841,32.3405 | 2.2451 location:118.639, 32.3409 | |

We are working towards a methodology for linking and mapping city science and design strategies. It integrates data streams, associates topical semantic urban elements, and enables a dialogue between users and machines in digital models.

We showcase a search engine, providing an instrument for planners and designers to navigate among existing cases. By enabling easy retrieval of related cases, such a search engine could hence support case-based reasoning related to urban design hypotheses about which characteristics make a particular case good (or bad) and would provide evidence to support or contradict case-based assumptions.