



Complexity Science Seminar

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ICT618B 4:00 PM

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*Graph, networks & the competition for space ..
Generating natural forms
with the space colonization algorithm*

An important question in the analysis of pattern formation in nature is the character of interactions between the elements of a developing pattern. We will focus on competition for space as a major mechanism of morphogenesis, and present an algorithm that simulates colonization of space by the elements of a growing branching or networked structure.

The key idea behind this algorithm is an explicit representation of free space using point sets. Using this algorithm, we show that competition for space is sufficient to reenact several classes of patterns in nature, including leaf venation patterns and branching forms of trees.