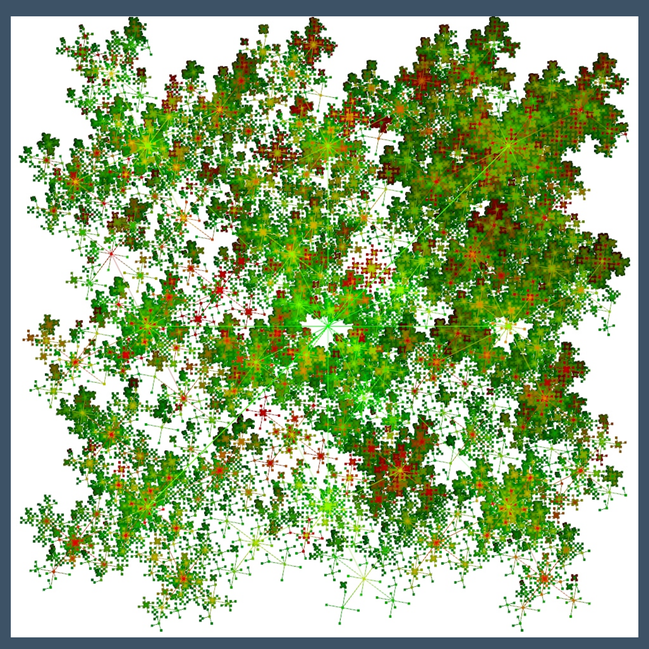
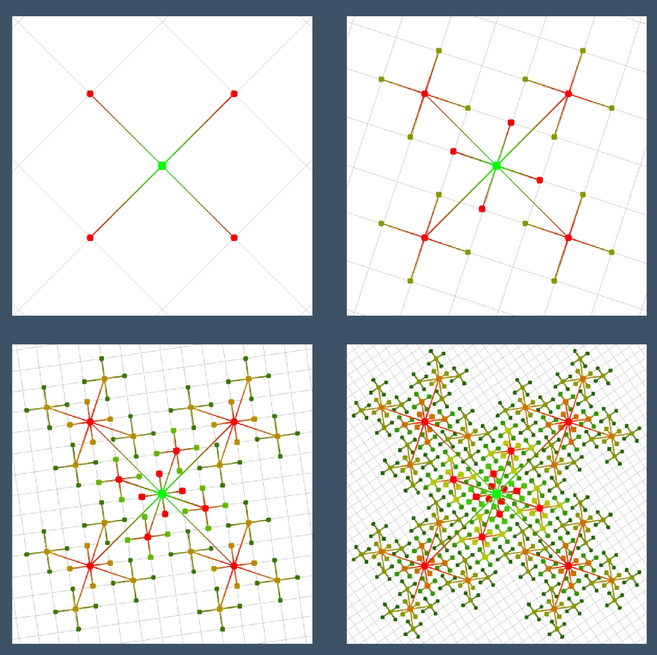
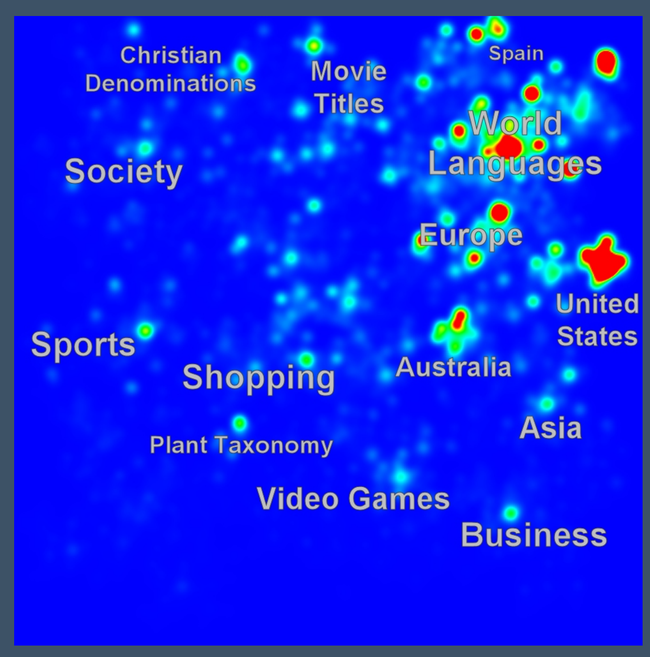
A Point-Based Layout for Large Hierarchies



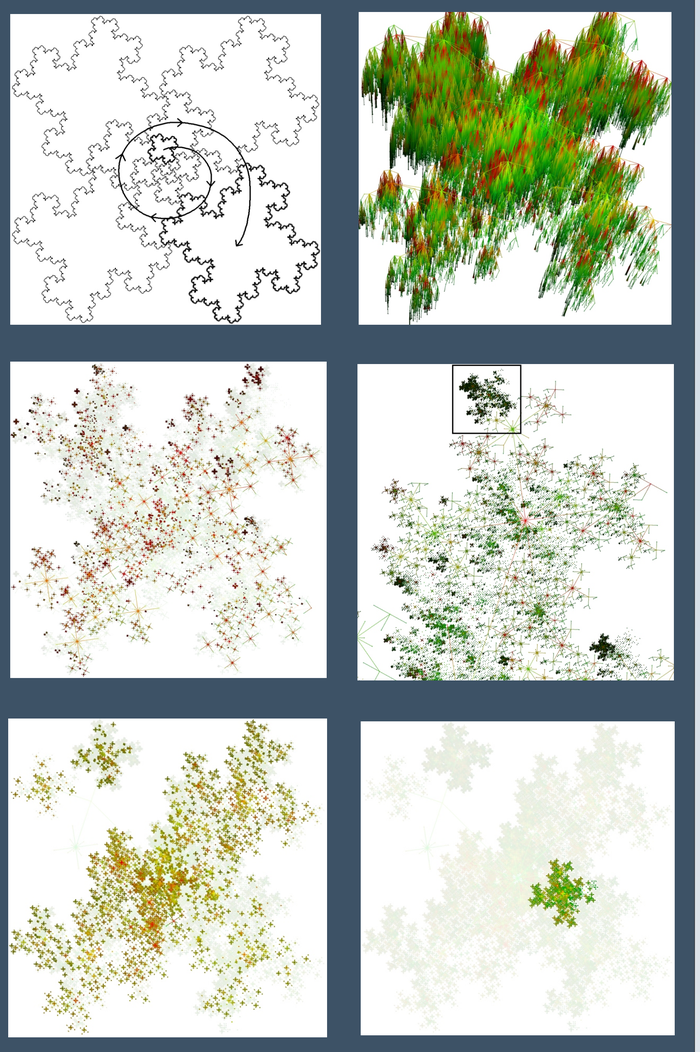
Example of a point-based layout for the DMOZ classification hierarchy with 754403 nodes, of which 576818 nodes are leaves.



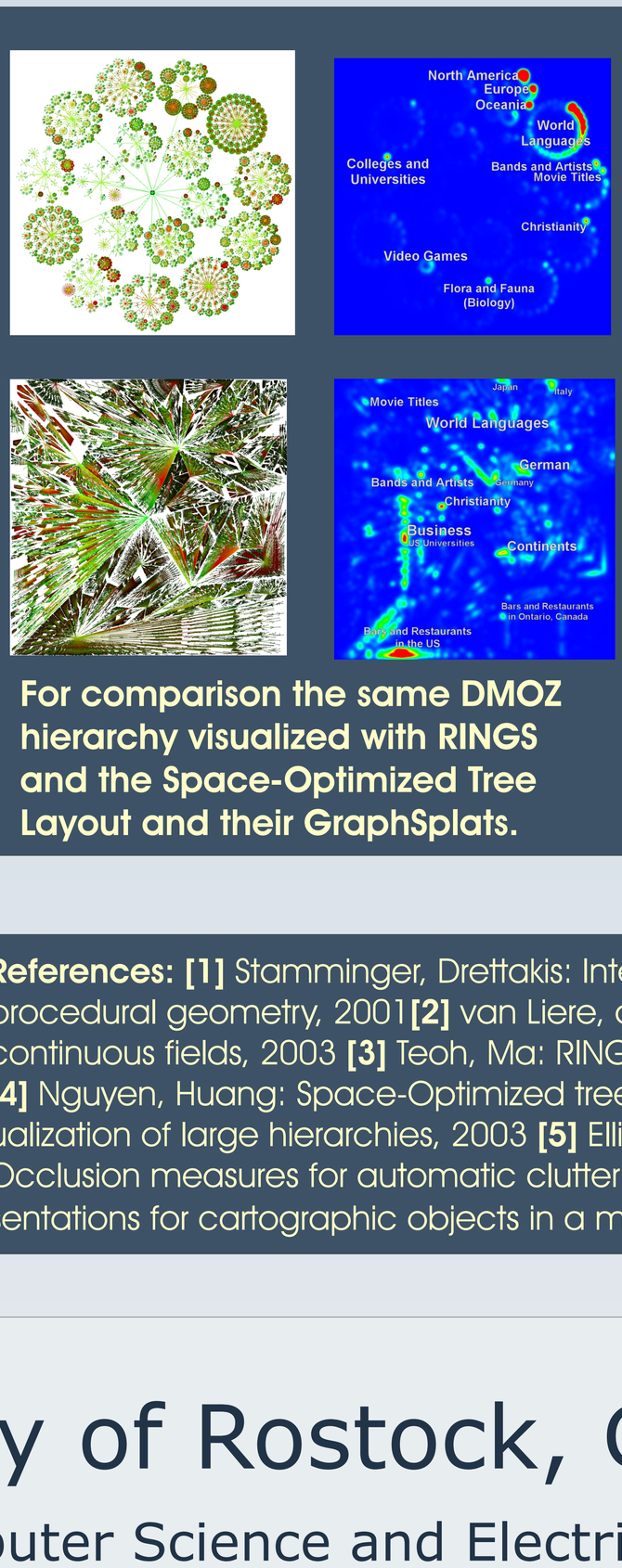
The adaptive SQRT(5)-sampling method from the field of point-based rendering is used to achieve a tight packing of nodes.



This GraphSplat of the 1st figure shows where our layout produces extremely dense regions that are worthwhile to be explored further.

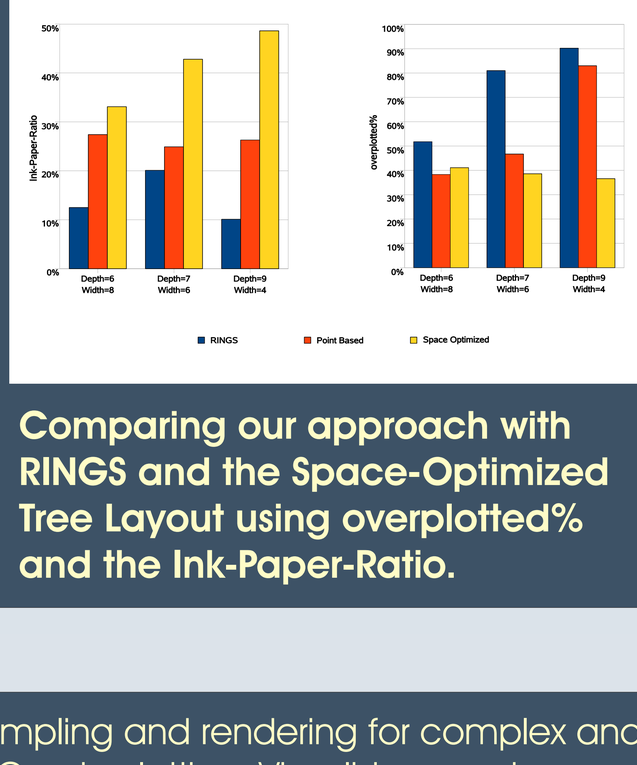


Different interaction techniques are well integrated in our layout: rotation, tilting into 3D, zoom, filter for width, depth, and individual subtrees.



For comparison the same DMOZ hierarchy visualized with RINGS and the Space-Optimized Tree Layout and their GraphSplats.

depth	width	no. of nodes	no. of leaves thereof
6	8	299.593	262.144
7	6	335.923	279.963
9	4	349.525	262.144



Comparing our approach with RINGS and the Space-Optimized Tree Layout using overplotted% and the Ink-Paper-Ratio.

References: **[1]** Stamminger, Drettakis: Interactive sampling and rendering for complex and procedural geometry, 2001 **[2]** van Liere, de Leeuw: Graphsplatting: Visualizing graphs as continuous fields, 2003 **[3]** Teoh, Ma: RINGS: A technique for visualizing large hierarchies, 2002 **[4]** Nguyen, Huang: Space-Optimized tree: a connection+enclosure approach for the visualization of large hierarchies, 2003 **[5]** Ellis, Dix: The plot, the clutter, the sampling and its lens: Occlusion measures for automatic clutter reduction, 2006 **[6]** Frank, Timpf: Multiple representations for cartographic objects in a multi-scale tree - an intelligent graphical zoom,1994

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