Data-Driven 3D Modeling

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Abstract:
Providing easy-to-use tools for the creation of detailed three-dimensional content is a key challenge in computer graphics. In this talk, I will argue that the key to making 3D modeling more accessible is to endow modeling interfaces with a higher-level understanding of the structure and semantics of three-dimensional shapes. Such understanding can be encapsulated in data-driven statistical representations of shape structure that allow modeling interfaces to reason about incomplete shapes. I will illustrate this approach with a number of modeling interfaces developed in my lab, including a recent assembly-based interface that is powered by a probabilistic graphical model of shape structure.

Bio:
Vladlen Koltun is an Assistant Professor of Computer Science at Stanford University, working in computer graphics and interactive techniques. His research focuses on three-dimensional content creation and character animation. His prior work in theoretical computational geometry was recognized with the NSF CAREER Award and the Alfred P. Sloan Fellowship.