KEYNOTE TALK

Monday, October 3, 2022 at 1:30pm

Sensible Machine Learning for Geometry

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Abstract: From 3D modeling to autonomous driving, a variety of applications can benefit from data-driven reasoning about geometric problems. The available data and preferred shape representation, however, varies widely from one application to the next. Indeed, the one commonality among most of these settings is that they are not easily approached using data-driven methods that have become de rigueur in other branches of computer vision and machine learning. In this talk, I will summarize recent efforts in my group to develop learning architectures and methodologies paired to specific applications, from point cloud processing to mesh and implicit surface modeling. In each case, we will see how mathematical structures and application-specific demands drive our design of the learning methodology, rather than bending application details or eliding geometric details to apply a standard data analysis technique.

Speaker Bio-Sketch: Justin Solomon is an associate professor in the MIT Department of Electrical Engineering and Computer Science. He leads the Geometric Data Processing Group in MIT's Computer Science and Artificial Intelligence Laboratory, which studies problems at the intersection of geometry, large-scale optimization, and applications like computer graphics and machine learning.