ARAI LAB.

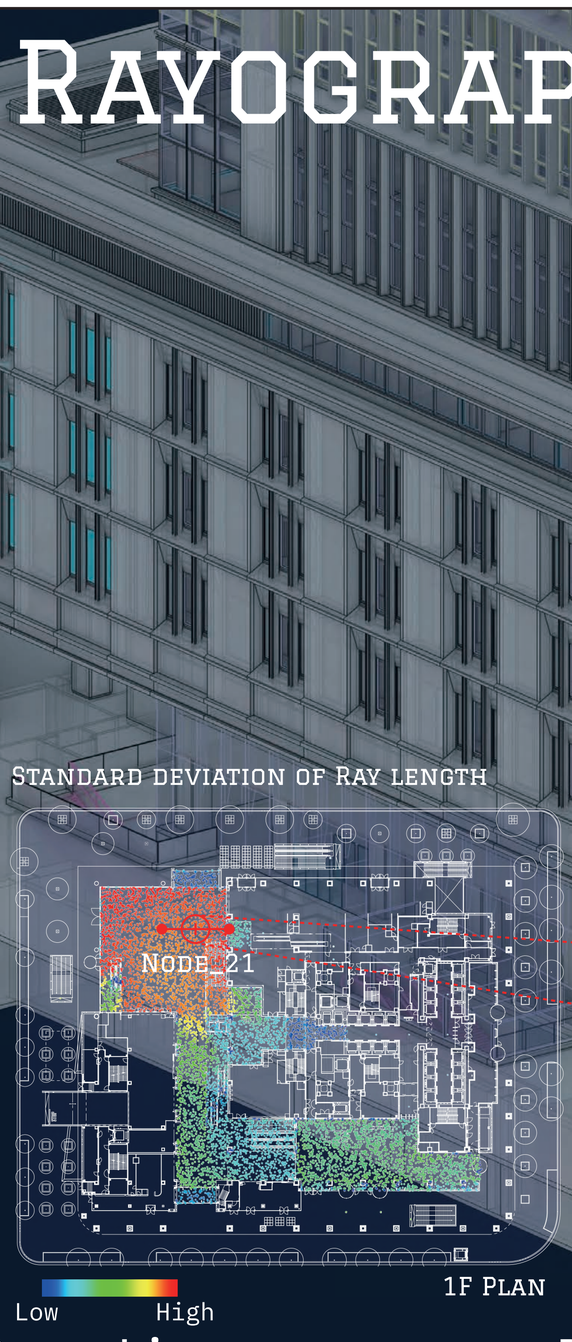
Reimagining Architecture with Science and Data

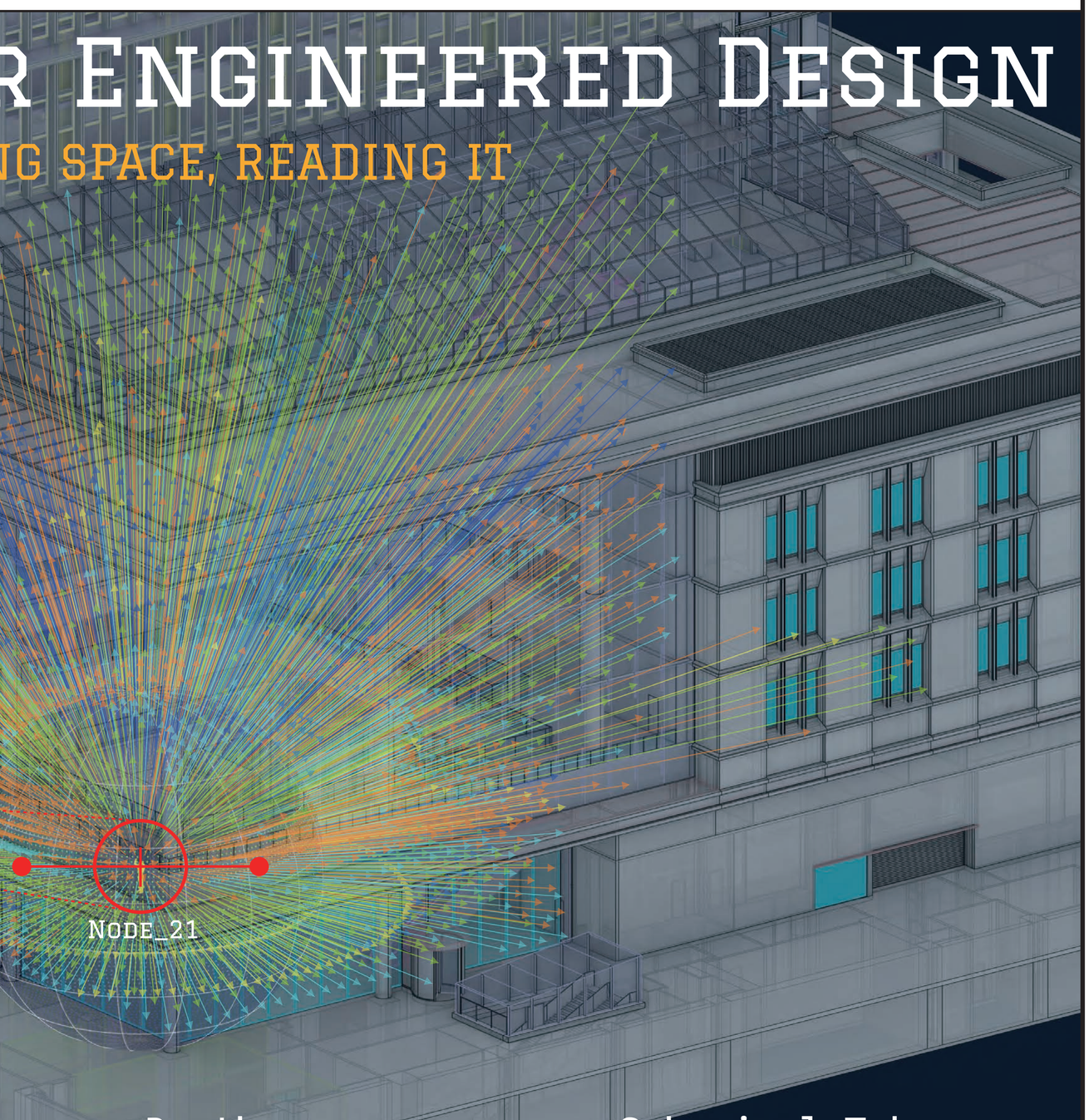
Department of Human and Social Systems

Information-centric design

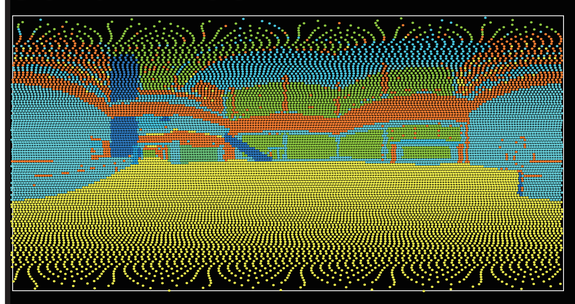
Rayography for Engineered Design

NOT SEEING SPACE, READING IT

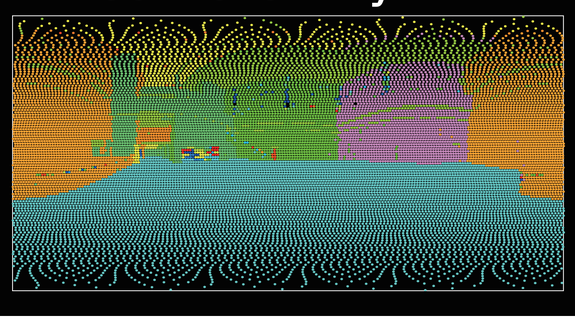




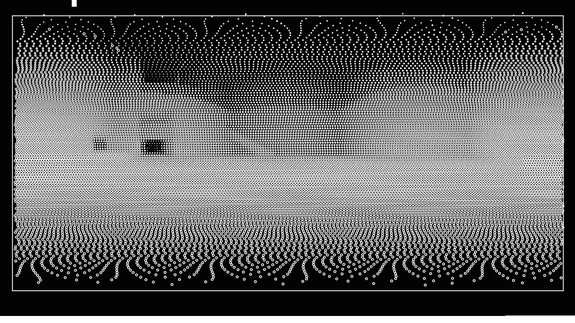
Semantics



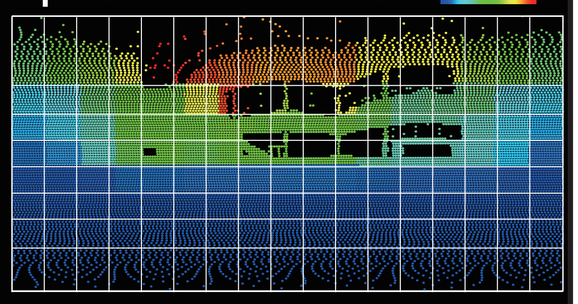
Directionality



Depth



Spherical Token Low High



RAYOGRAPHY × FlowVis:

Bridging Architectural Design and Spatial Analysis

Advances in computation enable us to sample space more densely and represent it as high-dimensional information.Our laboratory is developing Rayography, a new spatial representation that describes space as a set of Rays.This approach shifts the understanding of space from a collection of objects to a distribution of responses such as visible distance.Using Rayographs derived from geometric data such as BIM, and FlowVis to predict pedestrian flow, we study Engineered Design—an information-oriented design methodology that unifies analysis and design.

LAYER 3 : FlowVis

From Rayography's directional distributions to predicted pedestrian flow and dwell.

LAYER 2 : Rayography

A ray-based spatial representation that preserves high-resolution information and is well suited to machine learning.

LAYER 1 : 3D Geometry

Geometric boundaries and the arrangement of objects.